

2014

Washington University School of Medicine bulletin, 2014-2015

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Washington University School of Medicine bulletin, 2014-2015. Central Administration, Publications. Bernard Becker Medical Library Archives. Washington University School of Medicine, Saint Louis, Missouri. http://digitalcommons.wustl.edu/med_bulletins/115

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Bulletin of the School of Medicine

2014-2015

Washington University in St. Louis

The School of Medicine's official course catalog

The Bulletin of Washington University School of Medicine presents the academic policies, services, and course and degree program offerings of the school. It also includes academic calendars, leadership and directories for faculty, students and staff.

About

Washington University School of Medicine is a world leader in medical education, research and patient care. Its graduate programs in [medical education](#), [occupational therapy](#) and [physical therapy](#) are perennially ranked among the nation's best by *U.S. News & World Report*. Faculty lead a robust research enterprise, supported by \$325.2 million from the National Institutes of Health (NIH) in the fiscal year ending June 30, 2014. The school's physicians provide care for more than 430,000 children and adults each year, in partnership with nationally ranked [Barnes-Jewish Hospital](#) and [St. Louis Children's Hospital](#).

The Bulletin of Washington University School of Medicine represents the School's academic policies, services, and course and program offerings. For the most current information regarding academic programs and course descriptions and services available to students, please visit websites of the educational program of interest, accessible through the [Programs](#) section.

WUSTL Mission

Washington University's mission is to discover and disseminate knowledge, and protect the freedom of inquiry through research, teaching and learning.

Washington University creates an environment to encourage and support an ethos of wide-ranging exploration. Washington University's faculty and staff strive to enhance the lives and livelihoods of students, the people of the greater St. Louis community, the country, and the world.

Our goals are:

- to welcome students, faculty, and staff from all backgrounds to create an inclusive community that is welcoming, nurturing, and intellectually rigorous;
- to foster excellence in our teaching, research, scholarship, and service;
- to prepare students with attitudes, skills, and habits of lifelong learning and leadership thereby enabling them to be productive members of a global society; and
- to be an institution that excels by its accomplishments in our home community, St. Louis, as well as in the nation and the world.

To this end we intend:

- to judge ourselves by the most exacting standards;
- to attract people of great ability from diverse backgrounds;
- to encourage faculty and students to be bold, independent, and creative thinkers;
- to provide an exemplary, respectful, and responsive

environment for living, teaching, learning, and working for present and future generations; and

- to focus on meaningful measurable results for all of our endeavors.

WUSM Mission and Vision

Our mission

Washington University School of Medicine will lead in advancing human health through the best clinical care, innovative research and the education of tomorrow's leaders in biomedicine in a culture that supports diversity, inclusion, critical thinking and creativity.

Our vision

In leading the advancement of human health, Washington University School of Medicine will:

- cultivate excellence and collegiality within an inclusive community
- attract and develop a diverse, talented, academic workforce
- lead the revolution in biomedicine
- enhance our intellectual and technological environment to foster exceptionally creative research and education
- develop and maintain excellent clinical programs to provide outstanding care
- observe the highest standards of ethics, integrity and compassionate care
- apply advances in research and medicine to the betterment of the human condition locally and globally

History

The education of physicians at Washington University began in 1891. Under an ordinance enacted April 14, 1891, establishing a Medical Department of Washington University, the St. Louis Medical College (an independent medical college in St. Louis) was brought under the wing of the well-established University. The faculty of the college eagerly agreed to the union, stating “Most of the great medical schools of the world have always been integrant departments of universities, and the examples which America furnishes give added testimony to the fructifying influence of the contact of students and teachers of professional schools with the workers in universities.” Eight years later, the Missouri Medical College (another independent college in the city) also joined Washington University, and thus the two most famous medical colleges in the city were merged with the University.

In 1909, Abraham Flexner began a survey of 155 medical schools in the United States and Canada for the Carnegie Foundation for the Advancement of Teaching. The survey created a national sensation. Some schools collapsed, others pooled their resources, while still others reorganized. The Medical School of Washington University did not escape criticism. In the report Flexner made to Henry Smith Pritchett, Ph.D., president of the Carnegie Foundation for the Advancement of Teaching and former professor of astronomy at Washington University, he said that one of two courses must be adopted: “The department must be either abolished or reorganized.”

Dr. Pritchett mailed the report to Robert S. Brookings, a St. Louis merchant who was president of the Board of Directors of

Washington University. Brookings was shocked and immediately went to New York to see Flexner, demanding proof that the conditions were as bad as described. Both returned to St. Louis and the two men went through the School. In less than two hours, Brookings was convinced that drastic action was necessary if the School was to be one of the foremost institutions of medical education and research. The meeting in 1909 of Brookings and Flexner was of unsurpassed significance in the history of the Washington University School of Medicine, for it led to the complete reorganization of the School and the establishment of the present Medical Center. Abraham Flexner inspired the dream of a model medical school; Robert Brookings accepted the challenge, and with the energy and vision which characterized all his enterprises, made the dream a reality.

No time was lost in making changes. The Bulletin of the Medical School for July 1910 made the following statement: "The Corporation of the University, becoming convinced that in no other direction could greater service be rendered than through a great, modern medical school, determined to reorganize the School and to place it in the front rank of American medical institutions. It has called to the heads of a number of leading departments the ablest men it could secure."

When Robert A. Barnes died in 1892, he left a will which directed the trustees of his estate to use \$840,000 for the erection and equipment of a hospital "for sick and injured persons, without distinction of creed, under the auspices of the Methodist Episcopal Church, South." Investigation by the trustees into the cost of building a modern hospital convinced them that the sum was not large enough to build an efficient, fireproof building, and they therefore invested the trust. By 1912 the value had increased to \$2 million, a sum which permitted the building of a hospital and left an endowment greater than the original fund.

At the same time the trustees were studying hospital construction,

Robert Brookings was studying medical schools. It was apparent to everyone concerned that the two projects, the building of a medical school and the construction of a modern hospital, were so interrelated that the purpose of each would be more successfully fulfilled by an affiliation. A medical school would provide a highly trained staff and would assure the most modern methods and superior laboratory facilities for the hospital. A teaching hospital would give patients superior care and, at the same time, provide the essential clinical experience consistent with modern medical teaching methods.

In the spring of 1912, construction was begun on the medical school and hospital buildings which today form the nucleus of the present center. The laboratories were moved from their old quarters in downtown St. Louis into the new buildings on Euclid Avenue and Kingshighway Boulevard during the summer of 1914, and late in the fall of the same year the activities of the Washington University Hospital were transferred to Barnes Hospital. Concomitantly, the St. Louis Children's Hospital, then located on Jefferson Avenue, became affiliated with the School of Medicine and moved to its new quarters in the Medical Center.

On April 28, 29 and 30, 1915, exercises were held to celebrate the completion of this group of buildings designed to promote the practice, the teaching and the progress of medicine. The dedication ceremonies marked what Dr. William H. Welch of The Johns Hopkins University called "one of the most significant events in the history of medical education in America." Robert S. Brookings, the one man most responsible for the reorganization, voiced the hope that "our efforts will contribute, in some measure, to raising the standard of medical education in the West, and that we will add, through research activities, our fair quota to the sum of the world's knowledge of medicine." These prophetic words have been realized.

In the ensuing years, the Medical Center has continued to grow, and now its facilities are among the best in the world. With the increase in size of the physical plant there has come a substantial increase in

the number of the faculty; the expansion has been made without compromise to the standards that marked the early development of the Medical Center. As a result, significant achievements in both research and clinical areas have been steadily recorded.

Administration

This section of the Bulletin presents major leadership bodies of Washington University, the School of Medicine, and Washington University Medical Center.

Board of Trustees: See Appendix

Please visit the [Board of Trustees](#) website for the list of current trustees and other information concerning the board.

Emeritus Trustees: See Appendix

Please visit the [Board of Trustees](#) website for the list of emeritus trustees and other information concerning the board.

Officers of the University Administration

Mark S. Wrighton

Chancellor

H. Holden Thorp

Provost and Executive Vice Chancellor for Academic Affairs

David T. Blasingame

Executive Vice Chancellor for Alumni and Development Programs

Michael R. Cannon

Executive Vice Chancellor and General Counsel

Larry J. Shapiro

*Executive Vice Chancellor for Medical Affairs and Dean of the School of
Medicine*

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Vice Chancellor for Public Affairs

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Vice Chancellor for Human Resources

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Vice Chancellor and Chief Information Officer

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Vice Chancellor for Research

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Assistant Vice Chancellor for Medical and Alumni Development Programs

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Assistant Vice Chancellor and Assistant Dean of Special Programs

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Senior Associate Dean for Human Research Protection

Alison J. Whelan, MD
Senior Associate Dean for Education

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Associate Dean for Medical Student Education

Koong-Nah Chung, PhD
Associate Dean for Medical Student Research and Assistant Dean for Admissions and Student Affairs

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Associate Dean for Human Studies

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Associate Dean for Graduate Medical Education

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Associate Dean for Student Affairs

Valerie S. Ratts, MD
Associate Dean for Admissions

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Associate Dean for Diversity

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Associate Dean and Director of the Bernard Becker Medical Library

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Associate Dean for Continuing Medical Education

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Assistant Dean and Chief Information Officer

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Assistant Dean for Career Counseling

Deborah A. Monolo

Assistant Dean for Academic Affairs and Registrar

Bridget O'Neal

Assistant Dean and Director of Financial Aid

Lisa H. Stevenson

Assistant Dean for Admissions and Director of Diversity Programs

Yi Zhang

Assistant Dean for Clinical Trials and Executive Director of the Center for Clinical Studies

Karen Winters, MD

Director of the Student and Employee Health Services — Medical Campus

Stephanie Brelsford

Assistant Registrar

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Raymond H. Wittcoff

Roma Broida Wittcoff

Joyce F. Wood

Pamela Gallin Yablon, MD

Officers and Committees of the Faculty

This section of the Bulletin presents faculty committees, which govern various aspects of School of Medicine activities related to research, patient care and education. Their purpose is to help ensure that the school's activities are carried out in compliance with university policies as well as state and federal law.

Executive Faculty

Voting members

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Executive Faculty*

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Azad Bonni

Steven A. Edmundowicz

Vice Chair, ECFC

Richard A. Chole

John A. Cooper

Interim Chair

Ralph G. Dacey Jr.

Timothy J. Eberlein

Alex S. Evers

Victoria J. Fraser

Dennis E. Hallahan

Robert Mercer

Chair, ECFC

David M. Holtzman

Todd P. Margolis

George A. Macones

Robert P. Mecham

Jeffrey D. Milbrandt

Regis J. O'Keefe

Richard L. Wahl

Jennifer A. Delaney

Voluntary Faculty Representative

James B. Skeath

Vice Chair, ECFC

David W. Piston

Lilianna Solnica-Krezel

Alan L. Schwartz

Herbert W. Virgin

Charles F. Zorumski

Attending

Mark S. Wrighton

Chancellor

Ex officio

Holden Thorp

Provost

Ex officio

Faculty Council

The Faculty Council consists of all full-time members of the faculty with the rank of professor, associate professor, assistant professor and those instructors who have been on the faculty for at least three years. The officers and executive committee are listed below. Their service ends in June of the year in parenthesis after their name.

Executive Committee of the Faculty Council (ECFC)

Robert Mercer, PhD (2015)

Chair

Steven A. Edmundowicz, MD (2015)

Vice Chair

Paul C. Bridgman, PhD (2015)

Vice Chair Elect

Clinical Representative to the Executive Committee of the Faculty Council

Rajendra S. Apte, MD, PhD (2015) *serving remaining term of Dr. Edmundowicz

Peter D. Panagos, MD (2015) *serving remaining term of Dr. Sheline

Mary E. Klingensmith, MD (2016)

Jennifer S. Stith, PT, PhD, LCSW (2016)

James J. Fehr, MD (2017)

Corey R. Deeken, PhD (2017)

Preclinical Representative to the Executive Committee of the Faculty Council

Sheila Stewart, PhD (2015)

Peter M. Burgers, PhD (2016)

Kendall J. Blumer, PhD (2017)

Research Track Representative to the Executive Committee of the Faculty Council

Nancy L. Baenziger, PhD (2015)

Amy McQueen, PhD (2016)

Program or Division Representative to the Executive Committee of the Faculty Council

Beth Crowner, PT, DPT (2015)

Divisional Representative to Faculty Senate Council

Scott Saunders, MD, PhD (2014)

William Clark, PhD (2015)

Elected Member of Practice Plan Board of Directors

Jeffrey Crippin, MD (2016)

Ellen Lockhart, MD (2016)

Medical School Faculty Rights Committee

Robert Mercer, PhD (2015)

Steven A. Edmundowicz, MD (2015)

Sherrie Hautt, MD, Co-Chair (2016-A)

Catherine E. Lang, PT. PhD (2016-A)

Leonard B. Maggi, Jr., MD (2016-A)

Kim A. Carmichael, MD (2017-A)

Andrew Galakatos, MD (2017-A)

Gregory F. Wu, MD, PhD (2017-A)

Academic Freedom and Tenure Hearing Committee (University Committee)

J. Philip Miller (2015- R)

Jacob Buchowski (2015-A)

Jennifer S. Lawton (2017-R)

David B. Clifford (2017-A)

Ad Hoc ECFC members

Diana Gray, MD (Office of Faculty Affairs)

Anne Glowinski, MD (Academic Women's Network)

Animal Studies Committee

Dana Abendschein

Chair

Steven L. Leary

Committee on the Academic and Professional Evaluation of Students

Linda J. Pike, PhD

Chair

Laura J. Bierut, MD

Paul Bridgman, PhD

Steven Cheng, MD

Erika C. Crouch, MD, PhD

Dehra Glueck, MD

Henry Huang, PhD

Nigar Kirmani, MD

Robert W. Mercer, PhD

Jeffrey Peipert, MD

Jane Phillips-Conroy, PhD

Deborah Rubin. MD

Deborah A. Monolo

Ex-Officio

Lisa M. Moscoso, MD, PhD

Ex-Officio

Deborah Rubin. MD

Valerie Ratts, MD

Ex-Officio

Will R. Ross, MD, MPH

Ex-Officio

Alison J. Whelan, MD

Ex-Officio

Karen Winters, MD

Ex-Officio

Committee on Admissions

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Chair

Rebecca Aft

Natalia Akopyants

Rebecca Bavolek

Raykee Bhayani

Elisa Birnbaum

Martin Boyer

Alan Braverman

Angela L. Brown

Bruce Bryan

Arnold Bullock

Lewis Chase

Praveen Raju Chenna

Koong-Nah Chung

Traves Crabtree

Sharon Cresci

John S. Daniels

Maria C. Dans

Matthew Dobbs

W. Edwin Dodson

Ian Dorward

Oluwadamilola Fayanju

Andrew Galakatos

Alan Glass

Joel Goebel

Melody Goodman

Ramaswamy Govindan

Ann Gronowski

Andrea Hagemann

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Gary Hirshberg

Eva Hurst

Aimee James

Sarah Keller

Sandra Klein

Eric Knoche

Friederike Kreisel

Gina LaRossa

Christopher Leon Guerrero

Mark Levine

Latisha Love-Gregory

Jeffrey Lowell

Susan E. Mackinnon

Robert Mahoney

Julie Margenthaler

James Marks

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Gerald Medoff

Jerry Middleton

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Brian Nussenbaum

Allison Ogden

Bridget O'Neal

Daniel Osei

F. Thomas Ott

William D. Owens

Yumi Padron-Turmelle

Ami Patel

Amit Patel

Jane Phillips-Conroy

Steve Plax

Greg Polites

Prabha Ranganathan

Marvin Rennard

Will Ross

Erin Rubin

Heidi Sandige

Souzan Sanati

Julie K. Schwarz

Noah Schoenberg

Cary Siegel

Alison Snyder-Warwick

Lisa Stevenson

Angela Marie Theard

Linda Tsai

Nancy Tye-Murray

Damon Vincent

Lindy Wall

Colleen Wallace

Jennifer Wambach

Alvin Wenneker

Ronald Wilbois

Karen Winters

Jennifer Yu

Darryl Zuckerman

Committee on Fellowships and Awards

Susan K. Dutcher

Chair

Sharon Cresci

Jeff Miner

Committee on Student Financial Aid

Valerie S. Ratts

Chair

Bridget O'Neal

Lisa Stevenson

Conflicts of Interest Review Committee

Brian Nussenbaum, MD

Chair

Laura Bierut, MD

Paul Bridgman, PhD

Bradley Castanho, PhD

Ex officio

Douglas Covey, PhD

David Curiel, MD, PhD

Jonathan Green, MD

Robert Gropler, MD

Patty Hart

Ex officio

R. Edward Hogan, MD

Henry Huang, PhD

Jennifer Lodge, PhD

Ex officio

Denise McCartney

Ex officio

Peter Michelson, MD

D. Michael Nelson, MD, PhD

Daniel Ory, MD

Edward Pearce, PhD

Luis Sanchez, MD

Tim Schedl, PhD

Anshuman Sharma, MD

Human Research Protection Office (HRPO)

Executive chair, IRB

Green, Jonathan, MD

Associate Dean for Human Studies and Executive Chair of the IRB

Washington University School of Medicine

Current IRB committee members

Aloush, Aviva

Atkinson, Jeffrey

Baggstrom, Maria

Balakas, Karen

Baltagi, Sirine

Barton, Kevin

Bear, Bryan

Beck, Emily

Berg, Christine

Berla, Jenny

Bierhals, Andrew

Bliss, Paulette

Bohner, Diane

Boomer, Jonathan

Brown, Angela

Bucholz, Kathleen

Buckles, Virginia

Byers, Derek

Cahill, Alison

Canter, Charles

Carmichael, Kim

Carreno, Beatriz

Casabar, Ed

Cashen, Amanda

Chandel, Rick

Char, Corinne

Char, Douglas

Chiles, Jonathan

Chrisman Robbins, Camaryn

Bucholz, Kathleen

Buckles, Virginia

Byers, Derek

Cahill, Alison

Canter, Charles

Carmichael, Kim

Carreno, Beatriz

Casabar, Ed

Cashen, Amanda

Chandel, Rick

Char, Corinne

Clark, Judson

Clarke, Mary (Mickey)

Cleary, Jackie

Cole, Robert

Cook, Susan

Cramer, William

Cyr, Amy

Davies, Sherri

Davis, Karen

Davis, T. Keefe

Deschryver, Anne

Dey, Charles

Dilthey, Beverly

Doyle, Ann

Dresser, Rebecca

Drewry, Anne

Engeszer, Robert

Feit, Debi

Feman, Stephen

Filley, Gina

Fowler-Dixon, Sarah

Friedman, Diane

Gartland, Jennifer

Geekie, Sharon

Geltman, Edward

Gerdes, Brenda

Gillanders, William

Govindan, Ramaswamy

Gruchevska, Ioana

Guemmer, Sally

Guy, Diane

Hart, Patricia

Hartman, Mary

Hartz, Sarah

Henry, Chad

Herrington, Ann

Hess, Yolanda

Hildebolt, Charles

Hmiel, S. Paul

Hollander, Abby

Holmes, Sandra

Holstad, Beth

Holstad, Sheldon

Huang, Frederick

Jenkerson, Michelle

Jiang, Allan

Jones, Martha

Keeley, Abby

Kersting, Lynn

Kipnis, Laura

Kissel, Sandra (Sarah)

Koch, Tammy

Lane, Bruce

Lauber, Joanne

Lawrence, Lisa

Leary, Michael

Levitt, Edward

Lijowska, Anna

Lopate, Glenn

Lucey, Brendan

Lumba, Angela

Lunsford, Valerie

Ma, Cynthia

Manary, Mark
Margenthaler, Julie
Martinez, Sara
Mathur, Amit
McCarthy, Nancy
McNulty, James
McWay, Dana
Mead, Kathleen
Micek, Scott
Millsap, Pamela
Minder, Carissa
Montgomery, Charmin
Morris, Andrea
Moulder, Krista
Mulcahy, Elizabeth
Murphy, Stacey
Murphy, Theresa
Neely, John
Nguyen, Nguyet
Nobbe, Julie

Nolan, Melissa

O'Neill (Narconis), Meg

Palanca, Ben

Paniello, Randal

Patterson, Brenda

Perkins, Stephanie

Pesti, Dawn

Petite, Carolyn

Picus, Joel

Price, Kathie

Puyo, Carlos

Ramsey, Robert

Rao, Rakesh

Ratnaraj, Jebadurai

Retter, Jason

Rich, Jason

Richmond, Tracey

Righton, Kelly

Roberts, Michelle

Rothermich, Phillip

Rovak, Stephen

Rush, Carol

Ryman, Davis

Saulisbury-Robertson, Mitchell

Schaefer, Anneliese

Schreiber, Lawrence

Schwendinger, Robert

Shepherd, Emily

Sheshadri, Ajay

Sommers, Mitchell

Steps, Gary

Steurer, Lisa

Swaney, William

Terrill, Cindy

Theodoro, Daniel

Trogdon, William (Vic)

Unanue, Amanda

Van Zandt, Khleber

Van Zandt, Linda

Varadhachary, Arun

Vehe, Kathryn

Velders, Jeanne

Wagner-Johnston, Nina

Walsh, Thomas

Wedner, H. James

Weinman, Jennifer

Welch, John

Welker, Timothy

Wickline, Karen

Wiehl, Jim

Wilson, James

Wingbermuehle, Cheryl

Wingbermuehle, Erin

Withers, Agnes

Zlatic, Joe

Zuckerman, Darryl

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Mae Gordon

Jonathan Green

Catherine Lang

Denise McCartney

Bettina Mittendorfer

Thomas Rodenbaugh

Patty Hastings

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Kim A. Carmichael, MD (2017-A)

Andrew Galakatos, MD (2017-A)

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Christa C. Johnson

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Christine Longnecker

Alternate

Courtney McCullough

Alternate

Sasa Mutic

Alternate

Sally J. Schwarz

Alternate

W. John Smith II

Alternate

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Vice Chair

Keith C. Fischer, MD

Edward M. Geltman, MD

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Ex officio

James L. Littlefield, MD

Karen D. McElvany, PhD

Stephen M. Moerlein, PhD, RPh

Marcus E. Raichle, MD

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Yuan-Chuan Tai, PhD

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Co-Chair

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Traves Crabtree

Farrokh Dehdashti

Gavin Dunn

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Kathryn Fowler

Jennifer Frye

Karen Gauvain

Armin Ghobadi

Robert J. Hayashi

Richard Head

Meagan Jacoby

Sally Jones

Lisa Kehlenbrink

Albert Kim

A. Craig Lockhart

Lisa Madden

Russell Pachynski

John D. Pfeifer

Matthew Powell

Iskra Pusic

Lindsey Reichle

Cliff Robinson

Rizwan Romee

Anna Roshal

Kenneth B. Schechtman

Mark Schroeder

Karen Seibert

Joshua Shimony

Benjamin Tan

Wade Thorstad

Tom Walsh

Andrea Wang-Gillam

Saiama Waqar

Lorri DeWitt

Ad hoc

Lindsay Hladnik

Ad hoc

Lynne Lippmann

Ad hoc

Janelle Mann

Ad hoc

J. Philip Miller

Ad hoc

Sarah Moehlmann

Ad hoc

Byron Peters

Ad hoc

Chrisann Winslow

Ad hoc

Nancy L. Bartlett

Ex officio

Jeff M. Michalski

Ex officio

Jeffrey F. Moley

Ex officio

Stephen Ristvedt

Ex officio

Barry Siegel

Ex officio

Alvin J. Siteman Cancer Center Quality Assurance and Safety Monitoring Committees

Nancy L. Bartlett

Chair

Maria Q. Bagstrom

Leigh Boehmer

Sean DeFrates

Hiram Gay

J. Philip Miller

Matthew G. Mutch

Michael J. Naughton

Faculty at a Glance

Washington University School of Medicine has one of the finest faculties of any medical school in the nation. Recognized for their distinguished achievements in original research, 13 faculty members are among the fellows of the prestigious National Academy of Sciences; 20 belong to its Institute of Medicine. Seventeen Nobel laureates have been associated with the School of Medicine.

During fiscal year 2012, 140 members of the faculty held individual and/or institutional career development awards. Some individual faculty members may hold multiple awards:

95 from National Institutes of Health (including direct-pay and pass-through awards)

1 from Agency for Healthcare Research and Quality

1 from Alcon Research Institute

1 from Alex's Lemonade Stand

2 from American Cancer Society

1 from American Diabetes Association

2 from American Federation for Aging Research

1 from American Glaucoma Society

6 from American Heart Association

1 from American Hernia Society

1 from American Liver Foundation

1 from American Society of Colon & Rectal Surgeons

1 from American Society of Hematology

1 from American Surgical Association Foundation

1 from Aplastic Anemia & MDS International Foundation, Inc

1 from Brain & Behavior Research Foundation

8 from Burroughs Wellcome Fund

1 from Central Society for Clinical Research

1 from Cerebral Palsy International Research Foundation

2 from Doris Duke Charitable Foundation

1 from Ellison Medical Foundation

1 from Emergency Medical Foundation

1 from Harrington Discovery Institute

1 from Howard Hughes Medical Institute

1 from Leukemia and Lymphoma Society

1 from LUNGeivity Foundation

1 from Lymphoma Research Foundation

1 from Muscular Dystrophy Foundation

1 from National Comprehensive Cancer Network

1 from National Science Foundation

1 from New York Stem Cell Foundation

1 from Prostate Cancer Foundation

2 from Radiological Society of North America

2 from Research to Prevent Blindness

2 from Robert Wood Johnson Foundation

1 from Sarcoma Alliance for Research

2 from Susan G. Komen Breast Cancer Foundation

1 from Thoracic Surgery Foundation for Research and Education

1 from Triological Society

1 from V Foundation

1 from Wellcome Trust (pass-through award)

The School of Medicine has 12 faculty members with Method to Extend Research in Time (MERIT) status, a special recognition given to only a few NIH grantees, which provides long-term, uninterrupted financial support to investigators who have demonstrated superior achievement during previous research projects.

In 2013-14, the School employed 1,797 full-time, salaried faculty members in its 20 preclinical and clinical departments. The clinical departments are further strengthened by 1,324 voluntary and adjunct faculty members, a group of physicians who practice their medical specialties in St. Louis and are members of one or more of the staffs of the hospitals in the Washington University Medical Center.

Student Body

The School of Medicine attracts a student body of exceptional quality. The student body of the School of Medicine numbers 602 medical students. Programs also are conducted for 758 students who are pursuing graduate degrees in applied health behavior research, communication sciences, clinical investigation, occupational therapy, physical therapy, population health sciences, biostatistics, or genetic epidemiology. The Division of Biology and Biomedical Sciences has extensive graduate training programs for 572 students seeking the Doctor of Philosophy degree in areas of Biochemistry; Computational and Systems Biology; Developmental, Regenerative and Stem Cell Biology; Evolution Ecology and Population Biology; Human and Statistical Genetics; Immunology; Molecular Biophysics; Molecular Cell Biology; Biochemistry; Molecular Genetics and Genomics; Molecular Microbiology and Microbial Pathogenesis; Neurosciences; and Plant Biology.

The MD Program

The 2014 entering class of 123 students was selected from a pool of 4,423 applicants. The School is a national institution with 32 states plus the District of Columbia and Puerto Rico and 5 countries

represented in the current enrollment.

In 2014, the School conferred the MD degree upon 89 individuals. In addition, five students received the MD/MA degrees, four students received the MD/MSCI degrees, and 20 students graduated with the MD/PhD degrees. Graduating students who participated in the 2014 National Residency Matching Program matched in programs recognized for high quality and selectivity. In the Alphabetical List of Students area of the Register of Students section, the graduates are listed by name, hometown, undergraduate and graduate schools attended and year of degree, type of postgraduate residency program, name of hospital and the city in which it is located.

Teaching Facilities

The 164-acre Washington University Medical Center, spread over portions of 17 city blocks, is located along the eastern edge of Forest Park in St. Louis. Along the western edge of the park is the 169-acre Danforth Campus of the university. All campuses (North, West, Danforth and Medical) are connected by the MetroLink light rail system. The Danforth Campus and the Medical Campus are also connected by the Washington University Gold MetroBus. Students, faculty and staff can access both of these modes of transport with a free U-Pass, obtained from the Transportation Office, along with their Washington University identification badge.

In addition, in the last decade, major renovations to existing buildings continue, with emphasis on research facilities. The Department of Ophthalmology remodeled their wet labs and offices on the 1st, 10th, 11th and 12th floors of McMillan Hospital Building. The Department of Biochemistry and Molecular Biophysics renovated research labs on half of the second floor of the McDonnell

Sciences Medical Building and created a chemistry-intensive open laboratory on the 2nd floor of the Cancer Research Building. Renovations to the Clinical Sciences Research Building (CSRB) were done to create space for the Center for the Study of Itch. A world-class zebrafish facility was built in the basement of the McDonnell Sciences Medical Building. Half of the 8th floor of the McDonnell Sciences Medical Building was overhauled into modern, open laboratories to create additional space for Anatomy and Neurobiology and Internal Medicine.

A major renovation of the Maternity Hospital was completed for the Department of Obstetrics, floors two through six are completely renovated into new office space for Obstetrics faculty and administration. The recently acquired building at 4533 Clayton Ave. has been renovated into office space for the departments of Anesthesiology, Radiology and Obstetrics. The sixth floor of the Bernard Becker Library has been overhauled to make way for the Center for the History of Medicine. The Taylor Avenue Building has been purchased and renovations and relocations for Public Health Sciences, the Institute of Public Health and the Department of Medicine have been made. Floors three through five have been renovated for administration space in the Wohl Clinic. A new Cyclotron has been installed in an expansion of the East Building.

In addition, major maintenance projects continue to be done to keep existing buildings in good functional shape.

Ongoing improvements to the campus infrastructure are being made through the Public Realm Project, which is focused on landscape, street lighting and streetscape enhancements.

Unprecedented growth has occurred at the medical center over the past 14 years. At the School of Medicine alone during the past five years, almost \$300 million has been expended on capitalized infrastructure, renovation and new construction. Capital improvements and strategic purchases have added approximately 1 million square feet of space to the medical school during this same

period. In the most recent fiscal year, more than \$70 million of capitalized expenditures were made at the School. Recently completed is the BJC Institute of Health at Washington University School of Medicine, which added approximately 245,000 square feet of lab, vivarium and support space and almost \$140 million in capitalized building improvements.

In the last 10 years, School of Medicine expansion has included the Genome Sequencing Center (GSC) Data Center; the Northwest Tower; the school's first dedicated teaching facility, the Farrell Learning and Teaching Center; the Specialized Research Facility — East; the Southwest Tower/Charles F. Knight Emergency Center; the Center for Advanced Medicine; the McDonnell Pediatric Research Building; two parking garages; and the acquisition of the Central Institute for the Deaf buildings.

The **BJC Institute of Health at Washington University School of Medicine** was built to support the Washington University BioMed 21 initiative. Phase 1 construction is now complete and consists of approximately 675,000 square feet. It is an eleven- and six-story building (the building is also structured to add an additional ten stories above the six story portion of the building). The top five floors, totaling 215,000 square feet, are wet labs to support the six research centers associated with BioMed 21 along with lab space for Pathology and Immunology, Obstetrics and Gynecology, and Pediatric Surgery. There is also a 30,000-square-foot vivarium in the lower level. BJC HealthCare will eventually occupy the first five floors, which are programmed for dietary services, offices, pharmacy and clinical labs.

The **GSC Data Center** (2008) is a state-of-the art data center located across Newstead Avenue from its parent department in the 4444 Forest Park Building. A 14,000-square-foot building houses a 3,000-square-foot data room capable of populating 120 high-speed blade center racks and disk racks. This facility will allow the GSC to expand their research capability in the demanding world of sequencing grants and projects for years to come. A 16,500-square-foot

expansion of this facility, supporting research, funded by an ARRA grant, was completed in 2012.

The eight-story **Northwest Tower** (2006) resides above the seven-level Children's Hospital Garage. This new 190,000-square-foot building provides faculty office space.

The Farrell Learning and Teaching Center (2005), a 110,000-square-foot, six-story facility, located at the corner of Scott and Euclid avenues, is the home for all of the School of Medicine teaching labs; ER, patient room and OR simulation training rooms; small-group and seminar rooms; and all individual student study areas. A lecture hall, case-study hall and café are on the first floor of the building.

The Specialized Research Facility — East (2004) is a 56,000-square-foot barrier facility supporting several research study programs.

The Center for Advanced Medicine (2001), at the corner of Euclid and Forest Park avenues, is a shared facility between the school and BJC. This building brings all of the medical center's clinics together under one roof. The School of Medicine occupies 243,400 square feet in the Center for Advanced Medicine and 75,000 square feet on three floors in the new Southwest Tower. Located in the heart of the Center for Advanced Medicine is the 66,150-square-foot Alvin J. Siteman Cancer Center. The Siteman Cancer Center is the only NCI-designated comprehensive cancer center in the region.

The McDonnell Pediatric Research Building (2000) added 230,000 square feet of state-of-the-art research facilities — four and a half floors for the Department of Pediatrics, three floors for the Department of Molecular Microbiology, and one-half floor for the Department of Medicine — on the corner of Euclid Avenue and Children's Place. This building includes a Barnes & Noble bookstore with a coffee shop on the ground level.

The School of Medicine is divided into two segments. Clinical departments are predominantly located on the west side of the

Medical Center, adjacent to hospital and patient areas. Preclinical departments are to the east. Research and instructional endeavors occupy the greater portion of the facilities, with more than 1.8 million gross square feet devoted to these activities. In the aggregate, the medical school occupies nearly 6 million gross square feet of space on this campus.

The focal point of the preclinical teaching activities is the **McDonnell Medical Sciences Building**, the center of activity for entering medical students. This building, with 300,000 square feet of research laboratories, was made possible by James Smith McDonnell III, a generous benefactor of Washington University. Rising nine floors above ground, it contains administrative offices and two lecture halls on the first floor. Three floors of wet lab space were completely renovated in the last five years. Offices and research laboratories for the seven basic science departments are located on the upper floors. Modern centralized animal quarters are housed in the basement.

The North and South Buildings, in which the work of several Nobel laureates has centered, have been renovated extensively. Along with the Cancer Research Building, they continue to provide space for laboratories, offices and some departmental facilities.

The East Building houses an MRI facility, a cyclotron, computer installations and other components of the Mallinckrodt Institute of Radiology. The East Building also houses several administrative office suites.

A network of pedestrian bridges provides the ability to move freely among the major facilities, enhancing the interaction of all medical center institutions and benefiting research and patient care.

Other facilities owned or operated by Washington University include:

The 45,160-gross-square-foot **Eric P. Newman Education Center** accommodates nondegree professional education for the medical center. The education center provides auditoriums, classrooms,

meeting space and lecture halls to support and enhance a comprehensive education program.

The five-story **Biotechnology Center** supports laboratories for the departments of Psychiatry, Medicine, Neurology, and Pathology and Immunology.

McMillan Hospital Building houses offices and research laboratories for the departments of Neurological Surgery, Neurology, Ophthalmology and Visual Sciences, and Otolaryngology.

The Edward Mallinckrodt Institute of Radiology (MIR) is internationally recognized for excellence in teaching, research and clinical services. Housed in its own 13-story building, MIR has satellite facilities in Barnes-Jewish Hospital, St. Louis Children's Hospital, the Clinical Sciences Research Building, the East Building, the Scott Avenue Imaging Center, the Center for Advanced Medicine, the Charles F. Knight Emergency Center and the South County Siteman Cancer Center. Services also are provided at Barnes-Jewish West County Hospital, Progress West Hospital, and Barnes-Jewish St. Peters Hospital and at the Washington University Orthopedics and Barnes-Jewish Hospital Outpatient Orthopedic Center.

With consolidation of psychiatric patient care services in the West Pavilion, the eight-story Renard Hospital provides additional office and laboratory space for the Department of Psychiatry.

Maternity Hospital provides offices for the departments of Obstetrics and Gynecology and Ophthalmology and Visual Sciences. A Perinatal Center and some Psychiatry clinical research are located in this building.

The West Building contains administrative offices and research laboratories for the Department of Pathology and Immunology and research labs for the Department of Medicine.

Wohl Hospital Building provides offices and laboratories for the Department of Medicine and the Department of Surgery.

The resident clinics in **Wohl Clinic** are administered by Barnes-Jewish Hospital. The lower five floors contain clinical space and space for translational research. The first floor is home to the Chromalloy American Kidney Dialysis Center. The upper five floors are devoted to research facilities for several departments of the School of Medicine.

The 294,302-gross-square-foot building at **4444 Forest Park** houses administrative offices of various medical school departments plus the Program in Physical Therapy, the Program in Occupational Therapy and a major research facility for the Department of Genetics and the Genome Sequencing Center, including the new Center for Genomics and Human Genetics.

The **4511 Forest Park Medical Building** houses administrative offices and research labs for the Department of Radiation Oncology. The third-floor clinic and office area has recently been renovated into wet lab research space.

The 136,977-gross-square-foot, seven-story **East McDonnell Specialized Research Facility** is a maximum-barrier research facility to accommodate higher brain function research and transgenic studies.

The 10-story **Clinical Sciences Research Building (CSRB)** and **North Tower Research Addition**, 201,349 gross square feet, consolidates medical school specialized research into one structure. The top three floors of the addition house wet lab research space.

The 4488 Forest Park Parkway Building houses, among other things, the recently completed administrative offices, and research labs for the Washington University Knight Alzheimer's Disease Research Center (ADRC). The ADRC is one of 29 centers funded or otherwise supported by the National Institute on Aging with the collective aim of facilitating advanced research on clinical, genetic, neuropathological, neuroanatomical, biomedical, psychosocial, and neuropsychological aspects of Alzheimer's disease and related brain

disorders.

The second floor of the Taylor Avenue Building (TAB) was renovated in 2012 to create office and teaching space for the Division of Public Health Sciences in the Department of Surgery. This renovation adds ten teaching rooms, each named for a pioneer in public health sciences who opened new fields, paths to study, or applied research to improve population health. The largest teaching space holds fifty people, and many of the rooms are equipped with state-of-the-art video conference technology. The rooms are used to support exceptional population health sciences and clinical research training through the Master of Population Health Sciences (MPHS) degree program for clinicians, clinical doctorates, and medical/health services students. The space also accommodates professional meeting space for clinicians and researchers across Washington University campuses for groups including Siteman Cancer Center Prevention and Control, the Transdisciplinary Research on Energetics and Cancer Center (TREC@WUSTL), and for community partner events through the Program for the Elimination of Cancer Disparities (PECaD).

Founded in 1911, the **Bernard Becker Medical Library** is one of the oldest and most comprehensive medical libraries west of the Mississippi. The library serves as an information services hub for the Washington University Medical Center and extends its services and resources to the global health science community.

The facility, completed in 1989, integrates biomedical information resources and information technology and provides the medical center with the services of skilled librarians, scientists and health communication professionals. The eight-level, 114,000-square-foot structure has capacity for more than 300,000 volumes. The biomedical resource collection includes 21 subscribed databases, 6,270 full-text e-journals and 25,341 e-books. The library also holds 6,531 print journals, 93,674 print book titles and 2,569 audiovisual items.

The Translational Research Support Division of the library provides specialized knowledge, customized programs and services, and unique information resources to support Washington University's broader goals of connecting basic research to patient care. The division includes a science support program to provide instruction, consultation services and support for specialized software and databases for the genomic and basic science research community. Its community outreach and consumer health information program focuses on ways to foster consumer health literacy and seeks opportunities to partner with the School of Medicine, medical center groups and local organizations to improve health literacy and enhance the delivery of reliable and credible health information. The division also includes a scholarly communications program to support authors and researchers on a wide range of issues including publishing options, public access mandates, copyright and author rights, assessment of research impact and dissemination of research findings.

The Health Information Resources Division provides a broad range of biomedical information resources and training services covering clinical point of care, evidence-based medicine and information management. Through this division, the library focuses on integrating information management into the curricula of the various educational programs and promoting the effective use of information resources in the school's clinical mission. Librarians in this division focus on each of the school's divisions, departments or programs to meet their specific information needs. Circulation services, interlibrary lending and document delivery also fall within the scope of services managed by the Health Information Resources Division.

Special Collections (Archives and Rare Books) is a unique and important unit of the library's resources. The Archives preserve and make accessible 905 archival collections, comprising institutional records, manuscripts, visual items and oral histories that document the medical center's institutional history, ongoing progress and many significant contributions of its faculty. Among the manuscript

collections are papers of William Beaumont, Joseph Erlanger, E.V. Cowdry, Evarts Graham and Carl Cori. There are nine distinct rare book collections containing 14,416 books available for scholarly use. These acclaimed collections include the Bernard Becker Collection in Ophthalmology, the CID-Max Goldstein Collection in Speech and Hearing, the H. Richard Tyler Collection in Neurology and the Paracelsus Collection of the St. Louis Medical Society.

The Bernard Becker Medical Library takes pride in providing the latest biomedical information and services to the Medical Center. For detailed information about the library's programs and services, visit <https://becker.wustl.edu>.

The library is open to the general public Monday through Friday, 7:30 a.m. to 6 p.m. Library hours for affiliated users are:

Monday-Thursday: 7:30 a.m. – midnight

Friday: 7:30 a.m. – 10 p.m.

Saturday: 9 a.m. – 6 p.m.

Sunday: 11 a.m. – 11 p.m.

Telephone numbers:

Circulation Services: (314) 362-7080

Information Services: (314) 362-7085

Interlibrary Loan: (314) 747-0029

Archives and Rare Books: (314) 362-4236

Barnes-Jewish Hospital has a premier reputation in patient care, medical education, research and community service, and is the adult teaching hospital of Washington University School of Medicine, which is ranked among the top medical schools in the country. The 9,215 Barnes-Jewish team members include professional nurses, technicians, service and support personnel, plus more than 1,762 physicians and 809 residents, interns and fellows. Barnes-Jewish is licensed for 1,315 beds and in 2013 had 54,738 inpatient admissions, along with 84,920 emergency department visits. In 2003, Barnes-Jewish Hospital was the first adult hospital in Missouri to earn

Magnet recognition, the highest award given by the American Nurses Credentialing Center, and was redesignated in 2008 and 2013. Barnes-Jewish Hospital has been consistently ranked on the “Honor Roll” of Best Hospitals by U.S. News & World Report since 1993.

For 135 years, **St. Louis Children’s Hospital** has been at the forefront of pediatric medicine, with physicians, nurses and staff who dedicate their lives to the care of children. The hospital provides a full range of health services to children and their families throughout its 300-mile service area, as well as nationally and internationally. Children’s Hospital offers comprehensive services in every pediatric medical and surgical specialty, including newborn medicine, cardiology, orthopedic surgery, neurosurgery and one of the nation’s largest pediatric transplant programs. St. Louis Children’s Hospital-Washington University is currently ranked in all 10 specialties on the U.S. News 2014-15 list of America’s Best Children’s Hospitals. In 2010 the hospital received its Magnet re-designation from the American Nurses Credentialing Center (ANCC), the nation’s highest honor for nursing excellence.

St. Louis Children’s Hospital provides an array of community outreach services, including three pediatric mobile health vans, injury prevention programs, educational classes on parenting and child development, as well as patient and parent support groups. The hospital also operates the 454-KIDS Answer Line, a free child health information service and physician referral line staffed by pediatric registered nurses and referral specialists.

BJC HealthCare is one of the largest nonprofit health care organizations in the United States, delivering services to residents primarily in the greater St. Louis, southern Illinois and mid-Missouri regions. BJC serves urban, suburban and rural communities and includes 12 hospitals and multiple community health locations. Services include inpatient and outpatient care, primary care, community health and wellness, workplace health, home health, community mental health, rehabilitation, long-term care and hospice.

Through a collaboration among the Barnard Cancer Institute, Barnes-Jewish Hospital and Washington University, medically indigent patients with cancer or diseases of the skin receive care at no cost to them from Washington University physicians at the Alvin J. Siteman Cancer Center and Barnes-Jewish Hospital. **Barnard Hospital** also houses the Washington University Clinical Research Unit, part of the Institute for Clinical and Translational Sciences (ICTS) Center for Applied Research Sciences (CARS), a support center for Washington University clinical investigators.

CID - Central Institute for the Deaf is an internationally recognized center for deaf education focused on preparing children to attend general education schools in their communities with their hearing peers. In the CID school, teachers use listening and spoken language to help deaf children learn to listen, talk and read with proficiency without the use of sign language.

CID's acoustically enhanced "quiet school" features the Joanne Parrish Knight Family Center, serving children and their families from birth to 3. CID pre-k and primary school programs serve students ages 3 to 12. CID schoolchildren have come from 48 U.S. states and 33 other countries.

CID services for professionals include continuing education webinars and workshop, consulting services and in-service training for schools and school districts, and educational curricula that have been used to help children in all U.S. states and many countries throughout the world.

CID is financially independent from, but closely affiliated with, CID at Washington University School of Medicine, which continues to operate CID-developed adult clinic, research and academic programs that benefit children and adults with hearing loss. The university acquired these programs in September 2003 along with state-of-the-art facilities at the CID campus, 4560 Clayton Ave. CID continues to provide faculty and practicum sites for the university's graduate degree programs in deaf education and audiology. CID teachers and

pediatric audiologists continue to work closely with its speech and hearing scientists in studies involving children who are deaf and hard of hearing.

The Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine is designated by the National Cancer Institute as a Comprehensive Cancer Center, the only such center in Missouri. Siteman is world-renowned for its basic science, translational, and prevention and control research. Siteman enhances, promotes and supports interactions among cancer research efforts throughout the campus and has provided an organizational focus and stimulus for researchers to continue to produce cutting-edge institutional research.

The center holds more than \$150 million in extramural funding for cancer research and supports seven research programs (Breast Cancer Research, Cell-to-Cell Communications in Cancer, Hematopoietic Development and Malignancy, Oncologic Imaging, Prevention and Control, Solid Tumor Therapeutics, Tumor Immunology). Siteman also provides 10 shared resource facilities to its more than 230 research members. Shared resource facilities include: Center for Biomedical Informatics (CMBI); Biomedical Informatics Core; Biostatistics Core; Clinical Trials Core; Embryonic Stem Cell Core; Flow Cytometry Core; Health Behavior, Communication and Outreach Core; Hereditary Cancer Core; High-Throughput Screening Core; Imaging Response Assessment Core (IRAC); Molecular and Genomic Analysis Core; Proteomics Core; Small Animal Cancer Imaging Core; and Tissue Procurement Core.

Siteman is integrated with The Genome Institute at Washington University, the Institute for Public Health and the Mallinckrodt Institute of Radiology. In partnership with the community, Siteman's Program for the Elimination of Cancer Disparities (PECaD), addresses racial, ethnic, socioeconomic and other disparities in cancer awareness, screening, treatment and research.

Siteman offers a wide range of educational and training

opportunities in cancer research, including seminars, conferences, retreats, a summer student program and a pre/postdoctoral training program in cancer biology research.

For more information regarding Siteman's research programs, shared resources and educational opportunities, please visit www.siteman.wustl.edu/research.aspx.

A current listing of upcoming seminars is available at www.sitemanseminars.wustl.edu.

Other hospitals. The following hospitals and facilities also are associated with the School of Medicine, and Washington University physicians treat patients at these locations:

- [Barnes-Jewish West County Hospital](#)
- [Barnes-Jewish St. Peters Hospital](#)
- [Christian Hospital Northeast](#)
- [Missouri Baptist Medical Center](#)
- [Veterans Administration Medical Center](#)
- [Shriners Hospital for Children](#)
- [Parkland Health Center](#)
- [Progress West HealthCare Center](#)
- [Phelps County Regional Medical Center](#)
- [Southeast Missouri Hospital](#)

Research Activities

Grants and contracts totaling more than \$536 million supported faculty research efforts at the School of Medicine during the fiscal year ending June 30, 2012. Substantial additional support was provided directly to faculty investigators by the Howard Hughes

Medical Institute. Gifts and grants from 11,184 private sources, including alumni, individuals, foundations, corporations and other organizations, totaled \$137.4 million.

During the Washington University fiscal year ending June 30, 2012, the School of Medicine received \$375.8 million from the National Institutes of Health, coming in 686 separate grants. This amount includes direct-pay and pass-through awards.

The many firsts at the School of Medicine include:

- Served as a major contributor of genome sequence data to the Human Genome Project, providing the foundation for personalized medicine.
- Developed a genetic test that detects whether an individual will develop a form of thyroid cancer and would benefit from thyroid removal — the first surgical prevention of cancer based on genetic test results.
- Developed screening tests used worldwide to diagnose Alzheimer’s disease.
- Created the first positron emission tomography (PET) scanner, a device that images the brain at work.
- Helped pioneer the use of insulin to treat diabetes.
- Proposed the now-common practice of taking aspirin to help prevent heart attacks.
- Performed the world’s first nerve transplant using nerve tissue from a cadaver donor.
- Developed a blood test that quickly and safely identifies whether a patient needs invasive treatment for a heart attack.
- Decoded the entire genome of a cancer patient and used the results to alter the course of treatment, which put the cancer into remission.
- Demonstrated that severely malnourished children given antibiotics along with a therapeutic peanut butter based food are far more likely to recover and survive than children who only receive the therapeutic food.

Ongoing research includes:

- Participating in the National Children's Study, the largest U.S. study of child and human health ever conducted.
- Seeking new ways to diagnose and treat stroke as part of a national network of state-of-the-art stroke treatment centers.
- Decoding the genomes of hundreds of cancer patients and their tumors to understand the genetic roots of the disease and to find better treatments.
- Leading an international research collaboration to study inherited forms of Alzheimer's disease and one of the first clinical trials to evaluate whether the disease can be prevented before memory loss and dementia develop.
- Developing and using nanoparticles for molecular imaging and targeted drug delivery for cancer and heart, lung and vascular diseases.
- Mapping the major circuits in the human brain to understand normal brain function and connectivity errors involved in alcoholism, autism and schizophrenia.
- Exploring the links that connect obesity and malnutrition to the community of microbes that live in the gut.
- Searching for clues in the brain and spinal cord to help physicians diagnose Alzheimer's disease before symptoms develop.
- Leading research, teaching and community engagement to improve population health through Washington University's Institute for Public Health.
- Investigating changes to the brain in soldiers exposed to roadside blasts and athletes who have suffered repeated concussions to understand their long-term mental and physical consequences.
- Exploring the genetic influences at play in alcohol, smoking and drug addiction.
- Leading research to improve care for heart failure and cardiovascular disease, including clinical trials to evaluate mechanical assist devices and studies to look at the link

between diabetes and aggressive heart disease.

BioMed 21

Launched in 2003, BioMed 21 creates a multidisciplinary and translational-research imperative for basic scientists and clinician-researchers from many medical disciplines.

BioMed 21 reorganizes the life sciences at Washington University to address the biggest questions about disease: their origins, how they affect us and how we can cure them. Its goal is to reshape the university culture to rapidly convert the knowledge of the genetic blueprint of human beings into effective, individualized treatments.

To successfully make those discoveries and develop those therapies, BioMed 21 advances on many fronts:

It aims to collect and dedicate resources, including NIH support and gifts from friends and supporters. Recent grants include:

- \$50 million grant to enhance clinical and translational research
- \$14 million in two grants for neuroscience research
- \$16 million grant for nanomedicine research

It defines new spaces to house promising research and educational programs, including:

- 240,000 square feet of new research space in the new BJC Institute of Health at Washington University School of Medicine in the center of the medical campus
- the Farrell Learning and Teaching Center, an important teaching component of BioMed 21
- a 40,000-gross-square-foot facility designed to spur development of mouse models for human diseases
- a 16,000-square-foot data center to meet the massive computing needs of The Genome Center
- 15,000 square feet of space added to the previously

established Center for Genome Sciences & Systems Biology to support new investigators

In addition to the Center for Sciences & Systems Biology, it establishes five new Interdisciplinary Research Centers (IRCs) housed in the BJC Institute of Health at Washington University School of Medicine. The IRCs are central in promoting scientific and educational innovations across school boundaries. IRCs have the primary goal of promoting innovative interdisciplinary, inter-departmental research and education in the biological and medical sciences. The mission of the IRCs is to assemble talented faculty and students to address key and emerging scientific problems, and to understand fundamental biological processes with broad implications for human health.

- The BRIGHT Institute (Bridging Research with Imaging, Genomics and High-Throughput)
- Center for the Investigation of Membrane Excitability Disorders — The EXCITE Center
- Center for Women’s Infectious Disease Research (cWIDR)
- Diabetic Cardiovascular Disease Center (DCDC)
- Hope Center Program on Protein Aggregation and Neurodegeneration (HPAN)

See biomed21.wustl.edu to learn more.

Research training

The School of Medicine offers many degree programs focused on research training. Please visit the [Programs](#) section or the links below for more information.

Combined degrees:

[Doctor of Medicine/Doctor of Philosophy \(MD/PhD\)](#)

[Doctor of Medicine/Master of Arts \(MD/MA\)](#)

Doctor of Medicine//Master of Science in Clinical Investigation
(MD/MSCI)

Doctor of philosophy programs

Biomedical Sciences

Audiology and Communication Sciences

Occupational Therapy

Physical Therapy

Masters degree programs

Master of Science in Applied Health Behavior Research

Master of Population Health Sciences

Postdoctoral research training

Postdoctoral Research Fellowships

Medical student research opportunities

Summer Research Program

Year-long research activities

Medical Alumni and Development

Medical Alumni and Development Programs works with individuals and organizations to secure the human and financial resources necessary to help the School of Medicine achieve and maintain excellence in research, teaching and patient care.

Washington University Medical Center Alumni Association

The Washington University Medical Center Alumni Association WUMCAA was organized more than 60 years ago to foster a continuing spirit of fellowship among graduates, and to maintain and enhance the tradition of excellence of the School of Medicine. Membership is free and provided to graduates and former house staff of the medical center.

The association complements the goals and purposes of the School of Medicine through a variety of programs for its members and current students. Involvement in these activities also provides the opportunity to continue the relationships begun as students and to develop rewarding professional associations.

Student-alumni programs

The Office of Medical Alumni and Development Programs and the WUMC Alumni Association assist students in a variety of ways. The association makes a substantial financial commitment each year to support 16 Distinguished Alumni Scholars. These promising medical students receive full-tuition, four-year scholarships in honor of great teachers and mentors who were also alumni of the School of Medicine. The association also provides an activity fund for both the first- and second-year classes and sponsors a reception for the graduating class, their families and faculty.

In addition, the association provides financial support to a number of student-initiated community service activities, including a variety of health-education programs in public schools and clinics.

Medical Alumni and Development coordinates an alumni resource bank that arranges more formal contacts between alumni and students. Alumni volunteers host students who wish to spend time with a practicing physician, provide information to help students choose a specialty, serve as preceptors for clerkships and electives, and provide overnight lodging to fourth-year students going on residency interviews.

Reunions and other events

The School of Medicine's Reunion is held in April for medical classes who return at five-year intervals, beginning with the class observing its 10th year following graduation and continuing through the class celebrating its 55th reunion and all emeritus alumni (all classes beyond their 55th reunion). The reunion schedule includes a scientific program, social events, tours of the medical center and the presentation of Alumni Achievement, Faculty Achievement, Resident/Fellow Alumni Achievement and Distinguished Service awards. Award recipients are chosen on the basis of personal accomplishment, professional achievement and/or service to the School of Medicine. Members of the graduating class are special guests at the awards banquet and are officially welcomed into the Alumni Association.

The Alumni Office sponsors special alumni activities in selected cities across the United States. Volunteers from each area assist in sponsoring these events, which help alumni stay abreast of the educational and research activities at the School of Medicine. The Alumni Office also compiles class newsletters for selected classes, including recent graduates and Emeritus alumni.

Alumni support

Supporting their school generously is a tradition for a large percentage of alumni of the medical school and the health professions programs. Each year alumni and friends make gifts to the Annual Fund, which supports the medical school's departments,

divisions and health care professional programs, as well as scholarships and low-interest loan programs for students. Alumni also designate gifts for special purposes within the medical school, including specific research, education and training programs.

During the 1977-78 school year, the Executive Council of the Washington University Medical Center Alumni Association voted to establish the Alumni Endowed Professorship Program. The first alumni professorship was awarded in 1982. Ten professorships have been created thus far.

Schools of Washington University

All schools are located on the Danforth Campus at One Brookings Drive, St. Louis, Mo., 63130, except the School of Medicine, which is at 660 S. Euclid Ave., St. Louis, Mo., 63110. A University-sponsored shuttle bus travels between the Danforth Campus and the Medical Center at regular intervals.

Arts & Sciences

- College of Arts & Sciences
- Graduate School of Arts & Sciences
- University College

Sam Fox School of Design & Visual Arts

- College of Architecture
- Graduate School of Architecture & Urban Design
- College of Art
- Graduate School of Art

Olin Business School

School of Engineering & Applied Science

School of Law

School of Medicine

George Warren Brown School of Social Work

Programs

Washington University offers some of the nation's finest degree programs in medicine, biomedical research, allied health and public health. An outstanding education from the School provides graduates with solid opportunities for highly sought-after residencies and fellowships, engaging and challenging research endeavors, and successful, rewarding careers in medicine and related fields.

The Bulletin of the School of Medicine provides an overview of the courses, curriculum and faculty of each degree program. For complete information, please visit the program websites, accessible via the links at left.

MD Programs

Washington University School of Medicine offers several programs

and combined degree programs:

- Doctor of Medicine (four-year program)
- Doctor of Medicine (five-year program)
- Doctor of Medicine and Master of Arts
- Doctor of Medicine and Master of Science in Clinical Investigation
- Doctor of Medicine and Master of Population Health Sciences
- Doctor of Medicine and Doctor of Philosophy (MSTP)

Doctor of medicine

By conferring the MD degree, the University certifies that the student is competent to undertake a career as a doctor of medicine. It certifies further that, in addition to medical knowledge and skills, the graduate possesses qualities of personality — compassion, emotional stability and a responsible attitude — essential to an effective professional life.

Four-year program

A course of medical education for the MD degree ordinarily consists of a minimum of four years of study. Students recommended for the Doctor of Medicine degree must be of good moral character, they must have completed an entire academic course of instruction as matriculated medical students, they must have passed all required subjects or the equivalent and have received satisfactory grades in the work of the full academic course, and they must have discharged all current indebtedness to the University. The School requires that students take the USMLE Step 1 and Step 2 (CS and CK) examinations. All students must take and pass the School's Comprehensive Clinical Examination (CCX) prior to graduation.

At the end of the final academic year, students who have fulfilled these requirements will be eligible for the MD degree.

Five-year program

In addition to the regular four-year program leading to the MD degree and the MD/MA degree program, students are permitted to spend one additional year in an academic program in a medical or medically related field. In exceptional circumstances, a further additional year may be permitted. The student may receive a stipend but may not be considered an employee of the University. The program must be arranged with an academic adviser and is subject to the approval of the Associate Dean for Medical Student Research and Assistant Dean for Admissions and Student Affairs. The Student Research Opportunities brochure provides additional important information about participating in this program. Students enrolled in the five-year program must maintain coverage through Student Health while in St. Louis.

Doctor of medicine and master of arts

The objective of the MD/MA program is to provide one full year of individual, full-time, in-depth research experience for medical students in preparation for a career in academic medicine. Program participants absent themselves from medical school and spend 12 months working on basic biomedical research or hypothesis-driven clinical research in the lab of a faculty member. Degree requirements include a presentation before a research advisory committee, submission of a publication-quality manuscript and participation in a research ethics seminar.

No academic credit toward the MD degree will be given, but research may be continued as senior elective for credit. Fellowship stipends and other support are available through the Howard Hughes Medical Institute (basic science research), National Institute of Diabetes and Digestive and Kidney Diseases (GI, hepatology, endocrinology, nutrition, nephrology and hematology research), and the Clinical Research Training Center – Predoctoral Program (clinical research). Students unable to qualify for one of these awards may also apply for Institutional Funding. Funding amounts may vary, and some of

these sources have deadlines in early January. Please contact the MD/MA program administrator at (314) 362-7190 or visit the website at <http://mamd.wustl.edu> for details.

<#MSTP>

Doctor of medicine and master of science in clinical investigation

Since 2006, the School of Medicine has offered a Master of Science in Clinical Investigation (MSCI) to young investigators committed to pursuing academic careers in clinical research. Visit the [MSCI](#) section of this site for more information.

Doctor of medicine and master of population health sciences

The School of Medicine offers a combined MD/MPHS program. Please visit the [MPHS section of the Bulletin](#) for more information.

Doctor of medicine and doctor of philosophy (MSTP)

Washington University offers a combined MD/PhD degree program that uses the resources of the Graduate School of Arts & Sciences, the School of Engineering and the School of Medicine under the auspices of the Medical Scientist Training Program (MSTP). The purpose of the program is to train individuals in medicine and biomedical research to prepare them for careers as physician scientists. The program was inaugurated in 1969 and is one of the oldest and largest in the country. The program, normally completed in seven years or eight, has been highly successful; more than 80 percent of those who have completed postgraduate training are actively involved in research programs at leading institutions.

All students in the program receive financial support in the form of stipends (currently \$28,500 per year), health coverage, disability and

life insurance, and full tuition remission for both the MD and PhD phases of training.

Only students who have spent the equivalent of at least two years or four semesters in laboratory research should apply to the Medical Scientist Training Program. Applicants must meet the requirements for admission to both the School of Medicine and the graduate program of their choice. The Graduate Record Examination is not required. Students planning to concentrate in disciplines related to the chemical or physical sciences should have completed mathematics through calculus, physics and physical chemistry, and advanced organic chemistry. A course in differential equations also is recommended. For those students whose major interests are in the more biological aspects of medical science, the quantitative requirements for chemistry are less extensive, but a strong background in mathematics, chemistry and physics is still important. Although most individuals enter the program as first-year students, applications will be accepted from students in their first or second year at this medical school. The program matriculates approximately 25 new students each year, which represents one-fifth of the entering medical school class.

The program consists of three parts: 1) two years of an enhanced medical curriculum, 2) at least three years of original research toward a thesis to satisfy the requirements for the PhD degree, and 3) at least 15 months of clinical training based on a student's career goals. Both degrees are awarded upon the completion of the program.

While the Medical Scientist Training Program includes all medical courses required for the MD degree, it incorporates a high degree of flexibility for individuals through a wide range of electives and graduate courses, some of which may be taken during the first year of the medical curriculum. Every effort is made to individualize each student's curriculum based on previous background and current interests. The medical and PhD curricula are integrated, which permits students to take PhD course work in lieu of certain medical

school course work. In this way, students may substantially meet the course work requirements of the PhD program during the first two medical school years.

The MSTP Committee monitors the performance of each student, and a high scholastic standing as well as a commitment to research is expected.

Students normally spend between three and five years in doctoral studies satisfying the following requirements:

1. Completion of required graduate course work;
2. Successful performance in qualifying examinations;
3. Execution of original research suitable for a dissertation;
4. Defense of the thesis; and
5. Completion of a teaching assistantship.

The PhD degree may be obtained in the Program in Biomedical Engineering, the Division of Biology and Biomedical Sciences or in other research-oriented departments such as Anthropology or Physics. The largest contingent of MSTP students is trained under the auspices of the Division of Biology and Biomedical Sciences. The division, now in its 41st year, is a leader in interdisciplinary biomedical education. Member departments of the division include all clinical and preclinical departments of the medical school, as well as the Departments of Biology and Chemistry. These departments jointly provide training in the following interdisciplinary programs:

- Biochemistry
- Computational and Molecular Biophysics
- Computational and Systems Biology
- Developmental, Regenerative and Stem Cell Biology
- Evolution, Ecology and Population Biology
- Human and Statistical Genetics
- Immunology
- Molecular Cell Biology
- Molecular Genetics and Genomics

- Molecular Microbiology and Microbial Pathogenesis
- Neurosciences
- Plant Biology

The MSTP also permits students to undertake doctoral studies in other disciplines, provided that the resulting thesis is a rigorous, hypothesis-based body of work that is medically relevant.

A series of weekly seminars featuring physician scientists is held for MD/PhD students. These seminars are aimed at stimulating student interest in clinical medicine, increasing awareness of major research problems in clinical medicine and exposing students to diverse career paths in academic medicine.

MD/PhD students attend an annual weekend retreat during which students present their research. The retreat also features discussions led by experts on topics selected by students.

To keep students in the PhD phase of training up to date on their clinical skills, monthly opportunities are offered for clinical interactions. Students are matched individually with a clinical mentor in the specialty of their choice. These interactions include going on rounds and attending conferences.

A two-week non-graded tutorial for MD/PhD students facilitates their transition into the clinical phase of training.

MSTP students are required to complete a minimum of 15 months of clinical training. Opportunities exist to meet part of the requirement while engaged in PhD training. Students may opt to extend clinical training up to 22 months. The intensive clinical training is the last formal requirement for the MD degree.

Application Procedure: Individuals interested in applying to the Medical Scientist Training Program must complete the MD-PhD section on the AMCAS and the Washington University School of Medicine secondary application. The MSTP requires letters of recommendation from the applicant's research mentor(s).

Individuals wishing additional information about the program may contact:

Medical Scientist Training Program
Washington University School of Medicine
Campus Box 8226
660 S. Euclid Ave.
St. Louis, MO 63110-1093
(800) 852-4625
www.mstp.wustl.edu

Learning Objectives

Washington University School of Medicine medical student competency-based learning objectives

Washington University School of Medicine provides students with a supportive, stimulating and challenging environment in which to acquire a thorough foundation in scientific medicine and develop skills and professional attitudes necessary for the practice of medicine at the highest possible level of excellence. In addition, the medical school fosters a commitment to collegiality, respect of individuality, community involvement and leadership through many extracurricular organizations and activities supported by the school. The educational program is designed to ensure that each student will demonstrate the following:

I. Medical knowledge

Medical students must demonstrate knowledge of core concepts and principles of human biology and genetics, the scientific foundations

of medicine and the causations, epidemiology, diagnosis and treatment of diseases in individuals and diverse populations.

MK-1 Demonstrate knowledge of normal human structure and function at the molecular, genetic, cellular, tissue, organ-system and whole-body level in growth, development, and health maintenance.

MK-2 Describe the basic mechanisms involved in the causation and treatment of human disease and their influence on clinical presentation and therapy.

MK-3 Demonstrate knowledge of the epidemiology of common diseases.

MK-4 Demonstrate knowledge of the impact of ethnicity and culture, socioeconomic factors, and other social factors on health, disease, and individual patient approaches to health care.

MK-5 Describe the basic scientific and ethical principles of clinical and translational research.

II. Patient care

Medical students must demonstrate the ability to provide appropriate patient care in a multidisciplinary setting for the promotion of health and treatment of health problems across the human life span.

PC-1 Obtain appropriate medical histories that include psychosocial and behavioral factors that influence health.

PC-2 Perform accurate physical examinations.

PC-3 Perform basic procedures necessary for the practice of medicine.

PC-4 Apply the scientific method to the practice of medicine including the processes of problem identification, data collection,

hypothesis formulation, and the application of deductive reasoning to problem solving, clinical reasoning, and decision-making.

PC-5 Integrate collected clinical information, including history, physical examination, and relevant laboratory, radiologic, and other studies, to develop and carry out with supervision, appropriate, individualized diagnostic and treatment plans for patients across the broad spectrum of acute and chronic conditions.

PC-6 Perform basic risk assessments and formulate plans to promote patient wellness across the human lifespan.

PC-7 Counsel and educate patients and their families based upon consideration of patient lifestyle, culture, concomitant medical conditions, psychosocial, and socioeconomic factors.

III. Interpersonal and communication skills

Medical students must demonstrate their ability to communicate effectively with members of the medical community and with patients and their families from all socioeconomic and cultural backgrounds. (ED-10)

ICS-1 Demonstrate respectful and effective verbal and non-verbal interpersonal communication skills with patients.

ICS-2 Discuss diagnostic and treatment options in a manner that will facilitate the participation of patients and their families in shared decision-making.

ICS-3 Communicate effectively with members, including both physician and non-physician professionals, of the health care team.

ICS-4 Maintain accurate and thorough medical records and written documents.

IV. Professionalism

Medical students must demonstrate a commitment to professional responsibilities, adherence to ethical behaviors, and sensitivity to patients of diverse backgrounds.

PROF-1 Maintain a professionally appropriate demeanor, exhibit high standards of professional integrity, and demonstrate an awareness of potential conflicts of interest.

PROF-2 Apply legal and ethical principles governing the physician-patient relationship to interactions with patients and their families.

PROF-3 Act in the patient's best interest and serve as a patient advocate.

PROF-4 Work collaboratively and effectively in inter-professional teams.

PROF-5 Treat all patients and patients' family members respectfully and compassionately with respect for privacy.

V. Systems-based practice

Medical students must demonstrate an awareness of the larger context and system of health care and its impact on patients and the practice of medicine.

SBP-1 Demonstrate a knowledge of the U.S. health care delivery system, including the impact of financing, health policy, and the regulatory structure on health care.

SBP-2 Describe how health care disparities impact access and delivery of medical care for individuals and describe strategies for addressing these disparities.

SBP-3 Recognize the need for cost awareness and the role of risk benefit analysis in patient and population-based care.

SBP-4 Define patient safety and quality improvement, and discuss strategies to maximize the safety and quality of patient care.

VI. Practice-based learning and improvement

Medical students must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve their patient care skills based on external feedback and self-evaluation.

PBLI-1 Demonstrate the skills needed for life-long learning including the ability to identify and address personal strengths and weaknesses to incorporate formative feedback, and to self-assess knowledge and performance to develop a self-improvement plan.

PBLI-2 Apply an evidence-based approach to medical practice through selecting, appraising, and utilizing evidence from scientific studies related to clinical questions and patients' health problems.

PBLI-3 Participate in the education of peers and other members of the health care team.

PBLI-4 Identify and address biases (both personal and in others) that may impact health care delivery.

Curriculum

The curriculum is an evolving product of prolonged and continuing study, by both faculty and students, of the present and probable future course of medical science and medical practice, and of the ways in which medical education can be kept abreast of this course. Our students enter medical school with diverse backgrounds and interests and upon graduation undertake a wide variety of careers. The curriculum provides the basic knowledge and skills essential for

their further professional development. Modern medical education can no longer hope to be comprehensive; it must be selective. Yet students must develop facility in the understanding and use of several related technical languages: those of anatomy, chemistry, physiology and clinical medicine. They must share responsibility for the care of the patient. They also must learn how these areas of endeavor are interrelated, how the organization and needs of society influence the methods of providing medical care, and how new knowledge is acquired and old knowledge re-evaluated.

The curriculum includes a core experience based upon a sequence of courses that introduces students to the many domains and disciplines of medicine. The principles, methods of investigation, problems and opportunities in each of the major disciplines of medical science and medical practice are presented in such a way as to help students select the career best suited to their abilities and goals.

In the final year of the medical school curriculum, the required elective program helps students to decide where major interests lie. It also enables them to benefit from the wide range of specialized knowledge and skills found in the faculty and lays the foundation for lifelong learning and application of principles. The elective program permits students to select, according to their desires, the areas they wish to explore or to study in depth.

Visit [Learning Objectives](#) for information about the Competency-Based Learning Objectives of the medical degree program.

Description of undergraduate medical education program by year

First year

The first-year curriculum focuses on the acquisition of a core knowledge of human biology, as well as on an introduction to the

essentials of good patient care. Diversity among matriculants in undergraduate background and in approaches to learning is recognized and fostered. The courses are graded Pass/Fail, and a variety of didactic means are made available including lectures, small groups, extensive course syllabi, clinical correlations and a Lotus Notes computerized curriculum database. The Practice of Medicine I course uses regular patient interactions and integrative cases to teach students to skillfully interview and examine patients, as well as the fundamentals of bioethics, health promotion/disease prevention, biostatistics and epidemiology. An optional summer research program between the first and second year provides an opportunity for students to explore various areas of basic science or clinical research.

Second year

The second-year curriculum is focused on human pathophysiology and pathology. Through lectures, small group discussions, laboratory exercises and independent study, students acquire broad, detailed knowledge of mechanisms of disease pathogenesis, clinopathological relationships and fundamental principles of therapy. The Practice of Medicine II course continues students' introduction to the fundamentals of patient care and emphasizes organizing and interpreting clinical information to form a problem list, differential diagnosis and treatment plan. Students also learn how to accurately document and concisely present clinical information. Supervised clinical experiences and small group discussions further engender development of the professional attitudes and high ethical standards required for the third-year clinical clerkships.

Third year

The overall goal of the third year is implementation of fundamental interactive clinical skills necessary for the practice of medicine at the highest possible level of excellence. Students achieve this goal by

participating in intensive, closely supervised training experiences in the core clinical clerkships involving inpatient and ambulatory settings and interactions with patients who present a spectrum of emergent, urgent, routine and chronic clinical problems. Through these experiences, students exhibit growth and maturation in their abilities to take medical histories, perform complete physical examinations, synthesize findings into a diagnosis, formulate treatment plans and document and present information in a concise, logical and organized fashion. During the clinical clerkships, students learn to use the biomedical literature and other educational resources in the service of their patients and in self-directed learning. Students also use their personal experiences and rapidly expanding knowledge of human behavior and ethnic, cultural, socioeconomic and other social factors to develop their own personal standards of compassionate, respectful and ethical behavior in the practice of medicine.

Fourth year

The overall goals of the fourth year are to consolidate, enhance and refine the basic clinical skills developed during the clinical clerkships and to explore specialty areas within the field of medicine. This is accomplished by providing each student with optimal preparation for selecting and pursuing graduate medical education opportunities in his/her chosen field of medical practice and/or research. Students may select from a broad array of clinical rotations and research experiences and may arrange extramural experiences. Fourth year is also an opportunity to synthesize the learning from third year in preparation for clinical residency. Towards this end, students are required to complete a Capstone course prior to graduation.

Courses and Course Masters

First year

First-year courses are taught during the 39-week academic year.

M80 502 WU Medical Plunge

Will Ross, MD, MPH

M75 503 Cell and Organ Systems Biology

Paul C. Bridgman, PhD (Histology)

Robert S. Wilkinson, PhD (Physiology)

M05 501B The Human Body: Anatomy, Embryology, Imaging

Glenn C. Conroy, PhD

M30 523 Immunology

Andrey S. Shaw, MD

M30 511 Medical Genetics

Sabrina Nunez, PhD

M30 526 Microbes and Pathogenesis

Henry V. Huang, PhD

Scott J. Hultgren, PhD

M15 502 Molecular Foundations of Medicine

Linda J. Pike, PhD

M35 554 Neural Sciences

David C. Van Essen, PhD

Timothy E. Holy, PhD

Joel Price, PhD

M25 507 The Practice of Medicine I

Gregory M. Polites, MD

- Clinical Skills

Alan Glass, MD

- Ethics and Health Policy

Rebecca Dresser, JD

- Community and Public Health

Aimee S. James, PhD, MPH

- Interpreting Illness

Colleen Wallace, MD

- Communication Skills

Dehra Glueck, MD/ Alan Glass, MD

- Clinical Epidemiology & Evidence Based Medicine

Jay Piccirillo, MD

First-year selectives

The Selective Program provides first-year medical students with opportunities for enrichment and in-depth focus on areas beyond the core curriculum. All first year medical students are required to take and successfully complete at least four 10-hour Selective courses with a maximum number of six. Students must enroll in a minimum of one selective in humanities, one in the basic sciences, and one in a clinical area. They must also choose one additional selective from the clinical or basic science category.

Selective category descriptions:

Basic: Content or experience primarily deals with issues of cell biology, physiology, pathophysiology of diseases, and scientific and statistical methods.

Clinical: Content or experience primarily related to patient care in the inpatient or outpatient setting, communications, public or global health, palliative care or health care policy.

Humanities: Content or experience primarily deals with ethics, medicine as the subject of literature or the arts, or the history of

medicine.

M04 • General Selectives

Michael M. Awad, MD, PhD

M04 • Medical Humanities

Colleen Wallace, MD

Examples of selective offerings from last year include:

598H Advanced Interdisciplinary Bioethics Seminar-Ethical Issues in Human Reproduction

582 Alzheimer's Disease in the Clinic and the Lab

5881 Analysis of Clinical Data

520H Art and Medicine

587Z Beyond the Diagnosis: Social Perspectives on Mental Health

537 Cardiovascular Control Mechanisms

587V Clin Anat & Physio Sherlock Holmes' Way

587X Clinical Challenges in Health Literacy & Health Communication

5017 Clinical Correlations in Neurosciences

5351 Complementary and Alternative Medicine

530 Contemporary Molecular Immunology

500C Developmental Biology and Disease

538H Doctors on Film

5302 Frontiers in Leukemia

586H Health and Human Rights

5885 Health Street: Hands-On Comm Based Res-I

587L International Health

5878 Introduction to Clinical Neurosurgery

587W Introduction to Dentistry and Oral Medicine

5013 Introduction to Emergency Medicine-I

5016 Introduction to Emergency Medicine-II

581H Introduction to Medical Anthropology

587S Introduction to Newborn Medicine

524H Major Religious Traditions

5009 Medical Spanish

5061 Medicine of Laughter
5667 Microcirculation
588H Music and Medicine
5875 Olin Grand Rounds
516H Patient, Physician and Drama
582H Philosophy of Medicine
587A Physician as Health Protector and Patient Advocate
587N Public Health
587U Saturday Neighborhood Clinic
587T SPOTS (Sun Protection Outreach Teaching by Medical Students)
587D Students Teaching AIDS to Students (STATS)
528H Terminal Illness and Death
580H The Healer's Art
5876 Topics in Orthopaedic Surgery
533 Tropical Medicine
5863 Underserved Areas: Urban, Rural, Abroad

Second year

Second-year courses are taught during the 36-week academic year.

Course no./course title

M25 611B Cardiovascular Disease

Dana R. Abendschein, PhD

M25 614 Dermatology

David Sheinbein, MD

M35 632 Diseases of the Nervous System

Allyson Zazulia, MD

M55 660B Clinical Topics in Otolaryngology

Brian Nussenbaum, MD

M25 615A Endocrinology and Metabolism

William E. Clutter, MD

M25 620A Gastrointestinal and Liver Diseases/Nutrition

Deborah C. Rubin, MD

M25 625A Hematology and Oncology

Scot G. Hickman, MD

M25 605A Infectious Diseases

Nigar Kirmani, MD

M45 635B Obstetrics/Gynecology

Kenan Omurtag, MD

M60 665 Pathology

Erika C. Crouch, PhD, MD

M65 640A Physicians, Patients & Society: Pediatrics

Amanda Emke, MD

Erika Hayes, MD

M25 607 The Practice of Medicine II

Megan Wren, MD

- Clinical Skills

Alan Glass, MD

- Ethics and Health Policy

Rebecca S. Dresser, JD

- Community and Public Health

Aimee S. James, PhD, MPH

- Interpreting Illness

Colleen Wallace, MD

- Medicine Patient Sessions

Alan Glass, MD

- Neurology Patient Sessions

Allyson Zazulia, MD

- Ophthalmology

Colin McClelland, MD

- Communication Skills

Dehra Glueck, MD

- Radiology

Catherine Appleton, MD

- Clinical Epidemiology & Evidence Based Medicine

Jay Piccirillo, MD

M70 670A Principles of Pharmacology

Tom Ellenberger, DVM, PhD

M85 676A Diseases of the Nervous System: Psychiatry

Melissa Harbit, MD

Marci Garland, MD

M25 612B Pulmonary Diseases

Adrian Shifren, MD

M25 613B Renal and Genitourinary Diseases

Steven Cheng, MD

M25 606A Rheumatology

Richard D. Brasington, Jr., MD

Third year

Clinical clerkship (third) year is a 48-week academic year.

Course no./course title

Required Clerkships:

M95 790 Integrated Surgical Disciplines Clerkship (12 weeks)

John Kirby, MD

M25 710 Medicine Clerkship (12 weeks)

Thomas M. De Fer, MD

M35 720 Neurology Clerkship (4 weeks)

Robert Naismith, MD

M45 730 Obstetrics/Gynecology Clerkship (6 weeks)

Tammy Sonn, MD

M65 760 Pediatrics Clerkship (6 weeks)

Michele Marie Estabrook, MD

Colleen Wallace, MD

M25 707 The Practice of Medicine III

Greg Polites, MD

M85 770 Psychiatry Clerkship (4 weeks)

Fay Y. Womer, MD

Selective clerkships: (choice of one block)

M25 714 Ambulatory: Emergency Medicine Clerkship (4 weeks)

Mark Levine, MD

M26 713 Ambulatory: Family Medicine Clerkship (4 weeks)

Sharon McCoy George, MD

M85 771 Ambulatory: Psychiatry for Generalists Clerkship (4 weeks)

Fay Y. Womer, MD

M90 701 General Radiology Clerkship (4 weeks)

Matthew Parsons, MD

Michael Friedman, MD

M25 740 Dermatology Clerkship (4 weeks)

Lynn Cornelius, MD

M25 750 Geriatrics Clerkship (4 weeks)

Ellen Binder, MD

M60 702 Laboratory Medicine Clerkship (4 weeks)

Mitchell Scott, MD

M25 730 Physical Medicine and Rehabilitation Clerkship (4 weeks)

Neringa Juknis, MD

M90 740 Radiation Oncology Clerkship (4 weeks)

Jeffrey Olson, MD, PhD

M60 750 Surgical Pathology Clerkship (4 weeks)

Samir El-Mofty, DMD, MS, PhD

Fourth year

Fourth year is a 44-week academic year.

To qualify for the Doctor of Medicine degree at Washington University School of Medicine, fourth-year students are required to participate in a minimum of 32 weeks of electives (full-time clinical or research courses) and a required four-week Capstone course.

Twenty weeks of the minimum required time for the elective year must be taken exclusively in residence in the Washington University School of Medicine elective course program. A complete listing of fourth-year elective offerings at Washington University School of Medicine is available through the Office of the Associate Dean for Medical Student Education. Students may participate in clinical electives of four weeks duration. If a student takes a research elective, that elective must be of at least six weeks duration.

A maximum of 12 weeks of credit is allowed for full-time elective coursework taken at other academic institutions. These may be clinical or research electives. Students desiring credit for work to be done at other institutions must petition the Associate Dean for Medical Student Education. Absolutely no credit will be granted for electives undertaken prior to approval from the appropriate administrative committees.

Credit may be given for elective work done at any point in the standard four-year Doctor of Medicine degree program as long as

participation conforms to current elective guidelines, and a) the student is a duly registered, full-time student for a minimum of three years and nine months, including scheduled vacation time, and tuition is paid for four complete academic years; or b) if transferring into the third-year class, the student is a duly registered, full-time student for a minimum of 22 months and tuition is paid for two complete academic years.

Students are encouraged to take lecture-seminar elective courses, but such offerings are optional. Clock hours for the year total 1,386 (36 weeks). Remuneration for work done while participating in electives for credit is prohibited.

Interdisciplinary and Capstone Courses

M80 900 Research Opportunities

Medical Student Education Special Study

This course is a student-designed project under the direction of Dean Awad. It is intended for students who are interested in medical education as an aspect of their future career. The overarching goals are to introduce students to the principles of curriculum development. These principles will then be applied to the review and improvement of the current WUSM medical student curriculum. Potential topics include: how students learn at WUSM, literature review of emerging technologies, collaborating with a course master for curriculum development and/or syllabus review. The end product will depend on the nature of the project but potentially the development of a white paper or revised curriculum/course

materials. All students will present their work in poster format during the annual spring Office of Medical Student Education's Med Ed Day.

Note: This is a 4-week special study elective with enrollment limited to 1 student during a 4-week duration. Please contact Randi Hantak in the Curriculum Office to schedule.

M80 849 Fourth Year Capstone

Instructor(s): William B. Waldrop, MD

Elective Contact: Dr. Waldrop, 454-2689

Other Information: Additional details will be provided at a later date.

Enrollment limit per period: 65

Valid start weeks for this four-week course: Weeks 33 and 37

The Fourth Year Capstone Course is highly structured and is schedule sensitive. In order to provide students with the absolute best experience possible, students are REQUIRED to attend ALL sessions. In general the morning sessions will start at 9:00 a.m. and run until approximately 12 Noon. Afternoon sessions will generally run from 1:00 p.m. until about 4:00 p.m. The afternoons are hands-on activities and exercises and are faculty/staff intensive.

By the end of this four-week course, students should be able to demonstrate improved cognitive and clinical skills needed to enter the internship year of graduate medical training. The target group for this course is primarily students entering clinical residency training positions. As outlined in the course objectives, topics to be covered include acute clinical problems commonly faced on the inpatient service or emergency room, review of key diagnostic testing, basic procedural skills and patient and family communications regarding informed consent and end-of-life issues. Coursework will be divided between self-study, didactic and small group discussions and "hands-on" skills practice and simulation. Parts of the course will be tailored to individuals entering internal medicine, pediatrics and surgical disciplines. Students will be assessed by performance on simulation exercises and a written

exam.

Learning objectives

By the end of this course:

1. The student will be able to respond to common acute patient problems as tested with simulation by rapidly assessing the patient, requesting relevant information from the patient, medical record, and nursing staff, generate a differential diagnosis and order appropriate diagnostic testing and initial treatment for the problem.
2. Demonstrate competence in a set of designated technical skills commonly needed in residency including basic suturing, chest tubes, central line, thoracentesis, and IV placement.
3. Demonstrate the ability to interpret diagnostic tests, such as chest- x-ray and EKG, commonly used for initial evaluation of acute medical problems.
4. Demonstrate and discuss the key elements of obtaining informed consent, dealing with difficult patient and family situations, end-of-life issues, and pain management.

Alternative clinical skills sessions will be offered on an ad hoc basis for students as have been done in the past. These will be available in March and April depending on demand and faculty availability. These will not be “for credit”.

M04 582 01 Alzheimer’s Disease in the Clinic and in the Lab

Instructors: John C. Morris, MD, and other faculty affiliated with the Knight Alzheimer’s Disease Research Center, Department of Neurology. For information, contact Jennifer Phillips at 286-2882 or phillipsj@abraxas.wustl.edu.

Alzheimer's disease (AD) affects more than 5 million Americans, and will increase substantially as our population ages. Of the top 10 causes of death in the United States, AD is the only disease without any way to prevent, cure or slow the progression. The cost of caring for AD patients has been estimated at over \$172 billion annually, and the human toll on patients and family members can be devastating. Patients and families turn to primary care and specialist physicians (e.g., neurologists, psychiatrists, geriatricians) for answers to their plight. The good news for physicians is that research on AD is moving at a rapid pace. Exciting advances in our understanding of AD etiology, early diagnosis and treatment are changing the landscape of dementia care.

Students in this course are offered a dynamic and interactive overview of the most exciting areas of AD clinical and science research from one of the top Alzheimer's disease research centers in the world. Find out how amyloid plaques and other AD-related abnormalities form in the brain and new discoveries about their possible reversal! The course includes lecture and student presentation components, plus opportunities to observe patients and families in an active neurology memory disorder clinic, participate in neuropathology evaluations of demented individuals, experience and administer psychometric evaluation tools and interact with investigators from the fields of molecular genetics, cell biology and neuropathology.

M35 851 Clinical Aspects of Aging and Dementia

Instructor(s): Joy Snider, MD, PhD, and John C. Morris, MD

Location: Knight Alzheimer's Disease Research Center (ADRC) 4488 Forest Park Ave. (two-story brick building at intersection with Taylor)

Elective Contact: Jennifer Phillips, MPA (coordinator), 286-2882, phillipsj@wustl.edu.

Other Information: Contact Jennifer Phillips at least one week prior to first day of elective to set up orientation.

Enrollment limit per period: 1

Valid start weeks for four-week blocks: Weeks 9, 13, 17, 21, 33, and 37

This elective focuses on the characterization of the clinical and cognitive features of healthy brain aging and the distinction of dementia from healthy aging. Experienced clinicians will review the differential diagnosis of dementia with the students, including Alzheimer's disease, dementia with Lewy bodies, frontotemporal dementias, cerebrovascular disorders and affective disorders. The student will gain proficiency in interviewing techniques and in the neurologic examination of the geriatric patient, be introduced to neuropsychology, neuropathology, biomarkers, neuroimaging, genetics and other biomedical procedures important in the diagnostic evaluation of older adults. Experience in community assessment and long-term care is provided. Demonstration of clinical trials of experimental agents used in memory disorders and practical aspects of the management of the demented patient and his or her family is provided. An interdisciplinary approach is emphasized and students will have opportunity to interact with physicians, nurse clinicians, psychologists and social workers. Students have the option of becoming certified in the Clinical Dementia Rating, the gold standard in dementia staging.

Student time distribution: Research and Clinical Patient Evaluation 80%, Conferences/Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Attending neurologists, psychiatrists and geriatricians involved in the evaluation of memory and aging

Patients seen/weekly: 6-12

On call/weekend responsibility: None

Course Evaluations

Systematic course evaluation is performed for each year of the curriculum by faculty peers, teaching faculty and students. This system permits problem identification, ensures timeliness of feedback, promotes discussion of new teaching methodologies, allows curriculum inventory, recommends changes in course offerings and provides better integration of the curriculum. These reviews are guided through a Curriculum Evaluation Committee (CEC) process for each of the preclinical years of instruction (i.e., CEC I = first year; CEC II = second year) and the clinical years of instruction (i.e., CEC III = third year; CEC IV = fourth year).

The **Office of Medical Student Education** (OMSE) oversees the course evaluation system. The collected data are forwarded to the respective course masters, the Committee on Medical Education and the Academic Affairs Committee.

Humanities Program in Medicine

The Humanities Program in Medicine is a University-wide program dedicated to providing students with a broadened exposure to areas other than the biological sciences during their medical education. These areas include clinical ethics, jurisprudence, history, economics, literature and health policy. The program is directed from the dean's office at the School of Medicine and utilizes faculty at the Danforth Campus, medical school and School of Law, as well as extramural faculty.

The mission of the program is to generate an appreciation of the relationship of human experience, culture, institutions and values to medicine and thereby help to educate professionals who will apply that understanding to their activities as practicing physicians, biomedical researchers and/or medical administrators. This program

is an enhancement of an already strong curriculum to prepare medical students to pursue their professional careers more effectively. It takes a major role in the Practice of Medicine course integrated over the first two years of medical school. In addition, several electives are offered during the fourth year.

Courses

M80 541 TOPICS IN MEDICINE/MEDICAL HUMANITIES

Instructor: Colleen Wallace, MD, 454-6299

This is a required course for the first year of medical school. This interdepartmental course is highly coordinated with Medical Humanities. Students select topics of interest for in-depth study initiated by discussions in a small-group seminar format.

Development of topics includes input from a broad range of disciplines, including sociology, philosophy, ethics, history, communications and economics, as well as the biological and medical sciences. It is offered as a menu of mini-courses, each limited to approximately 15 students. Each section consists of six 1.5-hour sessions with a faculty member(s) devoted to an individual subject. Each student must select one course from the menu.

MD Academic Calendar

2014

June

16 Monday: Clinic orientation for new third-year students.

Academic year begins for third- and fourth-year classes.

20 Friday: Deadline for registration and initial payment of tuition for the third- and fourth-year classes.

July

3 Thursday: Independence Day holiday begins at 5 p.m.

4 Friday: Independence Day observance.

August

11 Monday: Orientation, registration, matriculation and initial fee payment for the first-year class.

12 Tuesday: Academic year begins for the first-year class.

18 Monday: Academic year begins for the second-year class.

22 Friday: Deadline for registration and initial payment of tuition for the second-year class.

31 Sunday: Labor Day holiday begins at 5 p.m.

September

1 Monday: Labor Day observance.

November

26 Wednesday: Thanksgiving Day holiday begins at 5 p.m.

27 Thursday: Thanksgiving Day observance.

28 Friday: Holiday for all classes.

December

19 Friday: Winter recess begins at 5 p.m. for all classes.

2015

January

5 Monday: Classes resume for all students.

9 Friday: Deadline for payment of the balance of tuition for all classes.

18 Sunday: Martin Luther King Jr. Day holiday begins at 5 p.m.

19 Monday: Martin Luther King Jr. Day observance.

March

27 Friday: Spring break begins at 5 p.m. for first- and second-year classes.

April

2 Thursday: Spring break begins at 5 p.m. for third- and fourth-year classes.

6 Monday: Classes resume for all students.

May

3 Sunday: Academic year ends at 5 p.m. for graduating students.

15 Friday: Academic year ends at 5 p.m. for the second-year class.
Commencement.

24 Sunday: Memorial Day holiday begins at 5 p.m.

25 Monday: Memorial Day observance.

29 Friday: Academic year ends at 5 p.m. for the first-year class.

Academic year and clinical clerkships end at 5 p.m. for students in clinical clerkships.

Please note: Beginning and ending dates of each academic term will be published with individual class schedules.

Schedule of Clerkship and Elective Intervals 2014-2015

Final examinations for clinical clerkships are administered at the end of each clerkship. Exact date, time and location are announced by the course master.

Weeks/Dates

1-4: June 16, 2014 – July 13, 2014

5-8: July 14, 2014 – August 10, 2014

9-12: August 11, 2014 – September 7, 2014

13-16: September 8, 2014 – October 5, 2014

17-20: October 6, 2014 – November 2, 2014

21-24: November 3, 2014 – November 30, 2014

25-28: December 1, 2014 – January 11, 2015

(Winter recess 5 p.m. December 19, 2014 – January 4, 2015)

29-32: January 12, 2015 – February 8, 2015

33-36: February 9, 2015 – March 8, 2015

37-40: March 9, 2015 – April 5, 2015

41-44: April 6, 2015 – May 3, 2015

45-48: May 4, 2015 – May 29, 2015 (*clerkships only)

*Clinical clerkships end May 29, 2015.

Lectureships and Visiting Professorships

Several established lectureships enable the School to bring to the Medical Center each year distinguished guests who contribute significantly to the richness of student life.

Ben T. Abelson Memorial Lectureship in Pediatric Hematology-Oncology. Established by Mrs. Ben T. (Ann) Abelson, the first lecture was held on January 8, 1988.

Harry Alexander Visiting Professorship. Established in 1964 by former house staff and friends of Dr. Harry Alexander to provide an annual visiting professor in the Department of Medicine.

Alpha Omega Alpha Lectureship. Given each year by a faculty member of the students' selection.

Daniel R. Biello Memorial Lectureship. Established in 1986 by friends, students and colleagues of Dr. Daniel R. Biello to provide an annual lectureship devoted to advances in radiology and nuclear medicine.

George H. Bishop Lectureship. Supported by funds made available by friends interested in the advancement of neurology.

Daniel Bisno, MD, Memorial Lecture on Ethics in Ophthalmology. Established in 2001 by David C. Bisno, MD, in memory of his father.

Bohigian Lectureship in Ophthalmic History and Visual Sciences.

Established in 2010 by Dr. and Mrs. George Bohigian to focus on the history of ophthalmology and visual science. **Dr. John P. Boineau Memorial Lecture Fund.** Established to honor one of the giants in the field of cardiac electrophysiology, Dr. John P. Boineau, who died in 2011. The lectureship was created to bring to Washington University internationally recognized speakers whose careers have been focused on either surgical or medical therapies related to the treatment of cardiac arrhythmias.

Dr. William “Grif” Bowen Endowed Lectureship. Established in 2014 through gifts from colleagues and friends to honor Dr. Bowen, a distinguished primary care physician and a faculty member in the Department of Internal Medicine.

Estelle Brodman Lectureship Fund. Established in 1981 by friends and colleagues of Dr. Brodman in honor of her distinguished contributions to the School of Medicine.

The James Barrett Brown Visiting Professorship in Plastic and Reconstructive Surgery. Created in 1969 by patients, friends, colleagues and former students to honor Dr. Brown.

Thomas H. Burford Lectureship in Thoracic Surgery. Founded in 1971 by friends of Dr. Burford.

H. Marvin Camel Lectureship. Established in 1999 by family, friends and colleagues to honor Dr. H. Marvin Camel's retirement.

Glover H. Copher Lectureship in Cancer. Founded in 1971 with endowment provided by Dr. Copher and friends.

The Carl F. and Gerty T. Cori Visiting Professorship. Established in 1985 in honor of Nobel Laureates Carl and Gerty Cori by the Edward Mallinckrodt, Jr. Foundation, colleagues, faculty and former students.

Dr. William S. Coxe Memorial Lectureship Fund. Established by colleagues and friends in memory of Dr. William S. Coxe, a highly-

esteemed Washington University neurosurgeon who died in 2012. The lectureship was created to bring to the School of Medicine internationally recognized speakers whose careers have been focused on neurological surgery.

Philip R. Dodge Lectureship. Established in 1987 by friends and colleagues to provide an annual lectureship in the Department of Pediatrics.

Professor and Dean Jay M. Enoch and Rebekah Enoch Endowed Lecture on Vision Science in Ophthalmology. Established in 2005 in gratitude to Dr. Bernard Becker. The lecture is meant to keep faculty abreast of new and emerging developments in Ophthalmology.

Joseph Erlanger Lectureship. Established in 1989 by the Department of Cell Biology and Physiology to honor Dr. Erlanger.

I. Jerome Flance Visiting Professorship. Established in 1977 by former students and friends of Dr. Flance to provide annually a visiting professor in the Division of Pulmonary Diseases.

Julia Hudson Freund Lecture in Oncology. Established in 1982 by S.E. Freund in memory of his wife to provide a visiting lectureship in clinical oncology in the Division of Oncology. This was endowed in 2002 by the Harry and Flora D. Freund Memorial Foundation.

Harvey A. and Dorismae Hacker Friedman Lecture on Aging. Established in 2001 to honor the Friedmans for their instrumental role in helping to create the Center for Aging and for their ongoing leadership and support.

Edwin F. Gildea, Jr. Lectureship in Psychiatry. Established in 1978 by friends, colleagues and former students of Dr. Gildea.

Joseph J. Gitt Visiting Professorship in Clinical Neurology. Established in 1971 by his family and friends to honor Dr. Gitt.

Sidney Goldring Lectures. Established in 1992 upon the death of Dr. Sidney Goldring, who was the founder of the Division of Pediatric Cardiology.

Graham Colloquium. A gift from Mr. and Mrs. Evarts Graham, Jr., in 1963 to encourage opportunities for students to expand their views on social, philosophical, artistic and political topics.

The Evarts A. Graham Lecture. Established in 1985 by the Washington University Alumni of the Phi Beta Pi medical fraternity to honor the memory of Dr. Evarts A. Graham.

Samuel B. Guze Lectureship. Established in 1990 by friends and colleagues to honor Dr. Guze.

Carl Gayler Harford Lectureship. Established in 1977 by the family of one of Dr. Harford's patients in gratitude for his contributions to teaching clinical medicine and virology.

Alexis F. Hartmann, Sr. Lectureship. Established in 1960 by friends interested in pediatrics to provide an annual lecture in Dr. Hartmann's honor.

Alex H. Kaplan Visiting Professorship/Lectureship. Established in 1986 by Dr. and Mrs. Alex H. Kaplan to support a visiting psychoanalyst.

Michael and Irene Karl Lectureship in General Internal Medicine. Created in 1983 by Mr. and Mrs. Meyer Kopolow to provide an annual lectureship in honor of Drs. Michael and Irene Karl.

Michael A. Kass, MD, Endowed Lecture Fund in the Department of Ophthalmology. Established in 2005 by the Horncrest Foundation, in honor of Dr. Michael A. Kass, HS73 and head of the Department of Ophthalmology.

The Jack and Barry Kayes Lectureship in Ophthalmology and Visual Sciences. Established in 2001 by Dr. Jack and Mrs. Barry

Kayes to endow a lectureship in the Department of Ophthalmology and Visual Sciences.

Charles Kilo, MD Lectureship in Internal Medicine. Established in 1998 by Mrs. Ola H. Blodgett to pay tribute to the expert and compassionate care provided by Dr. Charles Kilo.

David M. Kipnis Lectureship in Molecular Biology and Pharmacology. Established in 1998 to provide an annual lecture in honor of Dr. Kipnis.

Robert S. Klayman Memorial Lecture. Established in 1997 by Mrs. Robert S. Klayman, in memory of her husband, to support an annual lecture on Parkinson's Disease Research.

Rosalind Kornfeld Endowed Memorial Lectureship Fund. Established in memory of Dr. Rosalind Kornfeld, a faculty member for 35 years, who died in 2007. She was very involved in promoting the careers of women faculty and was a founding member and first president of the Women's Academic Network. The fund was features lectures by outstanding women scientists.

Stanley J. Korsmeyer Memorial Lecture. Established by colleagues, family and friends in 2005 in memory of Dr. Stanley J. Korsmeyer, a renowned cancer cell researcher and former Washington University School of Medicine faculty member.

Kroc Visiting Lectureship Program. Established in 1985 by The Kroc Foundation in honor of Ray A. and Robert L. Kroc.

Paul E. Lacy Lectureship in Pathology. Established in 1987 by The Kilo Diabetes and Vascular Research Foundation in honor of Dr. Lacy's many contributions to pathology and diabetes research, and to recognize his collaboration over the years with the co-founders of The Kilo Foundation.

William M. Landau Lectureship. This lectureship was established in 1995 by friends, family and colleagues of Dr. Landau.

Irwin Levy Memorial Fund. Supports the Dr. Irwin Levy Visiting Lectureship in Neurology, which was established in 1978 by Mr. and Mrs. Meyer Kopolow.

Oliver H. Lowry Lectureship. Established in 1978 by friends, colleagues and former students of Dr. Lowry.

H. Relton McCarroll, Sr. Visiting Professorship in Orthopaedic Surgery. Created in 1972 by patients, friends, colleagues and former students in honor of Dr. McCarroll.

Edward Massie Lectureship in Cardiovascular Disease. Established in 1981 by Edward J. Simon, MD, Bernard Shanker and other grateful colleagues and patients.

G. Leland Melson II Lectureship. Established in 1993 in memory of Dr. Melson by his friends and colleagues.

J. Neal and Lois Middelkamp Lectureship. Established in 2001 by Dr. J. Neal and Lois Middelkamp to support a pediatric lectureship in infectious diseases and advances in pediatric education for medical students, residents and pediatricians, all life-long interests of Dr. Middelkamp.

The Dr. and Mrs. William B. Mill, Jr. Lectureship. Established in 2001 in the Department of Radiation Oncology by Dr. and Mrs. William B. Mill, Jr. This was given in recognition of the career accomplishments of Carlos A. Perez, MD, and the impact he had on the professional development of Dr. Mill.

Carl V. Moore Lectureship. Established in 1973 by friends and patients of Dr. Carl V. Moore.

Carl A. Moyer Visiting Professorship of Surgery. Established in 1978 by The Harry Freund Memorial Foundation to support an annual lecture in honor of Dr. Moyer's contribution to surgery.

National Kidney Foundation — Saulo Klahr, MD Lectureship.

Established in 1991 by the Kidney Foundation to honor Dr. Klahr, past president of the National Kidney Foundation and the John E. and Adaline Simon Professor and Vice Chair of the Department of Medicine at Washington University.

Joseph H. Ogura Lectureship. Established in 1977 by friends and colleagues of Dr. Ogura as a tribute to his numerous scientific accomplishments and contributions to the School of Medicine and graduate medical education, and his commitment to patient care.

Charles W. Parker Lectureship. Established in 2014 by friends and colleagues of Dr. Parker to honor his legacy as a pioneer in the field of allergy and immunology and as a dedicated educator.

Carlos A. Perez Endowed Lectureship in Oncology. Established in 2002 in the Department of Radiation Oncology by Dr. Perez's friends, colleagues and current and former trainees in grateful recognition for his inspiration, guidance and leadership.

Dr. Roy H. Petrie Lectureship. Established in 2000 with gifts from various donors in memory of Roy H. Petrie, MD.

Rose and Samuel Pollock Surgical Lectureship. Established in 1976 by Dr. Joseph H. Pollock in memory of his parents.

The Probstein Oncology Lectureship. Established in 1985 by Mr. and Mrs. Norman K. Probstein in appreciation of professional services provided by William Fair, MD, former head of the urology division of the Department of Surgery, and Carlos Perez, MD, professor emeritus of radiology and head of radiation oncology at the medical center's Mallinckrodt Institute of Radiology.

James A. Purdy Endowed Lectureship. Established by Elekta Oncology Systems, Ltd. in 2002 to honor Dr. James Purdy for his contributions to the field of Radiation Oncology.

Eli Robins Lectureship in Psychiatry. Established in 1977 by friends, colleagues and former students of Dr. Robins.

Peggy Sansone Memorial Lectureship. Created in 2002 by Anthony F. Sansone, Jr. and the Peggy Sansone Special Angel Foundation to promote the exchange of ideas and scientific information on the topic of depression and the role of spirituality in personality development, happiness and mental health. The lecture is a memorial to Mr. Sansone's wife, Peggy Sansone.

Julio V. Santiago Leadership. Established in 1999 by the Department of Pediatrics as a lasting tribute to Julio V. Santiago, MD, for his long-standing contributions to the areas of diabetes, endocrinology and metabolism.

The Rena Schechter Memorial Lectureship in Cancer Research in the Department of Medicine. Established in 1996 by Dr. Samuel E. Schechter to create a lectureship in cancer research in memory of his wife, Rena Schechter.

Dr. Alexander and Helena Schonfeld Lectureship. This lectureship was established in 1994 by Mrs. Helena Schonfeld, in honor of her son, Gustav Schonfeld, Professor of Medicine at Washington University School of Medicine.

Henry G. Schwartz Lectureship. Created in 1983 by former residents and colleagues from the neurosurgery department to honor Dr. Schwartz.

Wendell G. Scott Memorial Lectureship. Established in 1972 by friends and colleagues of Dr. Wendell G. Scott.

Major G. Seelig Lectureship. Established in 1948 in the field of surgery by friends of Dr. and Mrs. Seelig.

Philip A. Shaffer Lectureship. Founded in 1957 by friends of Dr. Shaffer in recognition of his accomplishments in biochemistry.

Earl E. and Wilma Shephard Orthopaedics/Otolaryngology Memorial Lecture. Established in 1994 through a bequest by Dr. and Mrs. Shephard.

Frank O. Shobe Lectureship. Established in 1986 by friends of Dr. Shobe to honor him as a physician and teacher.

Donald C. Shreffler Genetic Lectureship. Established in 1995 by Mrs. Donald C. Shreffler as a memorial to her husband.

Eduardo Slatopolsky Lectureship. Established in 1988 by Mr. and Mrs. William Wolff in honor of Dr. Slatopolsky's 25-year association with the School.

Carl and Sue Smith Lecture in Pediatrics. Established in 2007 by Dr. Carl Smith, School of Medicine Professor of Pediatrics, with a focus on pediatric lab medicine.

Burton E. Sobel Lectureship. Established in 2013 through gifts from faculty and alumni of the Cardiovascular Division in memory of Dr. Sobel, past director of the division whose revolutionary work in the care of acute coronary syndromes laid the groundwork for ongoing discoveries and outstanding patient care.

C.R. Stephen, MD, FFARCS, Fund for Lecture and Clinical Research in Anesthesiology. Established in 1986 by former students, residents, faculty and friends in honor of Dr. Stephen, first Head of the Department of Anesthesiology.

Sterling Drug Visiting Professorship in Pharmacology. Established in 1986 to honor Ernst Zander, MD, former medical director of Sterling Drug, Inc.

Arthur W. Stickle Lectureship in Pediatric Ophthalmology. Established by Arthur and Emily Stickle in 1995 with their generous gift in recognition of Dr. Stickle's medical training in the Department of Ophthalmology and Visual Sciences and his special professional contribution to the field of pediatric ophthalmology.

Strunk Family Lectureship in Asthma. Established in 2005 by Dr. Robert C. Strunk and his family to provide lectures in the area of pediatric asthma.

The Richard A. and Betty H. Sutter Visiting Professorship in Occupational and Industrial Medicine. Established in 1985 by Dr. and Mrs. Sutter to encourage opportunities for students, faculty, other physicians and the St. Louis community to expand the understanding and practice of occupational medicine.

Jessie L. Ternberg Pediatric Surgery Visiting Lectureship.

Made possible from a fund established in 1977 by Mr. Meyer Kopolow to honor Dr. Ternberg.

Robert J. Terry Lectureship (1939) and Visiting Professorship (1982).

Established by alumni and Charles S. Terry, his son, respectively, "for the purpose of fostering greater appreciation of the study of anatomy."

Donald L. Thurston Memorial Lectureship. Established in 1988 by his wife, Dr. Jean Holowach Thurston, and his colleagues and friends, the lectureship is devoted to the history of biomedical advances.

Leonard J. Tolmach Lectureship. Established in 1995, this lectureship was endowed by friends and colleagues to honor the legacy of Dr. Tolmach. The lecture theme is radiation biology in clinical radiation oncology.

Mildred Trotter Lectureship. Established in 1975 by friends and former students of Mildred Trotter to bring a distinguished woman scientist to the School of Medicine each year.

Rudolph A. Tuteur Pulmonary Lectureship. This lectureship is endowed by family, friends, patients and colleagues of the Tuteur family to memorialize Rudolph A. Tuteur. The goal of this annual fall event is to promote further understanding of problems associated with chronic pulmonary disease from which he suffered.

Dr. Todd Wasserman Visiting Lectureship in Radiation Oncology.

Established in 2004 by Dr. Wasserman and funded by MedImmune, Inc. and friends and colleagues of Dr. Wasserman.

Primary Care Summer Preceptorships

Since 1996 the school has sponsored a primary care preceptorship program for students during the summer between their first and second years of classes. Students select a preceptor in internal medicine, pediatrics or family practice and spend up to eight weeks observing that physician's clinical practice. A stipend is provided to the student. Although many of the preceptors are in St. Louis, others, particularly alumni, are located in cities throughout the country.

Student Research Fellowships

Student research is an important part of the educational program. Fellowships in basic science or clinical areas will be awarded each year to selected students who undertake research projects under the direction of faculty members. Research allows students to discover firsthand the problems and rewards of obtaining and assessing new information, thus adding another dimension to their experience as investigators.

Most students take the opportunity for research during the summer after their first year of classes, but incoming students to the school are also eligible. All research must be conducted at the School of Medicine. Students will be awarded a fellowship for the 2.5-month

program.

Inquiries should be made to:

Koong-Nah Chung, PhD

Associate Dean for Medical Student Research

Director of the Office of Medical Student Research

Washington University School of Medicine

Campus Box 8107

660 S. Euclid Ave.

St. Louis, MO 63110

(314) 362-6844

chungk@wusm.wustl.edu

Adviser System

Student academic advising occurs within two broad programs.

1. Advisers: First-year students select faculty advisers from a list of volunteer faculty in their same academic society whose membership includes both basic science and clinical faculty. Faculty meet and discuss with their group, how to succeed in medical school, the opportunities and challenges they may face as a medical student, career paths and how to select among them. Many students particularly in first and second year, are interested in opportunities for clinical shadowing. Faculty meet with students 3-4 times a year as a group, but welcome more contact from students individually. These meetings are usually social and off-campus.
2. Career (fourth-year) Advisers: Each third-year student selects an adviser from a list of faculty advisers. In most cases, the adviser is a faculty member in the field in which the

student will be seeking a residency appointment. The career advisers have responsibility for reviewing the student's choice for fourth-year electives and making appropriate recommendations for the structure and content of the elective year. In addition, at the beginning of their final year of medical school, fourth-year students are required to meet with the assistant dean in preparation for writing the MSPE. At this meeting, the assistant dean gives each student a list of faculty advisers within their specialty of choice. Students are encouraged to select a faculty adviser from this list. These advisers are instrumental in helping the students choose programs that would meet their educational and career goals, review their applications and personal statements, and help with construction of their rank lists. The assistant dean for career counseling is also available to provide individual counseling in planning for the residency application and match process. For more information visit the [Career Counseling Office](#) website and the [Postgraduate Training](#) section of the Bulletin.

In addition to the advising programs described, students seek informal advising from faculty with whom they have had contact, either through classroom work, research or clerkships. Students also have faculty contact through membership in the academic societies. Many of the specialty specific student interests groups and other student run programs provide opportunities for informal advising.

Alpha Omega Alpha

[Alpha Omega Alpha](#) is a national medical honor society. Members

are selected by a standing AOA committee during the final year of medical school. Selection is based upon academic performance during the first three years, in addition to other qualities such as leadership. Approximately one-sixth of the class is elected to AOA.

Students elected to AOA are honored at an awards dinner during the final year and at a special AOA lecture.

Awards and Prizes

Washington University School of Medicine publicly recognizes and rewards at two annual events outstanding scholarship, research accomplishments and community service of individual students. In December, the Student Awards Luncheon acknowledges academic excellence earned during the first three years of study. As part of the festive commencement activities in May, graduates are recognized for meritorious research and clinical achievements accomplished during their medical school careers.

Morris Alex, MD Prize. Awarded each year to the medical student who is outstanding among his or her peers in the second-year Practice of Medicine course. The November 2013 recipient: Justin D. Krogue.

Alpha Omega Alpha Book Prize. Awarded to a member of the graduating class who has performed outstandingly for the entire medical course. The May 2014 recipient: Philip Laurence Prez.

American Academy of Neurology Medical Student Prize for Excellence in Neurology. Awarded to a member of the graduating class for excellence in clinical neurology and outstanding personal qualities of integrity, compassion and leadership. The May 2014

recipient: Illya Tolokh.

American College of Physicians Michael M. Karl, MD Book

Award. Presented annually to a member of the graduating class committed to a career in internal medicine, in recognition of highest achievement in the field of internal medicine. The May 2014

recipient: David Morton Rubins.

American College of Physicians Award for Excellence in Physical Diagnosis.

Given to a student annually for outstanding performance in the second-year Practice of Medicine course. The November 2013

recipient: Madeleine B. Chollet.

American College of Physicians Clerkship Award. Established in 1992 to be awarded to a student completing the third year of study with meritorious achievement in the Internal Medicine Clinical Clerkship. The November 2013 recipient: Amit I. Bery.

American Medical Women's Association Glasgow-Rubin

Memorial Award. Presented to the woman graduating first in her class.

American Medical Women's Association Glasgow-Rubin

Memorial Achievement Citations. Presented to women medical students graduating in the top 10 percent of their class. The May 2014 recipients: Alexandra Hathaway Baker , Rachel Lea Kylo, Brigid Kathleen Marshall, and Katelyn Andrea Ostendorf.

The Ruth Bebermeyer Award. Established in 2001 by the WUMCAA executive council to honor Ruth Bebermeyer for her many years of dedicated service to WUMCAA (1990-2000) and to the students of the School of Medicine. The award is given to "a student who has shown extraordinary kindness and sensitivity to the needs of others," whether those others be fellow students, patients or just people in general. The November 2013 recipient: Elizabeth Fenstermacher.

Alexander Berg Prize. Awarded to the student presenting the best results in research in molecular microbiology. The May 2014

recipient: Rittik Chaudhuri.

The James and Philip Brasington Memorial Prize. Awarded to a medical school student who has demonstrated excellent preclinical and clinical academic performance in psychiatry and who has the potential to make significant contributions to the field. The May 2014 recipient: Elizabeth Fenstermacher.

Jacques J. Bronfenbrenner Award. Provided by Dr. Bronfenbrenner's students in memory of his inspiration as a teacher and a scientist, and awarded to the member of the graduating class who, as judged by the Department of Medicine, has done the most outstanding work in infectious diseases or related fields. The May 2014 recipient: Allison Jan Steinmetz.

Dr. Richard S. Brookings and Robert Carter Medical School Prizes. Provided through a bequest of Robert S. Brookings to recognize academic and personal achievements, including but not limited to exemplary academic performance, leadership, community service and research. The November 2013 Dr. Richard S. Brookings recipients: Ravi Gottumukkala, David M. Rubins and Marshall C. Strother. The May 2014 Dr. Richard S. Brookings recipient: Christopher Tsung-jer Chen. The November 2013 Robert Carter recipients: Nicholas A. Hoerter, Rachel L. Kylo and Jonathan D. Power. The May 2014 Robert Carter recipient: Jeffrey Gei-Hun Stepan.

Dr. Harvey Butcher Prize in Surgery. Awarded annually in memory of Dr. Harvey Butcher to the members of the graduating class who, as judged by the Department of Surgery, show the greatest promise for general surgery. The May 2014 recipient: Linda Xiaobo Jin.

Kehar S. Chouke and George Gill Prize in Anatomy. Awarded annually to a first-year medical student who has demonstrated superior scholarship in Human Anatomy. The November 2013 recipient: Kenneth M. Lin.

Class of 2001 Award. Established by the Class of 2001 as its gift to the medical school. Awards are to be given to third-year medical students in recognition of outstanding performance in the areas of community service and student group activities in the first two years of medical school. The November 2013 recipients: Desiree C. Baumgartner and Nicholas S. Yozamp.

Class of 2003 Award. Dedicated to the memory of three classmates who died in a car accident, and is awarded to a first-year student recognized by peers as being selfless, exceptionally kind to others and dedicated to the highest standards in medicine, traits for which these classmates will be remembered. The November 2013 recipients: Kow A. Essuman and Kelly K. Hill.

Carl F. and Gerty T. Cori Prize in Biochemistry. Awarded at the end of the first year to the class member who has demonstrated superior scholarship in Biochemistry. The November 2013 recipient: Aouod Q. Agenor.

Edmund V. Cowdry Prize in Histology. Established in 1969 to honor Dr. Cowdry; awarded to a medical student in the first-year class who has performed meritoriously in Microscopic Anatomy. The November 2013 recipient: Katherin E. Leckie.

Antoinette Frances Dames Award in Cell Biology and Physiology. Awarded annually to members of the first-year class who have demonstrated superior scholarship in these fields. The November 2013 recipients: Alice Cai, Simon B. Chen and Jeffrey A. Gluckstein.

Elisabeth L. Demonchaux Prize in Pediatrics. Established in 1985, the prize is awarded annually to a graduating student who has done outstanding work in pediatrics. The May 2014 recipient: Hallie Faryn Morris.

Steven Dresler Prize. Awarded to a graduating student who has demonstrated a commitment to promoting social good, civil rights and civil liberties through social action and volunteerism. The

November 2013 recipient: Elaine C. F. Khoong.

Dr. William Ellis Award. Established in 1990 by Dr. Ellis and awarded to a senior student in recognition of meritorious research in ophthalmology.

The Endocrine Society Medical Student Achievement Award. Recognizing a graduating medical student who has shown special achievement and interest in the general field of endocrinology. The May 2014 recipient: Elisabeth Thames Boehme Askin.

The Family Health Foundation of Missouri Scholarship Award. Awarded to the top graduating student entering the specialty of family medicine. The May 2014 recipient: Jennifer Mae Jupitz.

George F. Gill Prize in Pediatrics. Awarded to a member of the graduating class who has demonstrated superior scholarship in pediatrics. The May 2014 recipient: Alexandra Hathaway Baker.

Alfred Goldman Book Prize in Diseases of the Chest. Created in 1972 as an annual award to be given to a student selected by the faculty for outstanding clinical work or research in diseases of the chest or pulmonary physiology. The May 2014 recipient: Philip Scott Kemp.

Max and Evelyn Grand Prize. Established in 1985 by Dr. M. Gilbert Grand, the prize is awarded annually to a member of the graduating class for excellence in ophthalmic research or clinical ophthalmology. The May 2014 recipient: Brigid Kathleen Marshall.

Peter Halstead Hudgens Award. Established by Dr. Richard W. Hudgens in memory of his son, this award recognizes a graduating student for excellence in research and clinical psychiatry. The May 2014 recipient: Erin Connor Dowd.

R. R. Hannas Award for Excellence in Emergency Medicine. Offered annually by the Missouri Chapter of the American College of Emergency Physicians for exceptional performance in emergency

medicine. The May 2014 recipient: Stephanie Kae Charshafian.

Nathan Edward Hellman, MD, PhD, Memorial Award. Recognizes a second-year student selected through a vote of fellow classmates. The recipient is distinguished as a student with a strong track record of accomplishments and an interest in academic medicine, and whose humanism, collegiality, humor and compassion are an inspiration to members of the class. The November 2013 recipient: Bhuvic Patel.

Herrmann Prize. Created by Dr. Paul Herrmann (MD 1961) and his wife, Susan, to recognize a student who is considered a thoughtful and sensitive communicator in the clinical arena and whose listening and communication skills every patient hopes their physician will possess. The November 2013 recipient: Philip L.Perez.

Dr. John Esben Kirk Scholastic Award. Established in 1975 and awarded to a graduating student of high scholastic standing. The May 2014 recipient: David Morton Rubins.

Rosalind Kornfeld Student Leadership Award. Presented to a woman or women in the graduating class who has or have demonstrated outstanding leadership in service to or advancement of women in the community. The May 2014 recipient: Elaine Ching-Feng Khoong.

Louis and Dorothy Kovitz Senior Prize in Surgery. Senior award in surgery recognizing members of the graduating class who have shown the most outstanding ability, zeal and interest in surgical problems. The May 2014 recipient: Victoria Merrill Gershuni.

I. Wallace Leibner Award. Established in 1988 in memory of Dr. Leibner, the award is given to the member of the graduating class who has not only demonstrated excellence in diagnosis and therapeutics, but also an understanding of human nature and needs, and an active nurturing of both patient and family. The May 2014 recipient: Ryan Everett Anderson.

Irwin Levy Prize in Neurology and Neurological Surgery.

Established in 1980 by friends of Dr. Levy as a tribute to his commitment to clinical teaching. Provides a prize for the student who presents the best performance in the neurology and neurological surgery clerkships. The November 2013 recipient: Jhoanne L. Bautista.

Edward Massie Prize for Excellence in Cardiology. Awarded to the member of the graduating class, selected by the director of the Division of Cardiovascular Disease in the Department of Medicine, who has done the most outstanding clinical or basic research work in the field of cardiovascular disease. The May 2014 recipient: Joshua Michael Saef.

Howard A. McCordock Book Prize in Pathology. Awarded at the end of the second year to a member of that class for general excellence in pathology. The November 2013 recipient: Jennifer S. Barklund.

McGraw-Hill/Lange Medical Student Book Award. Awarded annually to medical students for high scholastic standing. The November 2013 recipients: Gregory C. Ebersole and Brigid K. Marshall.

Medical Center Alumni Scholarship Fund Prize. Given annually to students who have shown excellence in their work during the preceding year. The November 2013 recipient: Katelyn A. Ostendorf.

Medical Fund Society Prize in Medicine. One prize awarded annually to a graduating student who has excelled in the study of internal medicine. The May 2014 recipient: Peter Hou Yu Yen.

Medical Fund Society Prize in Surgery. One prize awarded annually to a graduating student who has excelled in the study of surgery. The May 2014 recipient: Charles Robert Hong.

Merck Academic Excellence Award. Given to three graduating medical students for scholastic achievement in medical studies. The

May 2014 recipients: Ravi Gottumukkala, Nicholas A. Hoerter, and Jonathan David Power.

Missouri State Medical Association Award. Presented annually to honor School of Medicine graduates for outstanding achievement in the study of medicine. The May 2014 recipients: Christopher Tsung-ger Chen, Philip Scott Kemp, Melissa Anderson Wright .

The Missouri State Medical Association Student Scholarships. Awarded annually to first-year medical students who graduated from Missouri high schools in recognition of their high undergraduate academic achievement. The November 2013 recipients: Raymond E. Chen, Bo T. Overschmidt, Anna C. Moseley, Emily D. Moseley and Jacob S. Witt.

Dr. Helen E. Nash Academic Achievement Award. Given annually to a student who has exhibited to an unusual degree the qualities of industry, perseverance, determination and enthusiasm. The prize is given in honor of Dr. Helen Nash, a pediatrician noted in the St. Louis community for her commitment to excellence, tireless advocacy on behalf of children and endless enthusiasm for the field of medicine. The November 2013 recipient: Philip L. Prez.

The Dr. Philip Needleman Pharmacology Prize. Established by his family in 1989 to honor Dr. Needleman, who was chairman of the Department of Pharmacology from 1976-89. This annual award is given to a member of the graduating class for outstanding research in pharmacology.

The James L. O'Leary Neuroscience Prize. Awarded annually to a student who demonstrates the best accomplishment in the Neuroscience course. The November 2013 recipient: Katherin E. Leckie.

The Roy R. Peterson Prize in Anatomy. Awarded for outstanding performance in the Human Anatomy course in recognition of Dr. Peterson's many contributions as a teacher in the School of

Medicine. The November 2013 recipient: Paul J. Scheel III.

The Richard and Mildred Poletsky Education Fund. Established in 1995 by the family of Mr. Richard Poletsky, an alumnus of Washington University. A prize is awarded annually to a professional student in the health sciences whose interest is in research on dementia and care of demented patients.

The Dr. Frank O. Richards Medical Student Scholarship Prizes.

Provided by African-American alumni and friends of Washington University School of Medicine. The prizes embrace diversity efforts and are awarded in recognition of achievements in the first and second year of the curriculum. The November 2013 recipients: Lawrence N. P. Benjamin and Rahel G. Ghenbot.

Dr. Philip Rosenblatt Award in Pathology. Given to a senior medical student for distinguished performance during an elective in pathology or laboratory medicine. The May 2014 recipient: Stephanie Lynn Skala.

Dr. William A. Rubenstein Award in Medicine. Awarded to a fourth year student who shows a serious interest in pursuing a career in internal medicine and who demonstrates the exceptional qualities of a gifted physician, including compassion, caring, and the pursuit of scientific knowledge. The November 2013 recipient: Christopher T. Chen.

St. Louis Pediatric Society Senior Prize. Presented to the senior student showing the greatest promise in clinical pediatrics. The May 2014 recipient: Rachael Celeste Johnston.

David F. Silbert Outstanding Teaching Assistant Award.

Established in memory of Dr. David Silbert, it is awarded to a teaching assistant in a medical school course in recognition of a commitment to teaching. The November 2013 recipient: Andrew P. Jallouk.

John R. Smith Memorial Fund Award. Created in 1982, it is

awarded to a medical student who has done meritorious clinical and/or research work in the Division of Cardiovascular Disease within the Department of Medicine. The May 2014 recipient: Philip Scott Kemp.

Dr. Margaret G. Smith Award. Given to a woman medical student for outstanding achievement in the first two years of medical school. The November 2013 recipient: Jennifer S. Barklund.

Society for Academic Emergency Medicine Excellence in Emergency Medicine Award. Based on demonstrated excellence in the specialty of emergency medicine, it is awarded to a senior medical student at Commencement. The May 2014 recipient: Rittik Chaudhuri.

Samuel D. Soule Award in Obstetrics and Gynecology. Presented to a member of the fourth-year class for meritorious achievement in either basic or clinical investigation in obstetrics and gynecology. The May 2014 recipient: Lauren Elizabeth Perlin.

Jessie L. Ternberg Award. Presented to a woman graduating from the School of Medicine who best exemplifies Dr. Ternberg's indomitable spirit of determination, perseverance and dedication to her patients. The November 2013 recipient: Elisabeth T. B. Askin.

Washington University Internal Medicine Club Research Award. Awarded to the member of the graduating class who has done the most significant research in any area of internal medicine. The May 2014 recipient: Agata Agnieszka Bielska.

Washington University Summer Research Prize. The award recognizes students for meritorious research in the Summer Research Fellowship Program at Washington University School of Medicine. The November 2013 recipients: Vanessa L. Kleckner and Katherine C. A. Ott.

Samson F. Wennerman Prize in Surgery. Donated by his wife, Zelda E. Wennerman, and awarded annually to the fourth-year student

who has demonstrated promise in the field of surgery. The May 2014 recipient: Charles Gerard Rickert.

Doris P. and Harry I. Wexler Fund. Established in 1998 by a bequest from Mrs. Wexler, the prize is awarded annually for research in multiple sclerosis and in alternate years research in eye disease. The May 2014 recipient: Cynthia Lee Montana.

The Park J. White, MD Prize. Created in 1992 in honor of the centennial of the birth of Dr. White, who was a distinguished pediatrician, social activist and pioneer teacher of medical ethics. He introduced the first course on medical ethics to students in 1927. The prize is awarded to students for outstanding performance in the ethics elective offered by the Program for the Humanities in Medicine. The May 2014 recipient: Elisabeth Thames Boehme Askin.

Hugh M. Wilson Award in Radiology. Given annually to a graduating medical student in recognition of outstanding work in radiology-related subjects, either clinical or basic science. The May 2014 recipient: Marina Igorevna Mityul.

The Wynder Prize in Preventive Medicine. An annual prize established in 1994 and awarded to senior medical students who have done the best research in preventive medicine. The May 2014 recipients: Heidi Elisabeth Fjeldstad and Elaine Ching-Feng Khoong.

James Henry Yalem Prize in Dermatology. Established by Charles Yalem in memory of his son and awarded annually to members of the fourth-year class for outstanding work in dermatology. The May 2014 recipient: Rachel Lea Kylo.

Liability Insurance

Washington University provides general liability insurance for all students or practicums while participating in required clinical experiences. In addition, Washington University voluntarily provides a defense and indemnification benefit for matriculated students who are candidates for the MD degree at the School of Medicine (WUSM).

The benefit is provided to WUSM students for defense and indemnification of claims arising out of activities which are part of academic programs and only while a student is acting in his or her capacity as a medical student enrolled in the undergraduate medical program at the School of Medicine. This policy is subject to terms, conditions, limitations and exclusions, and each request for defense/indemnification will be decided on a case-by-case basis at the sole discretion of the university.

Defense/indemnification will not be provided for any criminal acts, acts committed while under the influence, acts in violation of law, or where the injury or damage resulted from intentional malicious conduct or wrongdoing, or in the event that the action or proceeding is brought by or on behalf of Washington University. This indemnification does not cover any liability which is insured elsewhere, but it may be in excess of any amount payable under any other such insurance.

Reporting an incident

Any incident, either actual or alleged involving patient injury which could lead to a claim, which you have knowledge of must be reported immediately to the Risk Management Office of the School of Medicine, (314) 362-6956.

For more information

If you have any questions about Washington University's professional liability program, please feel free to call the Risk Management Office.

Student Constitution and Bylaws

Article I:

Name, Purpose, and Membership

1. The name of this organization shall be the Medical Student Government of The Washington University School of Medicine.
2. The purpose of the Medical Student Government shall be the advancement of student interests and welfare to achieve excellence in academic pursuits and professional interactions.
3. The Medical Student Government shall represent all students pursuing a medical degree who are in good standing with the University.

Article II:

Class Officers

1. **Offices:** Each Class shall elect the following officers: President, Medical Education Representative (MER), Representative to the Organization of Student Representatives (OSR Rep) of the Association of American Medical Colleges (AAMC), Representative to the Graduate-Professional Council (GPC Rep), and a Social Chair/Committee.
2. **Duties:** Each class officer shall have specific responsibilities:
 1. **President:** Each class shall elect one President. This person shall serve as the official spokesperson for the class in dealings with the Student Government and with the University. The President shall disseminate information regarding medical student affairs and activities. The President shall have oversight and

- approve of all moneys spent by the Social Chair/Committee. The President shall perform any and all duties that are unique to the class represented.
2. MER: The MER shall represent the class at all meetings of the MERs and Curriculum Evaluation Committee and serve as a liaison between students and faculty on curricular matters. The MER shall poll the class as needed regarding course evaluations and selection of recipients for the various Faculty Awards presented each year.
 3. OSR Rep: The OSR Rep shall keep class members up to date with news from the OSR and from the AAMC. The OSR Rep shall represent the University at regional and national meetings of the OSR under an agreement with the University.
 4. GPC Rep: The GPC representatives shall represent the School of Medicine at GPC meetings and shall inform the GPC of issues affecting the School of Medicine, learn about issues affecting other schools, discuss and find solutions to problems affecting the whole graduate and professional student population, and plan and advertise social activities that foster communication between all graduate and professional students. The Reps shall be the liaison to the other programs within the School of Medicine, as well as to the rest of the University community. In addition, the four Reps will divide the responsibilities of serving on the Professional and Graduate Students Coordinating Committee (ProGrads), the Medical Campus Committee (temporarily named), and other inter-school/division committees as needed. Specifically in regards to the Health Professional Student Leadership Council (HPSLC), two of the four GPC representatives will serve as voting members on HPSLC. One of these voting members must be the 1st or 2nd year GPC representative. The selection of MSG's voting members on HPSLC must be made before the end of the

sixth week of first-semester classes in the academic year.

5. **Social Chair/Committee:** The Social Chair/Committee shall organize social functions for class members and interact with other Social Chairs/Committees to organize social functions with other classes and within the University community. The Social Chair/Committee shall consult and obtain approval from the class President for all moneys spent on such functions.

3. **Elections:** An Election Official designated by the Student Government shall be responsible for the organization and execution of all elections held for offices specified under the Constitution, including President, MER, OSR, GPC, and social chair. Elections shall be held for each of the class officer positions according to the following format:

1. **Voting Eligibility:** All students who will be a member of the class during the term for which the elected officers will serve will be eligible to vote in the election. Efforts should be made by the appointed election official to extend the opportunity to vote to students who will be entering their respective classes in the upcoming year, including but not limited to the large number of MD/PhD students returning for their clinical clerkships.

1. **First and second year offices:** A member of the class will be considered to be an individual who is currently planning on taking the MD course of study for the upcoming year.

2. **Third and fourth year offices:** A member of the class will be considered to be an individual who is planning on taking the MD course of study anytime during the upcoming two years, including any individual planning to pursue an MA degree for one year after either the second or third year of medical school.

2. **Nominations:** Nominations for each office shall be held starting at least one week prior to the election and

ending no later than three days prior to the election. Nominations shall be submitted in writing to the Election Official. Any student eligible to run for office may nominate him/herself or another medical student in good standing. Candidates must have the firm intention of carrying out all the duties and obligations of the office for the entire term.

3. **Candidate Eligibility:** All students who will be a member of the class during the term for which the elected officers will serve, as defined in Article II.C.1, will be eligible to be nominated for election except as described below:
 1. **President:** The class president does not need to be taking the same course of study as the classmates he or she represents. Any individual who meets the criteria defined in Article II.C.1 will be eligible to serve.
 2. **MER**
 1. **Third year MER:** Due to the duties of the third year MER, it is essential that the third year MER be an individual who is currently taking the MD course of study with the rest of his or her classmates.
 2. **Fourth year MER:** The fourth year MER rep does not need to be taking the same course of study as the classmates he or she represents. Any individual who meets the criteria defined in Article II.C.1 will be eligible to serve.
 3. **OSR Rep:** An OSR rep does not need to be taking the same course of study as the classmates he or she represents. Any individual who meets the criteria defined in Article II.C.1 will be eligible to serve.
 4. **GPC Rep:** A GPC rep does not need to be taking the same course of study as the classmates he or

she represents. Any individual who meets the criteria defined in Article II.C.1 will be eligible to serve.

5. **Off-Campus Students:** Students who have chosen to pursue a course of study that results in his or her not being in Saint Louis will not be eligible to retain or be nominated for a position. This exclusion does not apply to students who will off-site temporarily for an away rotation.
4. **Elections and Terms:** All terms shall begin upon election. Regular elections shall be held according to the following schedule:
 1. **First Year:** Elections shall be held within three to six weeks of the beginning of the first-semester classes. Each position carries a term of one academic year.
 2. **Second Year:** Elections shall be held within six weeks prior to the completion of the first academic year. Each position carries a term of one academic year.
 3. **Third and Fourth Year:** Elections shall be held within six weeks prior to the completion of the second academic year. Each position carries a term of two academic years.
5. **Class Officer Balloting:** To be elected a candidate must receive a simple majority (greater than 50 percent) of the votes cast for that particular office by at least a quorum of one-half of the eligible voters. Write-in candidates shall be allowed on this ballot. Absentee ballots shall be allowed if they are given in writing to the Election Official prior to the day of election. Ballot counting shall be the responsibility of the Election Official under the observation of a witness agreeable to all candidates.
6. **Class Officer Runoff Procedures:** If no candidate receives a simple majority for a particular position, a runoff between the top two candidates shall be held

within three days of the initial election. Write-in candidates will not be allowed on this ballot. To be elected a candidate must receive the most votes cast for that particular office by at least a quorum of one-half of the eligible voters.

7. **Social Chair Election Procedure:** Social chair elections will be conducted in conjunction with MSG class officer elections. A maximum of four social chairs can be elected into office. Candidates do not have to receive a majority of votes to be elected into office. All other MSG election procedures apply.
 8. **Appeals:** All decisions are made by the Election Official during the election period. Appeals may be made by a candidate in writing to the Chair of the Medical Student Government and will be reviewed and ruled on by a group consisting of the current President, MER, OSR, and GPC from each of the four classes; the decisions of this group will be considered final.
 9. **Vacant Offices:** If any office is vacated before its set term, an election will be held for that office using the procedures outlined above within three weeks of the vacancy. If a current class officer runs for the vacated office, that officer must vacate the post he/she occupies.
 10. **Removal from Office:** In the unfortunate event that a class officer is not fulfilling his/her obligations and duties, MSG by a two-thirds majority of a quorum of one-half may vote to recommend that an officer be removed from office to the class that elected the officer. A vote of recall shall then be held within one week. If a three-fourths majority of a quorum of two-thirds of a class votes to recall the officer, the officer shall be removed from office. An election for vacant office shall then be held.
4. **MD/PhD Research Students:** There shall be two Representatives of the MD/PhD students who are outside the core medical curriculum. These Representatives shall be

selected by a method chosen by the Medical Scientist Training Program (MSTP.) In addition, these individuals shall be full voting members of the MSG. Each Representative shall serve a two-year term, with elections for one Representative each summer, so the terms of the two Representatives overlap by one year.

5. **Technology Liaison:** The responsibilities of the class appointed Technology Liaison include serving as the representative to the administration regarding the availability and utilization of technology and addressing related class concerns. In addition, the Technology Liaison will work with Instructional Technologies and Library Systems (ITLS) to provide new services and assist the MER with technology-related education initiatives. One Technology Liaison will be appointed for each medical school class after the class-wide elections have taken place. After a call for applications from the class, the four (4) elected MSG members of that class review each application and select the Technology Liaison by consensus. The term of the Technology Liaison will be the same as the elected officials of that class.

Article III:

The Medical Student Government

1. **Membership:** The Student Government shall consist of the President, the MER, the OSR Rep, and the GPC Rep from each of the four classes, as well as two representatives of MD/PhD Students.
 1. **Additional voting members:** Any student who has served on MSG for a minimum of two years and is no longer eligible to serve as a class representative due to departure from the traditional four-year MD curriculum may remain on MSG as a voting member in an advisory role. All students will only be eligible to serve as a voting member for up to five total years.

2. **Non-voting members:** In addition, the Student Government may offer a non-voting position to a duly elected representative of any student group which is recognized nationally, regionally or within the Medical School so long as such a group is open to all medical students without discrimination and that such a group is not in conflict with the goals of the Student Government.

2. **Purpose and Responsibilities:** The Student Government shall carry out the business of the Student Government pursuant to the goals stated in Article I. The purpose of the Student Government shall be to represent and promote the interests and concerns of the medical student body through activities including but not limited to:

1. Forming and representing official student body opinions for interaction with the University, its Administration and other groups associated with medical education.
2. Serving as a forum for interaction between student groups.
3. Serving as a forum for student-initiated curricular review and reform in the pursuit of academic excellence.
4. Promoting interaction among the School of Medicine students, faculty and administration, and with the wider University community.
5. Establishing a funding mechanism and budget with the associated collection and disbursements of funds for activities pursuant to goals stated in Article I.
6. Organizing elections for class officers and any other official representative of the student body at large.
7. Exercising any such additional authority as may be granted to it by the School of Medicine or by other organizations, so long as such authority is consistent with the purposes stated in Article I.
8. Posting agenda of all meetings for public reference. Formulating all rules and bylaws necessary for the Student Government to carry out the responsibilities and powers granted through this constitution. Such

rules and bylaws shall require a simple majority of a quorum of two-thirds of the voting Student Government members.

9. The Student Government shall meet regularly and at intervals of no more than six weeks.
10. Representatives from the various student groups sitting on the Student Government shall keep the Student Government informed of all activities associated with their posts in the form of a written brief to be presented at the Student Government meeting as appropriate for their group's activities.

3. **Student Government Offices:** There shall be a Student Government Chair and Vice-Chair elected from the voting members of the Student Government. Election shall require a simple majority of the voting Student Government. The election shall be held within six weeks prior to the completion of the academic year. The terms of these offices shall be one academic year.

1. **Student Government Chair:** The Student Government Chair shall preside at all meetings of the Student Government and have specific responsibilities:
2. The Chair shall serve as official representative and spokesperson for the Student Government to the University, its Administration, and to other groups associated with medical education.
3. The Chair shall be responsible to ensure the duties of the Student Government are carried out efficiently and in a timely manner.
4. The Chair shall report the names of the Class Officers to the Dean, and post such a list for public reference.
5. The Chair shall be responsible for overseeing and maintaining records and to set the agenda for such meetings in written form for distribution to Student Government members prior to each meeting.
6. The MSG shall be responsible for overseeing and maintaining records of all financial transactions of the

Student Government. The second-year class president shall regularly update the Student Government on its financial standing, and must make all financial records available to any medical student, member of the Administration, or to any official of the University. All transactions shall require the signatures of the Chair and the Vice-Chair.

7. The Chair shall be empowered to call for standing and ad hoc committees to evaluate and make recommendations about specific areas of concern to the Student Government, the School of Medicine and its students. MSG shall appoint these committees.
8. The Chair shall be empowered to designate another Student Government member to take on one or more of his/her duties.

Article IV:

Ratification and Amendments

1. In 1993 this Constitution was ratified by a 2/3 majority of a quorum of one-half of the student body pursuing a medical degree.
2. This Constitution can be amended by either a 2/3 majority of a quorum of one-half of the students in their first, second, and third years, or by a unanimous vote of the elected members of the Medical Student Government.

Applied Health Behavior Research

The Master of Science in Applied Health Behavior Research (MS AHBR) addresses the science of health behavior change and applies this to the development and evaluation of programs in clinical and community settings designed to improve health behavior. Sponsored by the Clinical Research Training Center and the Institute of Clinical and Translational Sciences offered through Washington University School of Medicine, the MS AHBR is a multidisciplinary, 33-unit program that focuses on the applied skills required for the development, management and evaluation of health behavior programs or research studies. Students enrolled in this program choose one of two concentrations: 1) Health Education, Program Planning and Evaluation; or 2) Health Behavior Research.

The MS AHBR degree can be pursued on a part-time basis. All courses are held during the late afternoon or evening hours or on Saturday to accommodate working professionals. Course work is typically completed in two to three years. Applications are reviewed on a rolling basis with a recommended program start in the fall semester of each year.

A 15-unit Graduate Certificate in Health Behavior Planning and Evaluation is also available. This certificate is designed primarily for individuals who are developing, implementing and evaluating health behavior programs in agencies and organizations and want formal course work and skills to complement their experience in the field and enhance their professional opportunities.

Admissions information

Please visit the [Applied Health Behavior Research](#) website for complete admissions information.

Applied Health Behavior Research Faculty

Director

Anjali D. Deshpande, PhD, MPH

Emory University, 2000; University of Oklahoma Health Sciences Center 1995 (Research Assistant Professor, Division of General Medical Sciences)

Program manager

Debbie J. Pfeiffer, MA

Saint Louis University, 2000 (Clinical Research Training Center, Division of General Medical Sciences)

Instructors

Trent Buskirk, PhD

Arizona State University, 1999 (VP Statistics and Methodology, Marketing Systems Group; Adjunct Associate Professor, Saint Louis University)

Patricia A. Cavazos-Rehg, PhD

State University of New York, Buffalo, 2004 (Research Instructor, Department of Psychiatry)

Anjali D. Deshpande, PhD, MPH

Emory University, 2000; University of Oklahoma Health Sciences Center 1995 (Research Assistant Professor, Division of General Medical Sciences)

Michael Elliott, PhD

Ohio State University School of Public Health, 2001 (Assistant

Professor, College of Public Health and Social Justice, Saint Louis University)

Cheryl A. Houston, PhD, RD, LD

Saint Louis University, 2000 (Director of Dietetics, Program in Dietetics, Department of Environmental Sciences, Fontbonne University)

Donna B. Jeffe, PhD

Washington University, 1993 (Research Assistant Professor, Division of General Medical Sciences, Departments of Internal Medicine and Pediatrics)

Julie Kapp, PhD, MPH

Saint Louis University (Associate Professor, Department of Educational Psychology, Research and Evaluation and Director of Evaluation, College of Education, University of Missouri – St. Louis)

Dorina Kallogjeri, MD, MPH

Tirana University School of Medicine, 1997: Saint Louis University, 2007 (Research Statistician, Department of Otolaryngology)

Amy McQueen, PhD

University of Houston, 2002 (Research Assistant Professor, Division of General Medical Sciences)

Maria Perez, MA

University of Missouri, 2004 (Research Patient Coordinator, Division of General Medical Sciences)

Donald R. Rickert, PhD

Saint Louis University, 1984 (Professor, St. Louis College of Pharmacy)

Mario Schootman, PhD

University of Iowa, 1993 (Professor of Epidemiology, College of Public Health and Social Justice, Saint Louis University)

Enbal Shacham, PhD

Indiana University, 2006 (Assistant Professor, College of Public Health and Social Justice, Saint Louis University)

Craig Woodsmall, PsyD

Illinois School of Professional Psychology, Chicago Campus, 1999 (Adjunct Instructor, College of Arts & Sciences, Washington University; Lecturer, Department of Psychology, Southern Illinois University – Edwardsville)

Audiology and Communication Sciences

The Program in Audiology and Communication Sciences (PACS) provides training and graduate programs in the fields of clinical audiology, deaf education, and speech and hearing sciences.

Established at Central Institute for the Deaf (CID) in 1914, the training programs are now a member of a consortium of programs known as CID at Washington University School of Medicine, which also includes affiliated clinical services and research programs operated by the Department of Otolaryngology.

Doctor of audiology (AuD)

The Doctor of Audiology (AuD) program is a four-year course of study that prepares students as independent clinical audiologists.

Established in 1947, the program is among the oldest and most prestigious of its kind. Today, its curriculum serves as a national model, immersing students in academic course work, clinical experiences and research opportunities.

The audiology program is accredited by the American Speech-Language-Hearing Association (ASHA) and the Accreditation Commission for Audiology Education (ACAE). Graduates are eligible for national certification by ASHA.

Master of science in deaf education (MSDE)

The Master of Science in Deaf Education (MSDE) program is a two-year course of study that prepares students as teachers of the deaf and hard of hearing. With its origins going back to 1914, the program is recognized internationally as one of the most prestigious of its kind in the world. The program's intensive curriculum, emphasis on immersion in practice teaching and experienced faculty attract students nationally from a wide variety of backgrounds.

The deaf education program is accredited by the State of Missouri's Department of Elementary and Secondary Education (DESE) and the Council on Education of the Deaf (CED). Graduates of the program are eligible for teacher certification in the State of Missouri (Deaf/Hearing Impaired, Birth-Grade 12) and for national certification by CED in the areas of early childhood and elementary education.

Doctor of philosophy (PhD) in speech and hearing sciences

The PhD program prepares students for academic and research careers in speech and hearing sciences. Established in 1947, the program is dedicated to fostering scientific inquiry in speech and hearing sciences and related disciplines. The program is administered through Washington University's Graduate School of Arts & Sciences.

Minor in speech and hearing sciences

The Minor in Speech and Hearing Sciences is designed for current undergraduate students interested in exploring topics related to human communication. Course work provides an overview of the

fields of hearing, deafness, language and speech, with opportunities to explore related topics in more depth. This minor is especially valuable for students in fields such as psychology, education, philosophy-neuroscience-psychology (PNP) and linguistics, but has broad applicability for many fields of study. Course work completed as part of this minor can also be used to fulfill prerequisites for graduate studies in audiology, deaf education and speech-language pathology.

Further information

Further information, including complete admissions details and full program descriptions, may be obtained by contacting:

Washington University School of Medicine
Program in Audiology and Communication Sciences
Campus Box 8042
660 S. Euclid Ave.
St. Louis, MO 63110

Phone: (314) 747-0104

Fax: (314) 747-0105

Email: pacs@wusm.wustl.edu

Web: pacs.wustl.edu

Audiology and Communication Sciences Faculty

Professors (joint)

Barbara A. Bohne, PhD

Washington University, 1971

Richard A. Chole, MD, PhD

University of Minnesota, 1977

William W. Clark, PhD

Program Director

University of Michigan, 1975

Jill B. Firszt, PhD

University of Illinois, 1998

Nancy Tye Murray, PhD

University of Iowa, 1984

Michael Valente, PhD

University of Illinois, 1975

Mark E. Warchol, PhD

Northwestern University, 1989

Associate professors (joint)

Keiko Hirose, MD

Harvard Medical School, 1993

Timothy E. Hullar, MD

Harvard University, 1996

Johanna G. Nicholas, PhD

Washington University, 1990

Kevin K. Ohlemiller, PhD

Northwestern University, 1990

L. Maureen Valente, PhD

Director of Audiology Studies

Washington University, 2005

Assistant professors (joint)

Lisa S. Davidson, PhD

Washington University, 2003

Brian T. Faddis, PhD

University of California-Davis, 1994

Heather J. Hayes, PhD

Director of Deaf Education Studies

Washington University, 2009

Roanne K. Karzon, PhD

Washington University, 1982

Lisa G. Potts, PhD

Washington University, 2006

Rosalie M. Uchanski, PhD

Massachusetts Institute of Technology, 1988

Instructors

Lynda C. Berkowitz, MSSH

Washington University, 1983

Carl D. Bohl, DSc

University of Cincinnati, 1973

Christine M. Clark, MAEd

Maryville University, 1999

Christine H. Gustus, MSSH

Washington University, 1975

Barbara A. Lanfer, MAEd

University of Missouri-St. Louis, 1998

E. Tracy Mishler, AuD

Arizona School of Health Sciences, 2007

Mary A. Shortal, MA

Washington University, 1976

Karen S. Stein, MAEd

Washington University, 1974

Lecturers

Carol E. Bergmann, AuD

Arizona School of Health Sciences, 2003

Amy L. Birath, AuD

University of Memphis, 2007

Greta M. Bohnenkamp, MS

Vanderbilt University, 2005

Amanda L. Dunaway, MSDE

Washington University, 2006

Elizabeth A. Elliott, MAT

Webster University, 2004

Dave A. Harris, PhD

University of Cincinnati, 2005

Christina M. Koehler, MSSH

Washington University, 2000

Karen R. Kupper, MSSH

Washington University, 1979

Kenneth E. Marciniak, AuD

University of Iowa, 2010

Robert J. Mareing, AuD

Pennsylvania College of Optometry, 2003

James D. Miller, PhD

Indiana University, 1957

Jean S. Moog, MS

Washington University, 1964

Kimberly K. Ott, MS

Southern Illinois University – Edwardsville, 1981

Kay R. Park, AuD

A.T. Still University, 2007

Judy L. Peterein, AuD

Salus University, 2009

Justine L. Preston, MA

Washington University, 2006

Marie K. Richter, AuD

Salus University, 2009

Belinda Sinks, AuD

Salus University, 2007

Brent P. Spehar, PhD

Washington University, 2005

Ellen R. White, MAEd, MSSH

Washington University, 2003

Professor emeritus

David P. Pascoe, PhD

Biology and Biomedical Sciences

The Division of Biology and Biomedical Sciences (DBBS), organized in 1973, is a consortium of university departments that together provide interdisciplinary training for full-time doctoral students. This unique organization was formed because of the realization that research and training in modern biology transcend the limits of departmental structure. The faculty consists of members of seven preclinical departments in the School of Medicine: Anatomy and Neurobiology, Biochemistry and Molecular Biophysics, Cell Biology and Physiology, Genetics, Molecular Microbiology, Pathology and Immunology, and Developmental Biology; 11 clinical departments: Anesthesiology, Medicine, Neurological Surgery, Neurology, Obstetrics and Gynecology, Ophthalmology and Visual Sciences, Orthopaedic Surgery, Otolaryngology, Pediatrics, Psychiatry, Radiation Oncology, Radiology and Surgery; the Department of Biology; the Departments of Chemistry and Psychology in the School of Arts & Sciences; and the Departments of Computer Science and Biomedical Engineering in the School of Engineering & Applied Science. More than 450 faculty are affiliated with one or more of 12 broad training programs: Biochemistry; Computational and Molecular Biophysics; Computational and Systems Biology; Developmental, Regenerative and Stem Cell Biology; Evolution, Ecology and Population Biology; Human and Statistical Genetics; Immunology; Molecular Cell Biology; Molecular Genetics and Genomics; Molecular Microbiology and Microbial Pathogenesis; Neurosciences; and Microbial Biosciences. Faculty in these programs take responsibility for all divisional activities, including recruiting, admissions, advising and research training. In addition, many divisional courses and seminars are offered by the participating faculty.

Currently, more than 650 graduate students are enrolled in the division, including approximately 200 students pursuing both the

PhD and the MD through the Medical Scientist Training Program (see Degree Programs area of Admissions and Educational Programs section.) Requirements for the PhD include a series of courses tailored to a student's background and interests, qualifying examinations, execution of laboratory research and defense of a dissertation generated through original scientific investigation. Although students enter the division through an affiliation with one of the 12 programs, it is possible for a student to transfer to another program as interests evolve. During the first year, advisers are appointed to assist students in selecting courses and seminars, as well as to help them in choosing three laboratory rotations in which they will spend several months becoming acquainted with a particular area of scientific research. Most students choose a research adviser by the end of the first year.

Applications for admission to the PhD programs of the division are due December 1 for matriculation the following fall. Admission is based on demonstrated ability, future promise and the number of positions currently available. Applicants should have completed rigorous undergraduate training in biology, chemistry, physics, psychology, computer science, engineering or related fields at a high level of scholastic achievement. It is required that each applicant take the aptitude test of the Graduate Record Examination (GRE).

Additional information and application for admission to the PhD programs may be obtained from our website at dbbs.wustl.edu or by writing to the Director of Admissions, Washington University School of Medicine, Campus Box 8226, 660 S. Euclid Ave., St. Louis, MO 63110-1093 (email: admissions@dbbs.wustl.edu). Students who wish to pursue both the PhD and MD degrees must apply to the Medical Scientist Training Program (see Degree Programs area of Admissions and Educational Programs section of this website.)

Students admitted to the graduate programs are guaranteed full stipend and tuition support contingent upon satisfactory performance. The stipend for the 2014-15 academic year will be \$28,500 annually. Tuition remission is provided to all students, and life, disability and health care also is provided by the Medical Center

Student Health Service. The division provides support for its PhD students from several sources, including federally funded training grants provided by the National Institutes of Health.

Admissions Information

Please visit the [Division of Biology and Biomedical Sciences](#) website for admissions information.

Biology and Biomedical Sciences Courses

The following graduate courses are offered by the Division of Biology and Biomedical Sciences, and they are available both to PhD and MD students who meet the prerequisites for the appropriate course. Those courses particularly relevant to a given department are cross-listed under the department in this Bulletin.

L41 (BIO) 501 THE HUMAN BODY: ANATOMY, EMBRYOLOGY, AND IMAGING

For full description, see Department of Anatomy and Neurobiology's M05 501A Human Anatomy and Development.

L41 (BIO) 5011 ETHICS AND RESEARCH SCIENCE

Instructors: Staff, Division of Biology and Biomedical Sciences, 362-3365

Exploration of ethical issues that research scientists encounter in their professional activities. Topics will include, but are not limited to: student-mentor relationships, allegations of fraud, collaborators' rights and responsibilities, conflicts of interest, confidentiality and publications. Case study and scenario presentations will provide

focus for discussions. Prerequisite: open to graduate students engaged in research. Six 90-minute sessions. Credit: 1 unit.

L41 (BIO) 5014 BIOTECH INDUSTRY INNOVATORS

Instructor: Erwin H. Peters, PhD, 862-4867

The Basics of Bio-Entrepreneurship investigates issues and decisions that inventor/scientists encounter when they are considering the application and commercialization of early-stage scientific discoveries. This course is intended for anyone interested in working in the life sciences industry as a chief scientist, entrepreneur, manager, consultant or investor. It focuses on the issues and decisions that researchers typically face when considering how a discovery might be moved from a university laboratory to actual use. Credit: 3 units. Same as B63 MGT 500U.

L41 (BIO) 502 GENERAL PHYSIOLOGY

Instructor: Robert S. Wilkinson, PhD, 362-2300

This course applies the fundamental physiological mechanisms of cell biology to the functions of the major organ systems of the body, namely, the cardiovascular, renal, respiratory, gastrointestinal and endocrine systems. The course is intended primarily for first-year medical students. The Physiology and Microscopic Anatomy courses are closely coordinated within the same schedule. Course continues into the spring semester with a different schedule. Prerequisites: Bio 5061 or the equivalent and permission of course director. Credit: 6 units.

L41 (BIO) 5053 IMMUNOBIOLOGY I

Instructor: Paul Allen, PhD, 362-8758

Immunobiology I and II are a series of two courses taught by the faculty members of the Immunology Program. These courses cover in-depth modern immunology and are based on Janeway's Immunobiology 8th Edition textbook. In Immunobiology I, the topics include: basic concepts in immunology, innate immunity: the first lines of defense, the induce responses of innate immunity, antigen recognition by B-cell and T-cell receptors, the generation of lymphocyte antigen receptors, antigen presentation to T

lymphocytes and signaling through immune system receptors. In Immunobiology II the topics include: the development and survival of lymphocytes, T cell-mediated immunity, the humoral immune response, dynamics of adaptive immunity, the mucosal immune system, failures of host defense mechanisms, allergy and allergic diseases, autoimmunity and transplantation, and manipulation of the immune response. These courses are open to graduate students. Advanced undergraduate students may take these courses upon permission of the coursemaster. Prerequisite: DBBS students and advanced undergraduates with permission. Credit 4 units.

L41 (BIO) 5054 IMMUNOBIOLOGY II

Instructor: Paul Allen, PhD, 362-8758

Immunobiology I and II are a series of two courses taught by the faculty members of the Immunology Program. These courses cover in-depth modern immunology and are based on Janeway's Immunobiology 8th Edition textbook. In Immunobiology I, the topics include: basic concepts in immunology, innate immunity: the first lines of defense, the induce responses of innate immunity, antigen recognition by B-cell and T-cell receptors, the generation of lymphocyte antigen receptors, antigen presentation to T lymphocytes and signaling through immune system receptors. In Immunobiology II the topics include: the development and survival of lymphocytes, T cell-mediated immunity, the humoral immune response, dynamics of adaptive immunity, the mucosal immune system, failures of host defense mechanisms, allergy and allergic diseases, autoimmunity and transplantation, and manipulation of the immune response. These courses are open to graduate students. Advanced undergraduate students may take these courses upon permission of the coursemaster. Prerequisite: DBBS students and advanced undergraduates with permission. Credit 4 units.

L41 (BIO) 5068 FUNDAMENTALS OF MOLECULAR CELL BIOLOGY

Instructor: Robert Mercer, PhD, 362-6924

This is a core course for incoming graduate students in Cell and Molecular Biology programs to learn about research and experimental strategies used to dissect molecular mechanisms that

underlie cell structure and function, including techniques of protein biochemistry. Enrolling students should have backgrounds in cell biology and biochemistry, such as courses comparable to L41 BIO 334 and L41 BIO 4501. The format is two lectures and one small group discussion section per week. Discussion section focuses on original research articles. Same as M15 5068 and M04 5068. Credit: 4 units. Same as E62 BME 5068.

L41 (BIO) 5123 EXPERIMENTAL HEMATOPOIESIS JOURNAL CLUB

Instructor: Daniel C. Link, MD, 362-8771

Journal club in which papers that describe significant advances in the field of experimental hematopoiesis are discussed. Students are expected to present one paper per semester and attend the weekly (1 hour) session. No prerequisites. Credit: 1 unit.

L41 (BIO) 5128 CELL BIOLOGY OF EXTRACELLULAR MATRIX JOURNAL CLUB

Instructor: Jeff Miner, PhD, 362-8235

This journal club covers a broad range of topics related to extracellular matrix and cell-cell communication, including the fields of biochemistry, molecular biology, cell biology and developmental biology. Speakers give a brief background to introduce the topic and then focus on one or two papers from the current literature. Presentations are given by students, faculty and postdoctorates. Students receive one credit for regular participation and for making one presentation. Credit: 1 unit.

L41 (BIO) 5137 ION CHANNELS JOURNAL CLUB

Instructor: Colin G. Nichols, PhD, 362-6630

Student will attend journal club every week and participate in group discussion of recent paper. Once per semester student will choose a paper and present it to the group. Credit: 1 unit.

L41 (BIO) 5138 JOURNAL CLUB FOR THE MOLECULAR MECHANISM OF AGING

Instructor: Shin-ichiro Imai, MD, PhD, 362-7228

Why do we age? What causes aging? How is our life span

determined? This journal club will address such fundamental but challenging questions of aging and longevity. Recent studies on aging and longevity are now unveiling regulatory mechanisms of the complex biological phenomenon. We'll cover the latest progress in this exciting field and stimulate discussions on a variety of topics including aging-related diseases. One hour of paper presentation or research talk and discussion per every two weeks. Prerequisite: Basic knowledge of molecular biology and genetics of model organisms, such as yeast, *C. elegans*, *Drosophila* and mouse. Registered students are expected to have at least one presentation for 1 unit credit. Credit: 1 unit.

L41 (BIO) 5139 SEMINAR IN IMAGING SCIENCE AND ENGINEERING

Instructor: Joseph O'Sullivan, PhD, 935-4173

This seminar course consists of a series of tutorial lectures on Imaging Science and Engineering with emphasis on applications of imaging technology. Students are exposed to a variety of imaging applications that vary depending on the semester, but may include multispectral remote sensing, astronomical imaging, microscopic imaging, ultrasound imaging and tomographic imaging. Guest lecturers come from several parts of the university. This course is required of all students in the Imaging Science and Engineering program; the only requirement is attendance. This course is graded Pass/Fail. Prerequisite: Admission to Imaging Science and Engineering Program.

L41 (BIO) 5146 PRINCIPLES AND APPLICATIONS OF BIOLOGICAL IMAGING

Instructor: Monica Shokeen, PhD, 362-8979, Joseph Culver, PhD, 747-1341, Joshua Shimony, PhD, 362-5950

Principles and Applications of Biological Imaging will introduce the interdisciplinary nature of the imaging sciences and conduct a comprehensive survey of the array of interrelated topics that define biological imaging. The course will cover the basics of the optical, magnetic resonance, CT, SPECT and PET imaging modalities, and microscopy, while focusing on applications of imaging to different disease states, such as oncology, neurology, cardiology and

pulmonary diseases. Prereqs. One year each of Biology, Chemistry, Physics and Calculus. Credit 3 units.

L41 (BIO) 5148 METABOLISM JOURNAL CLUB

Instructors: Daniel Ory, MD, 362-8737, Jean Schaffer, MD, 362-8717

The purpose of the Metabolism Journal Club is to introduce the graduate students to advanced topics spanning the biochemistry, cell biology and genetics of cellular and whole body metabolism. Under the guidance of the course directors (Drs. Ory and Schaffer), students will select recent topical articles for discussion in the weekly journal club. Students will be expected to provide a succinct introduction to the topic and lead discussion of the data presented in the journal article. Students will be evaluated on the basis of their presentation and their participation in the seminar throughout the semester. Prereqs: Successful completion of Fundamentals of Molecular Cell Biology (Bio 5068) and Nucleic Acids and Protein Biosynthesis (Bio 548). 1 unit.

L41 (BIO) 5151 RNA BIOLOGY JOURNAL CLUB

Instructors: Daniel Ory, MD, 362-8737, Jean Schaffer, MD, 362-8717

The purpose of the RNA Biology Journal Club is to introduce the graduate students to advanced topics spanning the bioinformatics, biochemistry, cell biology and genetics of RNA biology. Under the guidance of the course directors (Drs. Ory and Schaffer), students will select recent topical articles for discussion in the weekly journal club. Students will be expected to provide a succinct introduction to the topic and lead discussion of the data presented in the journal article. Students will be evaluated on the basis of their presentation and their participation in the seminar throughout the semester. Prerequisites: Successful completion of Fundamentals of Molecular Cell Biology (Bio 5068) and Nucleic Acids and Protein Biosynthesis (Bio 548). 1 unit.

L41 (BIO) 5152 DEVELOPMENT, REGENERATION AND STEM CELL BIOLOGY JOURNAL CLUB

Instructor: Craig Micchelli, PhD, 362-7036

Focuses on developing a dialog around current topics in

developmental and regenerative biology at the molecular, cellular and systems levels. 1 unit.

L41 (BIO) 5171 MEDICAL IMMUNOLOGY

Instructor: Andrey S. Shaw, MD, 362-4614

An introduction to basic concepts in immunology and immunopathology. Lectures focus on antigen-antibody interactions, immunoglobulin structure and genetics, the cellular basis of the immune response and immune regulation, T cell effector mechanisms, the inflammatory response, complement, the positive and negative roles of hypersensitivity, and immune deficiency.

Prerequisite: some background in biochemistry and genetics helpful.

Restricted to medical students only except in unusual circumstances, with permission of coursemaster. Offered during the first half of the second medical semester. Three-four lecture hours a week, two (2) two-hour lab periods, four (4) one-hour clinical discussion groups.

Credit: variable, maximum 3 units.

L41 (BIO) 5191 PATHOBIOLOGY OF HUMAN DISEASE STATES

Instructors: Thomas Baranski, MD, PhD, 747-3997, Audrey Odom, MD, PhD, 747-2370

Three human disease states will be discussed in detail. Topics will include background clinical and epidemiological information, followed by a detailed examination of the molecular and cellular events that underlie the disease state. Examples of pertinent topics include Alzheimer's disease, AIDS, leukemia, cystic fibrosis, sickle cell anemia, diabetes, etc. Prerequisite: Must be a Markey Pathway student and have HIPAA training. Credit: 2 units.

L41 (BIO) 5192 CANCER BIOLOGY JOURNAL CLUB

Instructor: Jason D. Weber, PhD, 747-3896

This journal club covers current papers in molecular oncology, cancer genetics and contemporary molecular biology. Presentations will be given by students, post-docs and faculty, then discussed.

Credit: 1 unit.

L41 (BIO) 5196 SPECIAL EMPHASIS PATHWAY IN CANCER BIOLOGY

Instructor: David Wilson, MD, PhD, 286-2834

This course is designed to present pre- and postdoctoral trainees with an organized educational format to explore major contemporary topics in cancer biology. The elective will provide an integrated view of cancer research including basic science, translational science, and clinical investigation. Approximately 60 minutes will be devoted to a didactic presentation by a faculty member with interaction by the participants. The remaining 30 minutes will be used to discuss a pivotal research paper from this field, preselected by the faculty member. Outside reading (30-60 min/week) will be required. Credit: 2 unit.

L41 (BIO) 5217 SPECIAL TOPICS IN MICROBIAL PATHOGENESIS

Instructor: Tamara Doering, MD, PhD, 747-5597, Jeffrey Henderson, MD, PhD, 747-0240

Primarily for graduate and MSTP students, this course involves oral presentation and discussion of current research articles on pathogenic microorganisms (bacteria, viruses, parasites and fungi) and the cellular and molecular basis of host-pathogen interactions. Emphasis will be placed on understanding experimental techniques and design of future experiments in the areas covered. Students are expected to prepare all articles covered and to participate actively in each discussion. Prerequisite: advanced elective course Molecular Microbiology and Pathogenesis or permission of instructors. Class meets twice per week for 1.5 hours each. Credit 2 units.

L41 (BIO) 5224 MOLECULAR, CELL AND ORGAN SYSTEMS

Instructor: Kendall Blumer, PhD, 362-1668

This course will introduce PhD and MSTP students to fundamental problems in cell and molecular biology at the systems level. The course is divided into five themes: 1) microbial systems; 2) organ development and repair; 3) cardiovascular system and disease; 4) tumor and host systems; and 5) metabolic systems and disease. Topics within each theme highlight current research concepts, questions, approaches and findings at the molecular, cellular and physiological levels. Students will write an original research grant proposal on a topic of their choosing in one of the five themes.

Students will critique proposals anonymously in an NIH-like study section. Prerequisites: Fundamentals of Molecular Cell Biology and Nucleic Acids and Protein Synthesis.

L41 (BIO) 5235 GENETICS JOURNAL CLUB

Instructor: Stephen L. Johnson, PhD, 362-0362

This journal club will be focused on the Genetics Department seminar series. Students will present one or a few recent papers by the seminar speaker scheduled for that week. Students will provide a brief written evaluation (on a form that will be provided) of their peers' presentations, and the faculty advisors will meet with each student after the presentation to provide feedback. Credit: 1 unit.

L41 (BIO) 5255 EXPERIMENTAL SKELETAL BIOLOGY JOURNAL CLUB

Instructor: Steven Teitelbaum, MD, 454-8463

The journal club, which meets weekly, focuses on cellular and molecular biology of the skeleton. Emphasis is placed on gaining insights into normal skeletal homeostasis as well as systemic disorders of bone. Papers presented for review are selected from the most competitive journals. Participants are encouraged to "think outside of the box" and discuss novel molecular discoveries that may impact bone cell function. Prerequisite: Permission of instructor. Credit: 1 unit.

L41 (BIO) 5272 ADVANCED TOPICS IN IMMUNOLOGY

Instructors: Erika Pearce, PhD, 286-2509; Deepta Bhattacharya, PhD, 362-8705

This course uses a journal club format to discuss contemporary issues in the cell and molecular biology of the immune system. Discussions focus on the use of current approaches to analyze the cellular and molecular basis of immunity. Topics include mechanisms of antigenic specificity, diversity, cell communication, differentiation, activation and effector activity. Prerequisite: L41 (Bio) 5051 and permission of instructor. Credit: 2 units. This is referenced in the Department of Pathology and Immunology.

L41 (BIO) 5284 CURRENT RESEARCH IN CHROMATIN, EPIGENETICS

AND NUCLEAR ORGANIZATION

Instructors: Douglas L. Chalker, PhD, 935-8838; Sarah Elgin, PhD, 935-5348

This journal club considers papers from the current literature on chromatin structure and function, with an emphasis on regulation of transcription, epigenetics and genomics. Presentations are given by students, postdocs and faculty, with discussion by all. Students enrolled for credit are expected to attend regularly, and to present a minimum of one paper during the term, with consultation and critique from the faculty. Credit 1 unit.

L41 (BIO) 5285 FUNDAMENTALS OF MAMMALIAN GENETICS

Instructor: Shashikant Kulkarni, PhD, 454-8414

This course aims to provide both biologists and those with mathematical backgrounds with a basis in mammalian genetics. The course will include the following modules: Nucleic acid biochemistry; Gene and chromosome organization; Intro to human genetics; Mutations and DNA repair; Cancer genetics; Genomic methodologies; Biochemical genetics; Murine genetics; Epigenetics; Neurodegenerative diseases; Mitochondrial disorders; Pharmacogenetics; Intro to human population genetics; Applications of modern human genetics; Intro to web-based informatics tools for molecular genetics. One of the required courses in the Human Statistical Genetics graduate program. Credit: 3 units.

L41 (BIO) 5303 PROTEIN NMR JOURNAL CLUB

Instructor: Katherine Henzler-Wildman, PhD, 362-1674

This journal club covers the recent literature on protein NMR with a focus on using NMR to study protein function, NMR dynamics, and novel methods that expand the range of systems accessible to solution NMR studies. Students, postdocs and faculty discuss a recent paper and present background information on the relevant technical aspects of NMR. Students receive 1 credit for participation and presenting one paper. Credit: 1 unit.

L41 (BIO) 5311 DYNAMICS IN MESOSCOPIC MOLECULAR SYSTEMS

Instructor: Elliot Elson, PhD, 362-3346

This course will provide a background in the theory of the dynamics of mesoscopic systems and introduction to methods for measuring the dynamics of these systems. It will include measurement methods, some of which are in common use and others that have only recently been introduced. This course would be useful for biophysics students and others that are interested in molecular processes and mechanisms in small systems such as cells.

Prerequisite: Physical Chemistry. Credit: 3 units.

L41 (BIO) 5312 MACROMOLECULAR INTERACTIONS

Instructor: Timothy M. Lohman, PhD, 362-4393

This course will cover equilibria, kinetics and mechanisms of macromolecular interactions from a quantitative perspective. Thermodynamics, multiple binding equilibria (binding polynomials), linkage phenomena, cooperativity, allostery, macromolecular assembly, enzyme catalysis and mechanism, steady-state and pre-steady state kinetics, and isotope effects. Modern methods of computer analysis using nonlinear least squares fitting and simulation to analyze binding isotherms and full kinetic time courses is emphasized. Prerequisite: Physical Chemistry, Biochemistry, Calculus and Organic Chemistry. Three class hours per week. Credit: 3 units.

L41 (BIO) 5314 MOLECULAR BIOPHYSICS GRADUATE SEMINAR

Instructor: Kathleen B. Hall, PhD, 362-4196

Student presentation of molecular biophysics topic. Second-year students present from literature; senior students give formal research seminar. Attendance required for all molecular biophysics students. Credit: 1 unit.

L41 (BIO) 5319 MOLECULAR FOUNDATIONS OF MEDICINE

Instructor: Linda J. Pike, PhD, 362-9502

This course is designed primarily for medical students and will cover fundamental aspects of biochemistry and cell biology from a medical perspective. The course begins with a treatment of protein structure and the function of proteins in the cytoskeleton and cell motility. The principles of enzyme kinetics and regulation are then discussed and

basic pathways for the synthesis and metabolism of carbohydrates and lipids are introduced. This leads into a discussion of membrane structure and the function of cellular organelles in biological processes including energy production, protein degradation and protein trafficking. Prerequisite: Two semesters of organic chemistry. Coursemaster approval is required. Please note: This course is given on the medical school schedule and so it begins eight days before the grad school schedule. This course is cross-listed in the Department of Biochemistry and Molecular Biophysics as M15 502 (Molecular Foundations of Medicine). Credit: 3 units.

L41 (BIO) 5328 STRUCTURAL BIOLOGY JOURNAL CLUB

Instructor: Thomas Brett, PhD, 747-0018

Multi-laboratory research colloquia for DBBS graduate students focused on structural biology and complementary biophysical techniques. Course credit requires student presentation for credit. Credit: 1 unit.

L41 (BIO) 5352 DEVELOPMENTAL BIOLOGY

Instructor: Kerry Kornfeld, MD, PhD, 747-1480

Analysis of a selected set of key processes in development, such as pattern formation, cell-cell signaling and morphogenesis. The focus is on molecular approaches applied to important model systems, but framed in classical concepts. Prerequisite: L41 (Bio) 5068 Fundamentals of Molecular Cell Biology and L41 (Bio) 548 Nucleic Acids and Protein Biosynthesis. Credit: 3 units.

L41 (BIO) 5357 CHEMISTRY AND PHYSICS OF BIOMOLECULES

Instructor: Katherine Henzler-Wildman, PhD, 362-1674

This course covers three major types of biomolecular structure: proteins, nucleic acids and membranes. Basic structural chemistry is presented, as well as biophysical techniques used to probe each type of structure. Selected topics include: protein folding, protein design, X-ray crystallography, NMR spectroscopy, nucleic acid bending and supercoiling, nucleic acid:protein interactions, RNA folding, membrane organization, fluidity, permeability and transport, and membrane channels. Weekly discussion section will cover problem

sets and present current research papers. One of the required courses for the Biochemistry and for the Molecular Biophysics graduate programs. Prerequisites: prior coursework in Biochemistry and in Physical Chemistry is recommended, but not required.

L41 (BIO) 5392 MOLECULAR MICROBIOLOGY AND PATHOGENESIS

Instructor: Joseph Vogel, PhD, 747-1029

First half focuses on prokaryotic physiology and genetics, with special attention to recent discoveries in gene regulation and protein processing. Second half devoted to microorganisms that cause disease, with emphasis on the molecular interactions between pathogen and host. Prerequisite: first-semester core curriculum for programs in Cell and Molecular Biology. Credit: 3 units. This is referenced in the Department of Molecular Microbiology.

L41 (BIO) 5398 MICROBIOLOGY PROGRAM GRANT WRITING WORKSHOP

Instructor: Michael Caparon, PhD, 362-1485

This grant writing workshop will focus on defining identifying key unanswered questions from the literature, formulating hypotheses for testing, defining Specific Aims, and developing a research plan. Students will submit specific aims on a topic of their choice, receive critiques from faculty members, and develop a NIH-style proposal to investigate them. Students will participate in class discussions and a mock study section to evaluate proposals. Prereq, completion of the MMMP advanced elective, Bio 5392 Molecular Microbiology & Pathogenesis or permission of the coursemaster. Credit: 1 unit.

L41 (BIO) 5412 TROPICAL AND MOLECULAR PARASITOLOGY

Instructor: L. David Sibley, PhD, 362-8873

Graduate-level seminar course focusing on current scientific literature in molecular parasitology. The journal club will meet biweekly during the Fall and Spring semesters. Students will attend both semesters in order to receive one credit. The seminar series will run jointly with a research conference in Tropical and Molecular Parasitology. Outside speakers will be invited for the seminar series to emphasize important developments in tropical medicine and

molecular parasitology. In advance of the invited speakers, topics will focus on their previous research publications. Prerequisite: L41 (BIO) 5392 Molecular Microbiology and Pathogenesis. Credit 0.5 unit.

L41 (BIO) 5416 MOLECULAR MICROBIOLOGY AND PATHOGENESIS JOURNAL CLUB

Instructor: Scott Hultgren, PhD, 362-6772

Presentations by students on a broad range of topics of current interest in microbiology and pathogenesis including areas of research in bacteriology, mycology, parasitology, virology and immunology. The course will emphasize techniques used to give good presentations and scientific critique. Speakers provide a brief background to introduce the topic and then focus on one-two papers from the current literature.

L41 (BIO) 5417 HEMATOLOGY/ONCOLOGY JOURNAL CLUB

Instructor: Monita Wilson, PhD, 362-8839

This journal club covers a broad range of topics of current interest, including the fields of biochemistry, molecular biology, cell biology, developmental biology and immunology. Speakers usually give a brief background to introduce the topic and then focus on one or two papers from the current literature. Presentations are given by graduate students, postdoctorates and faculty. Each attendee presents two to three times per year. Participants are expected to attend all the sessions. This journal club was formed in 1966. Credit: 1 unit.

L41 (BIO) 5426 ID GATEWAY: TRANSLATIONAL AND PUBLIC HEALTH ASPECTS OF BASIC INFECTIOUS DISEASE RESEARCH

Instructors: Robyn Klein, MD, PhD, 286-2140; S. Celeste Morley, MD, PhD, 286-2136

This course provides an opportunity for students, postdoctoral fellows, infectious disease fellows and faculty to explore issues at the interface between patient care, public health and basic research in the area of microbial pathogenesis. Prerequisites: Application and L41 (BIO) 5392 or M30 526, or permission of instructor. Credit: 2 units.

L41 (BIO) 5445 DNA METABOLISM JOURNAL CLUB

Instructor: Roberto Galletto, PHD, 362-4368

Presentation of current research papers in DNA replication, DNA repair and DNA recombination, with an emphasis on basic biochemical and biophysical approaches.

L41 (BIO) 5456 ADVANCED CRYSTALLOGRAPHY

Instructor: Daved Fremont, PhD, 747-6547

The advanced course in protein crystallography will address all aspects of modern protein crystallography including fundamentals of crystallography, the derivation of the structure factor and electron density equation, symmetry and space groups, direct methods, isomorphous replacement, molecular replacement, data collection, and crystal growing theory and techniques. Prerequisite: Physical Chemistry and BIO 5325 Protein Structure and Function. Two class hours per week. Credit: 2 units.

L41 (BIO) 5466 CURRENT TOPICS IN BIOCHEMISTRY

Instructor: Kathleen B. Hall, PhD, 362-4196

Student presentations of thesis research. Formal presentations require PowerPoint. Required of all Biochemistry graduate students; first- and second-year students get credit. Credit: 1 unit.

L41 (BIO) 5468 CARDIOVASCULAR BIOPHYSICS JOURNAL CLUB

Instructor: Sándor J. Kovács, PhD, MD, 454-7660

This journal club is intended for beginning graduate students, advanced undergraduates and MSTP students with a background in the quantitative sciences (engineering, physics, math, chemistry, etc.). The subjects covered are inherently multidisciplinary. We will review landmark and recent publications in quantitative cardiovascular physiology, mathematical modeling of physiologic systems and related topics such as chaos theory and nonlinear dynamics of biological systems. Familiarity with calculus, differential equations and basic engineering/thermodynamic principles is assumed. Knowledge of anatomy/physiology is optional. Same as E72 BME 5911. Credit: 1 unit.

L41 (BIO) 5472 CARDIOVASCULAR MRI — FROM PHYSICS TO CLINICAL APPLICATION

Instructor: Shelton Caruthers, PhD, 454-8242

This graduate course (seniors welcome) will cover the basic physics involved in creating an image by magnetic resonance technology. The use of this technology, specifically as it applies to the unique challenges of cardiovascular applications, will be examined. This will include topics such as motion compensation techniques, real-time imaging, exogenous contrast enhancement, and quantitative flow measurements, for example. As much as one-third of the class will involve actual case studies and the discussion of clinical use for cardiovascular MRI. Students will demonstrate competence in the subject through a combination of homework, a final examination and a small semester project. Prerequisites: Calculus, introductory human physiology/anatomy/biology course. Same as E62 BME 502. Credit: 3 units.

L41 (BIO) 548 NUCLEIC ACIDS AND PROTEIN BIOSYNTHESIS

Instructor: Peter Burgers, PhD, 362-3872

Fundamental aspects of structure, biosynthesis and function of nucleic acids and the biosynthesis of proteins. Emphasis on mechanisms involved in the biosynthetic processes and the regulation thereof. Prerequisite: L41 (Bio) 337, 449 or equivalent or permission of instructor. This is referenced in the Department of Biochemistry and Molecular Biophysics. Credit: 3 units.

L41 (BIO) 5483 HUMAN LINKAGE AND ASSOCIATION ANALYSIS

Instructor: John P. Rice, PhD, 286-2572

Basic Genetic concepts: Meiosis, inheritance, Hardy Weinberg Equilibrium, Linkage, segregation analysis, linkage analysis: definition, crossing over, map functions, phase, LOD scores, penetrance, phenocopies, liability classes, multi-point analysis, non-parametric analysis (sibpairs and pedigrees), quantitative trait analysis, determination of power for Mendelian and complex trait analysis, linkage disequilibrium analyses, allelic association (case control designs and family bases studies) whole genome association analysis, quantitative trait analysis, measured genotypes and

variance components. Prerequisites: M21 515 Fundamentals of Genetic Epidemiology. Credit: 2 units. Same as M21 GEMS 5483.

L41 (BIO) 5484 GENETICS AND DEVELOPMENT OF C. ELEGANS JOURNAL CLUB

Instructor: Tim Schedl, PhD, 362-6162

Students will present a research paper (or present their current thesis research) and the appropriate background material. Credit: 1 unit.

L41 (BIO) 5487 GENETICS AND GENOMICS OF DISEASE

Instructor: Tim Schedl, PhD, 362-6162, Christina Gurnett, MD, PhD, 286-2789, John Welch, MD, PhD, 362-2626

The course will cover the use of genomic and genetic information in the diagnosis and treatment of disease, with an emphasis on current practice and existing gaps to be filled to achieve precision medicine. Areas of discussion include: bioinformatics methods; assessment of pathogenicity; use and curation of disease variant databases; discovery of incidental findings; genomics applications in Mendelian disease, complex traits, cancer, pharmacogenomics, and infectious disease; design of clinical trials with genetic data; ethical and policy issues. Prerequisites: Genomics (Bio 5488), Advanced Genetics (Bio 5491), or Fundamentals of Mammalian Genetics (Bio 5285) or equivalent (permission from instructor). Credit: 2 unit.

L41 (BIO) 5488 GENOMICS

Instructors: Ting Wang, PhD, 286-0865; Donald Conrad, PhD, 362-4379

This course is designed for beginning students who want to become familiar with the basic concepts and applications of genomics. The course covers a wide range of topics including how genomes are mapped and sequenced as well as the latest computational and experimental techniques for predicting genes, splice sites and promoter elements. High throughput techniques for ascribing function to DNA, RNA and protein sequences including microarrays, mass spectrometry, interspecies genome comparisons and genome-wide knockout collections will also be discussed. Finally, the use of

genomic techniques and resources for studies of human disease will be discussed. A heavy emphasis will be put on students acquiring the basic skills needed to navigate databases that archive sequence data, expression data and other types of genome-wide data. Through problem sets the students will learn to manipulate and analyze the large data sets that accompany genomic analyses by writing simple computer scripts. While students will become sophisticated users of computational tools and databases, programming and the theory behind it are covered elsewhere, in Michael Brent's class, Bio 5495 Computational Molecular Biology. Because of limited space in our teaching lab, enrollment for lab credit will be limited to 24 students. Priority will be given to students in the DBBS program. Others interested in the course may enroll for the lectures only. If you have previous experience in computer programming, we ask that you do not enroll for the laboratory credit. Prerequisites: Molecular Cell Biology (Bio 5068), Nucleic Acids (Bio 548) or by permission of instructor. Lecture 3 units of credit; lab 1 additional unit, space limited. Credit: 3 or 4 units.

L41 (BIO) 5489 HUMAN GENETICS JOURNAL CLUB

Instructor: Nancy Saccone, PhD, 747-3263

In this biweekly journal club on Human Genetics we will present and discuss current cutting-edge papers in human and mammalian molecular genetics. Students learn presentation skills, how to critique a paper and how to interact with a very active and critical audience. Prerequisites: Any person interested in the current state of the art in Human Genetics may attend this course. It is a requirement that all students wishing to earn credit in this course must present a 1.5-hour journal club talk and must regularly attend and participate in the journal club throughout the year.

L41 (BIO) 5491 ADVANCED GENETICS

Instructor: Tim Schedl, PhD, 362-6162

Fundamental aspects of organismal genetics with emphasis on experimental studies that have contributed to the molecular analysis of complex biological problems. Examples drawn from bacteria, yeast, nematodes, fruit flies and mammalian systems. Prerequisite:

graduate standing or permission of instructor. This is cross-listed in the Department of Genetics. Credit: 3 units.

L41 (BIO) 5495 COMPUTATIONAL MOLECULAR BIOLOGY

Instructor: Michael R. Brent, PhD, 935-6621

This course focuses on genome sequence analysis, emphasizing computational and algorithmic issues. Topics covered include: the essential biology, the essential probability theory, base calling and quality clipping, predicting protein-coding genes (including Hidden Markov Models and comparative genomics approaches), sequence aligning, RNA folding, protein domain analysis, and an introduction to population biology. This includes both paper and pencil homework assignments and programming labs in "C." Prerequisite: CSE 241 or CSE 502N. Credit: 3 units. Same as E62 BME 537.

L41 (BIO) 5496 SEMINAR IN COMPUTATIONAL MOLECULAR BIOLOGY

Instructor: Jeremy Buhler, PhD, 935-6180, Gary D. Stormo, PhD, 747-5534

Students present current research papers and the appropriate background material in the field of computational biology. Same as E81 CSE 7801. Credit: 1 unit.

L41 (BIO) 550 MEDICAL GENETICS

Instructor: Susan Dutcher, PhD, 362-2765

A significant portion of the first-year course in basic medical genetics devoted to human and clinical genetics, with emphasis on how genomic information will transform the practice of medicine. Topics covered include population genetics, molecular basis of mutations; human functional genomics; mouse models of human disease; pharmacogenomics; metabolic defects. Lectures, small group discussions, patient information session. Prerequisite: an introductory genetics course and permission of the instructor. This is cross-listed in the Department of Genetics as M30 511 Medical Genetics. Credit: 2 units.

L41 (BIO) 5512 Diseases of Membrane Transport & Excitability

Instructor: Robert Mercer, PhD, 362-6924

Classes will consider the molecular basis of the disease as well as animal models and current clinical studies. Addressing studies from the level of basic biophysical and molecular properties of the underlying ion channels/transporters, to the cellular defects, to organ and animal outcomes and therapies, which will encourage and force students to develop their ability to integrate understanding at multiple levels. Students will be introduced to emerging ideas in clinical diagnosis, management and treatment, when appropriate, clinical specialists will allow student participants to directly observe and participate in the clinical experience. Prerequisites: Bio 5068 Fundamentals of Molecular Cell Biology. Credit: 2 units.

L41 (BIO) 554 NEURAL SCIENCES

For full description, see the Department of Anatomy and Neurobiology, M35 554 Neural Sciences.

L41 (BIO) 5565 ORAL PRESENTATION OF SCIENTIFIC DATA

Instructor: Staff, Neurosciences Program, 362-7189

Practical course on how to prepare and present scientific data to an audience. Prerequisite: first-year neuroscience program courses.

Meets once a week for 90 minutes. Credit: 1 unit.

L41 (BIO) 5571 CELLULAR NEUROBIOLOGY

Instructor: Paul Taghert, PhD, 362-3641

This course will present a fully integrated overview of nerve cell structure, function and development at the molecular and cellular level. Broad topics to be covered include gene structure and regulation in the nervous system, quantitative analysis of voltage- and chemically-gated ion channels, presynaptic and postsynaptic mechanisms of chemical neurotransmission, sensory transduction, neurogenesis and migration, axon guidance and synapse formation. Two lectures plus one hour of discussion per week for 14 weeks. There will be three exams, as well as homework problems and summaries of discussion papers. Prerequisite: graduate standing or permission of the instructor. Credit: 4 units.

L41 (BIO) 5577 SYNAPSES JOURNAL CLUB

Instructor: Steven Mennerick, PhD, 747-2988

The synapse is fundamental to our understanding of information transfer in the nervous system. Malleability of the synapse is considered key to our understanding of organisms' ability to learn and remember and key to understanding nervous system dysfunction in many disease states. This is an advanced seminar in the development, structure and function of the synapse in health and disease. It is a natural extension of topics covered in Bio 5571 and may be primarily of interest to students in the Neurosciences Program. It may also be of interest to students in MCB, Development, Biochemistry, Computational Biology and Molecular Biophysics. Generally a topic for the semester helps focus the group; past topics have included Synapses and Disease, Neurotransmitter Transporters, Glutamate Receptors, Dendrites, GABA receptors. Participants (students, postdocs and faculty) alternate responsibility for choosing a paper from the primary literature to present for the club. Critical discussion of the paper ensues. Active participation offers the opportunity for students to hone their critical thinking and presentation skills. Students enrolling for credit will be expected to attend each week and will be expected to lead discussion once per semester. Prerequisites: Graduate standing in DBBS; BIO 5571 preferred.

L41 (BIO) 5619 ADVANCED COGNITIVE, COMPUTATIONAL AND SYSTEMS NEUROSCIENCE

Instructor: Todd Braver, PhD, 935-5143

This course will develop critical thinking and analysis skills with regard to topics in Cognitive, Computational and Systems Neuroscience. Course format will be a series of modules composed of intensive, faculty-led case studies on interdisciplinary topics at the intersection of psychology, computation and neuroscience. The goal will be to highlight the benefits of integrative, interdisciplinary approaches, by delving into a small set of topics from a variety of perspectives, rather than providing a survey-level introduction to a broader set of topic areas. Modules will involve a combination of lectures and student-led discussion groups, with students further

expected to complete a multidisciplinary integrative final review paper. Case-study topics will vary somewhat from year to year, but are likely to include some of the following: temporal coding as a mechanism for information processing, coordinate transformations in sensory-motor integration, mechanisms of cognitive control, motor control strategies including application to neural prosthetics, and memory systems in health and disease. Credit: 3 units. Same as L33 Psych 519.

L41 (BIO) 5622 COGNITIVE, COMPUTATIONAL AND SYSTEMS
NEUROSCIENCE PROJECT BUILDING

Instructor: Deanne M. Barch, PhD, 935-8729

The goal of this course is to help students in the CCSN Pathway develop the critical thinking skills necessary to develop and implement high-quality, interdisciplinary research projects. Throughout the course of the semester, students will develop a research plan in their chosen area of interest. The plan will be developed in consultation with at least two faculty members (from at least two different subdisciplines within the pathway) as well as the other students and faculty participating in the course. The culmination of this course will be for each student to produce an NIH-style grant proposal on the research project of their choosing. For most students, this will serve either as their thesis proposal or a solid precursor to the thesis proposal. The course will be designed to help facilitate the development of such a research plan through didactic work, class presentations, class discussion, and constructive feedback on written work. The course will begin with a review of written examples of outstanding research proposals, primarily in the form of grant submissions similar to those that the students are expected to develop (i.e., NRSA style proposals, R03 proposals). Review of these proposals will serve as a stimulus to promote discussion about the critical elements of good research proposals and designs in different areas. Each student will be expected to give three presentations throughout the semester that will provide opportunities to receive constructive feedback on the development and implementation of research aims. The first presentation (toward

the beginning of the semester) will involve presentation of the student's general topic of interest and preliminary formulation of research questions. Feedback will emphasize ways to focus and develop the research hypotheses into well-formulated questions and experiments. The second presentation will involve a more detailed presentation of specific research questions (along the lines of NIH-style Specific Aims) and an initial outline of research methods. The final presentation will involve a fuller presentation of research questions and proposed methods. Feedback, didactic work and group discussion throughout the semester will include guidance on critical components of the development of a research plan, including how to perform literature searches, formulate testable hypotheses, write critical literature summaries and design experiments and analyses. The course will meet once a week, with faculty members from different tracks within the pathway present at each meeting. This will allow students to receive feedback from several perspectives. Prerequisite: Member of CCSN Pathway, permission of instructor. Credit: 3 units. Same as L33 Psych 5191.

L41 (BIO) 5646 NEUROSCIENCES PROGRAM 1ST YEAR FUNDAMENTALS

Instructors: Paul Shaw, PhD, 362-2703; Lawrence Snyder, MD, PhD, 747-3530; John Pruet, MD, PhD, 747-6751

This course will provide a two-part introduction to Neuroscience Research fundamentals. Namely, it will introduce elementary statistical analysis for Neuroscience research and an introduction for grant-writing to support Neuroscience-related research. Prereq, limited to first year neuroscience students. Credit: 0.5 units.

L41 (BIO) 5651 NEURAL SYSTEMS

Instructor: Lawrence Snyder, MD, PhD, 747-3530

The course will consist of lectures and discussions of the sensory, motor and integrative systems of the brain and spinal cord, together with a weekly lab. The lectures will present aspects of most neural systems and will be given by faculty members who have specific expertise on each topic. The discussions will include faculty-led group discussions and papers presented and discussed by students.

The labs will include human brain dissections, examination of histological slides, physiological recordings, behavioral methods, computational modeling and functional neural imaging. Credit: 6 units.

L41 (BIO) 5657 BIOLOGICAL NEURAL COMPUTATION

Instructor: Baranidharan Raman, PhD , 935-8538

This course will consider the computations performed by biological nervous systems. Readings and discussions will investigate the biophysical and physiological bases of computations made by ion channels, synapses, dendrites, neurons and neuronal networks. Computer laboratories and a semester-long independent project will determine how simple mathematical models succeed or fail to represent observed biological function and organismal behavior. Readings will include classic and current primary research papers. (Note: Graduate students in psychology or neuroscience who are in the Cognitive, Computational and Systems Neuroscience curriculum pathway may register for one credit. These students will attend all course meetings and complete the homework assignments, but will not participate in the semester-long independent project. Registration may be Pass/Fail. All BME students should register for three credits). Prerequisites for 3-credit option: calculus, some experience with differential equations and cell or systems biology. Junior and senior undergraduates need permission of instructor. Prerequisites for 1-credit option: permission of instructor, calculus II and introductory biology. Credit: 3 units. Same as E62 BME 572.

L41 (BIO) 5663 NEUROBIOLOGY OF DISEASE

Instructor: Conrad Wehl, MD, PhD, 362-6981

This is an advanced graduate course on the pathology of nervous system disorders. This course is primarily intended to acquaint Neuroscience graduate students with a spectrum of neurological diseases and to consider how advanced neuroscientific approaches may be applied to promoting recovery in the brain. The class will meet for two hours each week. Each session will be led by a faculty guest with expertise in a specific neurological or psychiatric disease. In the first hour, the speaker will discuss clinical manifestations and

pathophysiology. Where possible, the clinical presentation will be supplemented with a patient demonstration or videotape. The second hour will follow a journal club format. Two or three students will review current papers assigned by the speaker or course director. This course is offered in alternate years. Credit: 2 units.

L41 (BIO) 5678 CLOCKSClub

Instructors: Erik Herzog, PhD, 935-8635; Paul Taghert, PhD, 362-3641

Clocksclub focuses on recent advances in the study of biological timing including sleep and circadian rhythms. Participants discuss new publications and data on the molecules, cells and circuits underlying daily rhythms and their synchronization to the local environment. Students registered for this journal club will lead a discussion once during the semester. Prereqs: BIO 2970 or permission of instructor. Credit: 1 unit.

L41 (BIO) 572 SEMINAR IN PLANT BIOLOGY

Instructor: Staff, Plant Biology Program, 362-3364

A weekly discussion of modern research in plant biology including topics in molecular genetics, development, biochemistry, physiology, population dynamics and plant-pathogen interactions. Research seminars by local and outside speakers will be intermixed with journal club presentations in alternating weeks. Credit will be contingent on one journal club presentation per semester, regular attendance and active participation in group discussions. Credit: 1 unit.

L41 (BIO) 580 SEMINAR IN POPULATION BIOLOGY

Instructor: Staff, Evolution, Ecology and Population Biology, 362-3364

This weekly seminar, covering different topics each semester, should be taken by graduate students in the program. Prerequisite: graduate standing or permission of the instructors. Credit: variable; 2 or 3 units.

L41 (BIO) 582 ETHNOBIOLOGY JOURNAL CLUB

Instructors: Jan Salick, PhD, 577-5165; Gayle Fritz, PhD, 935-8588

Students in this journal club will meet weekly with ethnobotanists,

ethnozoologists and ecologists from various St. Louis institutions (including Washington University, University of Missouri-St. Louis, Saint Louis University and the Missouri Botanical Garden) to discuss recent publications and ongoing research. Enrolled students will attend the journal club every week, and once per semester will choose a paper and lead the discussion. Credit: 1 unit. Same as home course L48 Anthro 560.

L41 (BIO) 585 SEMINAR IN FLORISTIC TAXONOMY

Instructor: Peter Hoch, PhD, 577-5175

This weekly seminar provides an introduction to/overview of Plants, each semester progressively covering orders and families in a sequence derived from the Angiosperm Phylogeny Website (<http://www.mobot.org/MOBOT/Research/APweb/welcome.html>); in Spring 2014, the seminar will finish the monocots and begin the eudicots. Weekly presentations include a summary of all relevant information (molecular, chemical, anatomical, embryological, morphological, ecological, geographical, historical/paleontological, etc.) about the plant group under consideration, review of the classification/phylogeny of the group, examination of fresh and/or preserved specimens, and discussion of relationships, human uses, and other relevant aspects of the biology of that group. Credit will be contingent on one (or two) seminar presentation(s) per student, regular attendance and active participation in group discussions. Credit: 1 unit.

L41 (BIO) 590 RESEARCH

Instructors: Staff, Division of Biology and Biomedical Sciences, 362-3365

Credit to be arranged. Research is listed as 900-level course in each department.

L41 (BIO) 5902 INTRO TO TEACHING-AS-RESEARCH (TAR)

Instructors: Regina Frey, PhD, 935-7474; Carolyn Dufault, PhD, 935-9660

In this course, advanced graduate students and postdocs in STEM will 1) learn the fundamentals of Teaching as Research (TAR)-which is

the practice of developing, reflecting on, and evaluating teaching methods to improve student learning, 2) Develop a working knowledge of Teaching as Research, which draws on research in education, STEM education, and cognitive science, 3) Understand how Teaching as Research can lead to the dissemination of new knowledge to a broad audience of educators through publication and presentations., and 4) Develop the central elements of a Teaching as Research project. These elements include articulating questions about classroom teaching that can be addressed in a TAR research project; developing working hypotheses in response to the questions; designing an evaluative plan, including specific research methods, the type of data to be collected, and how the data will be analyzed in relation to the hypotheses; identifying and understanding necessary procedures to obtain IRB approval for the research. Prerequisites: Must be an advanced graduate student or a postdoctoral appointee with some teaching experience, and must have completed 4 STEM Pedagogies workshops (2 are required topics) offered by The Teaching Center. Credit:1 unit.

L41 (BIO) 5911 SEMINAR IN BIOLOGY AND BIOMEDICAL SCIENCES

Instructors: Staff, Division of Biology and Biomedical Sciences, 362-3365

These seminars cover the recent literature in various areas not included in other courses, or in more depth than other courses. Credit to be arranged.

L41 (BIO) 5913 BIOLOGICAL SYSTEMS ENGINEERING

Instructor: Kristen Naegle, PhD, 935-7665

This project-based (MATLAB) class will introduce several current techniques for systems-level measurement of molecules and a set of computational techniques for inferring biological meaning from such experiments. Several molecular types and measurement techniques will be covered. How to determine the quality of measurements will lay the groundwork for understanding a new measurement technique. From there, computational topics will include dimensionality reduction techniques, correlations between measurements and outcomes, and network modeling and

inference. A working knowledge of molecular biology, differential equations, linear algebra, and statistics is required. Credits: 3 units.

L41 (BIO) 5915 TEACHING PRACTICE IN BIOLOGY AND BIOMEDICAL SCIENCES

Instructor: John H. Russell, PhD, 362-2558

Students serve as teaching assistants for undergraduate and graduate-level courses. Faculty-supervised activities include lecture preparation and presentation, leading discussion and problem-solving sessions and laboratory instruction. Prerequisite: restricted to graduate students in the Division of Biology and Biomedical Sciences. Credit: 1 unit.

L41 (BIO) 5922 ENTERING MENTORING

Instructor: Kathryn Miller, PhD, 935-7305

This course is a series of facilitated discussions aimed at developing and improving mentoring skills for those involved in supervising undergraduate research experiences. It is designed for post-docs and graduate students who are or will be “bench mentors” for undergraduates doing Bio 500 and/or Summer Research.

Participants will receive “Entering Mentoring” materials, including articles and worksheets to facilitate mentoring interactions with their mentee, plus several resource books relevant to mentoring. They will develop a mentoring philosophy statement, work on specific assignments designed to improve their relationship with their mentee and share their present and past experiences as mentors and mentees. Bench mentors will be eligible for a travel award to help defray expenses for attending a meeting with their mentee, if that student wins one of the HHMI SURF travel awards (4-5 awarded annually) or is otherwise being supported to present at a scientific meeting. Grad students and postdocs do NOT need to be mentoring a student at the time of the course; it is open to all with an interest in mentoring now or in the future. Note: interested postdocs can register through University College. Credit: 1 unit. Same as U29 Bio 492.

L41 (BIO) 5999 INDEPENDENT WORK

Instructors: Staff, Division of Biology and Biomedical Sciences, 362-3365

This course is designed for individual students wishing to explore in-depth specialized areas of literature or technology with one or more faculty members. Credit will vary with the amount of work and discussion, but cannot be more than 3 units. Credit: Variable, maximum 3 units.

Note — The number preceding the course title indicates that the course carries credit in the Graduate School of Arts & Sciences.

Biomedical Engineering

Modern biomedical engineers face a far different world than those trained even two decades ago.

Explosive advances in our ability to probe and understand molecular and cellular processes and their interconnections now make it imperative that the powers of engineering be brought to bear at ever smaller as well as at system wide levels. This will not only produce new discoveries at the most fundamental levels but also accelerate the translation of these discoveries into practical applications.

Our vision is that future leaders and lasting impact will arise from successfully integrating engineering concepts and approaches across molecular to whole body levels. Moreover, those also trained to integrate the analytical, modeling and systems approaches of engineering to the complex and, sometimes overwhelming, descriptive details of biology will be uniquely positioned to address new and exciting opportunities. We are committed to educating and training the next generation of biomedical engineers with this vision in mind.

At Washington University, world-class biological, engineering and medical research — along with top-notch, state-of-the-art health care — are closely intertwined. For more than 50 years, collaborations between the School of Medicine and the School of Engineering & Applied Science have led to major advances in many areas including: positron emission tomography, medical applications of ultrasound, application of computers to hearing research and development of heart valve flow simulators. Since the establishment of the Department of Biomedical Engineering in 1997, this atmosphere of collaboration and collegiality between the two schools has been further strengthened and expanded, leading to an exceptional degree of synergy that is one of our hallmarks. All of our core faculty have been hired since 1997 and comprise a young, dynamic and still-expanding group.

The core faculty, together with over sixty affiliated faculty from other departments form a network of mentors dedicated to training the next generation of biomedical engineers. Our goal is to educate students in an interdisciplinary manner so that they can effectively collaborate with physicians, biologists and other life scientists to build their careers. Students can elect to perform their research with any member of the network. The commitment and diverse talent of these faculty provide a vast array of choices to enable students to refine their unique quantitative and analytical engineering skills and apply them to relevant biomedical problems. As a result, our graduates are well-equipped to work in multidisciplinary teams tackling cutting-edge and high impact problems of modern biomedical engineering.

Admissions Information

Please visit the [Biomedical Engineering website](#) for admissions information.

Biomedical Engineering Courses

BME 501 Graduate Seminar
BME 502 Cardiovascular MRI-Physics to Clinical Application
BME 503A Cell and Organ Systems Biology
BME 506 Seminar in Imaging Science and Engineering
BME 5068 Fundamentals of Molecular Cell Biology
BME 511 Biotechnology Techniques for Engineers
BME 521 Kinetics of Receptor-Mediated Processes
BME 522 Kinetics In Cell Signaling and Metabolism
BME 523 Biomaterials Science
BME 524 Tissue Engineering
BME 525 Engineering Aspects of Biotechnology
BME 527 Design of Artificial Organs
BME 530A Molecular Cell Biology for Engineers
BME 533 Biomedical Signal Processing
BME 537 Computational Molecular Biology
BME 541 Computational and Systems Biology with Emphasis on
High-Throughput Sequencing and Immunology
BME 557 Cellular and Subcellular Biomechanics
BME 558 Biological Transport
BME 559 Intermediate Biomechanics
BME 5610 Protein Structure and Dynamics
BME 562 Mechanics of Growth and Development
BME 563 Orthopaedic Biomechanics-Bones and Joints
BME 564 Orthopaedic Biomechanics-Cartilage/Tendon
BME 568 Cardiovascular Dynamics
BME 572 Biological Neural Computation
BME 573A Applied Bioelectricity
BME 574 Quantitative Bioelectricity and Cardiac Excitation
BME 575 Molecular Basis of Bioelectrical Excitation
BME 589 Biological Imaging Technology
BME 591 Special Topics: Biomedical Optics I: Principles
BME 592 Biomedical Optics II: Imaging
BME 5901 Integrative Cardiac Electrophysiology

BME 5902 Cellular Neurophysiology
BME 5903 Physical Methods for Biomedical Scientists
BME 5906 Brain Networks
BME 5907 Advanced Concepts in Image Science
BME 5909 Physiology of the Heart
BME 5910 Reverse Engineering the Human Brain
BME 5911 Cardiovascular Biophysics Journal Club
BME 5912 Applied Mathematics for Biomedical Sciences
BME 5913 Biological Systems Engineering
BME 5914 Stem Cell Engineering
BME 592 Biomedical Optics II: Imaging

For additional related courses, see the [courses of the School of Engineering & Applied Science](#).

Department of Biomedical Engineering Faculty

Professor and interim chair of department

Steven C. George, MD, PhD

University of Missouri, Columbia (MD), 1991

University of Washington (PhD), 1995

Professor emeritis

Salvatore P. Suter, PhD

California Institute of Technology, 1960

Full-time professors

Mark Anastasio, PhD

The University of Chicago, 2001

Jianmin Cui, PhD

State University of New York Stony Brook, 1992

Igor R. Efimov, PhD

Moscow Institute of Science and Technology, 1992

Rohit V. Pappu, PhD

Tufts University, 1996

Yoram Rudy, PhD

Case Western Reserve University, 1978

Shelly E. Sakiyama-Elbert, PhD

California Institute of Technology, 2000

Larry A. Taber, PhD

Stanford University, 1979

Lihong Wang, PhD

Rice University, 1992

Frank Chi-Pong Yin, PhD, MD

University of California, San Diego, 1970; MD, 1973

Full-time associate professors

Dennis L. Barbour, MD, PhD

The Johns Hopkins University, 2003

Donald L. Elbert, PhD

University of Texas at Austin, 1997

Daniel W. Moran, PhD

Arizona State University, 1994

Jin-Yu Shao, PhD

Duke University, 1997

Kurt A. Thoroughman, PhD

The Johns Hopkins University, 1999

Full-time assistant professors

Jan Bieschke, PhD

Max-Planck-Institute for Biophysical Chemistry, 2000

Vitaly Klyachko, PhD

University of Wisconsin, 2002

Kristen Naegle, PhD

Massachusetts Institute of Technology, 2009

Baranidharan Raman, PhD

Texas A & M University, 2005

Jon Silva, PhD

Washington University in St. Louis, 2008

Graduate group

Samuel Achilefu, PhD

University of Nancy, France, 1991

Beau Ances, MD, PhD

University of Pennsylvania, 2001

Deanna Barch, PhD

University of Illinois at Urbana-Champaign, 1993

Philip V. Bayly, PhD

Duke University, 1993

Michael R. Brent, PhD

Massachusetts Institute of Technology, 1991

Paul C. Bridgman, PhD

Purdue University, 1980

Michael Bruchas, PhD

Creighton University, 2004

Andreas H. Burkhalter, PhD

University of Zurich, 1977

Maurizio Corbetta, MD

University of Pavia School of Medicine, Italy, 1985

Joseph Culver, PhD

University of Pennsylvania, 1987

Gautam Dantas, PhD

University of Washington, 2005

Aaron DiAntonio, MD, PhD

Stanford University (MD/PhD), 1995

Anthony French, MD, PhD

University of Illinois, Urbana-Champaign, 1995; MD, 1996

Victor Gruev, PhD

Johns Hopkins University, 2004

James Havranek, PhD

Stanford University, 2003

Katherine Henzler-Wildman, PhD

University of Michigan, 2003

Tim Holy, PhD

Princeton University, 1997

Yanle Hu

Stanford University, 2007

James Huettner, PhD

Harvard University, 1987

Daniel Kerschensteiner, MD

Max-Planck Institute for Experimental Medicine, Gttingen, Germany,
2004

Sándor J. Kovács, PhD, MD

California Institute of Technology, 1977; MD, University of Miami,
1979

Spencer Lake, PhD

University of Pennsylvania, 2009

Gregory M. Lanza, PhD

University of Georgia, 1981

Suzanne Lapi, PhD

Simon Fraser University, 2007

Jin-Moo Lee, MD, PhD

Cornell University Medical College, 1993

Eric Leuthardt, MD

University of Pennsylvania, 1999

H. Harold Li, PhD

Friedrich-Alexander-Universitat Erlangen-Nurnberg, 2001

Christopher Lingle, PhD

University of Oregon, 1979

Timothy Lohman, PhD

University of Wisconsin, Madison, 1977

Christopher A. Maher, PhD

Cold Spring Harbor Laboratory and Stony Brook University, 2006

Garland R. Marshall, PhD

Rockefeller University, 1966

Robert P. Mecham, PhD

Boston University, 1976

James G. Miller, PhD

Washington University, 1969

Robi Mitra, PhD

Massachusetts Institute of Technology, 2000

Arye Nehorai, PhD

Stanford University, 1983

Jeanne Nerbonne, PhD

Georgetown University, 1978

Colin G. Nichols, PhD

Leeds University, 1985

Joseph A. O'Sullivan, PhD

University of Notre Dame, 1986

Camillo Padoa-Schioppa, PhD

Massachusetts Institute of Technology, 2002

Parag J. Parikh, MD

Washington University, 2001

Amit Pathak, PhD

University of California, Santa Barbara, 2008

Steven E. Petersen, PhD

California Institute of Technology, 1982

Zachary Pincus, PhD

Stanford University

Jay W. Ponder, PhD

Harvard University, 1984

Marcus E. Raichle, MD

University of Washington, 1964

Linda Sandell, PhD

Northwestern University, 1980

Vijay Sharma, PhD

Kooresh Isaac Shoghi

University of California, Los Angeles, 2005

Matthew J. Silva, PhD

Massachusetts Institute of Technology, 1996

Lawrence H. Snyder, MD, PhD

University of Rochester, 1992

Joseph H. Steinbach, PhD

University of California, San Diego, 1973

Gary D. Stormo, PhD

University of Colorado, 1981

S. Joshua Swamidass, MD/PhD

University of California, Irvine, 2009

Yuan-Chuan Tai, PhD

University of California, Los Angeles, 1998

Simon Tang, PhD

Rensselaer Polytechnic Institute, 2007

Stavros Thomopoulos, PhD

University of Michigan, 2001

David C. Van Essen, PhD

Harvard University, 1971

Jessica Wagenseil, DSc

Washington University in St. Louis, 2003

Xiaowei Wang, PhD

Tufts University Medical School, 2000

Samuel A. Wickline, MD

University of Hawaii, 1980

Robert S. Wilkinson, PhD

University of Texas at Austin

Pamela Woodard, MD

Duke University School of Medicine, 1990

Hani Zaher, PhD

Simon Fraser University, 2007

Jie Zheng

University of Cincinnati, 1994

Affiliated faculty

R. Martin Arthur, PhD

University of Pennsylvania, 1968

Thomas Conturo, MD, PhD

Vanderbilt University, 1989

Elliot L. Elson, PhD

Stanford University, 1966

William A. Frazier III, PhD

Washington University, 1973

Eric Galburt, PhD

University of Washington

Robert J. Gropler, MD

University of Cincinnati, 1981

Dennis Hallahan, MD

Rush University, 1984

Stephen M. Highstein, MD

University of Maryland, 1965; PhD, University of Tokyo, 1976

Enrique Izaguirre, PhD

Drexel University, 1997

Joseph W. Klaesner, PhD

Vanderbilt University, 1995

Stanley Misler, PhD, MD

New York University, 1976; MD, 1978

Michael K. Pasque, MD

University of Oklahoma, 1978

William D. Richard, PhD

University of Missouri-Rolla, 1988

Alan R. Templeton, PhD

University of Michigan, 1972

M. Victor Wickerhauser, PhD

Yale University, 1985

Biostatistics

The Division of Biostatistics engages in research, biostatistical consultation and training activities. Interested students may pursue intensive studies through the Master of Science in Biostatistics, a Certificate in Genetic Epidemiology, or individual courses offered by the division. Research activities include several independent lines of research as well as numerous collaborative projects with various departments of the medical school. Biostatistical consultation represents an important activity of the division, providing expertise in both theoretical and applied areas. The division participates actively in a post-doctoral training.

Research activities of the division span a wide range of topics dealing with a number of disease areas and provide research opportunities at both theoretical and applied levels. Several research projects involve close interaction and collaboration with a number of research groups at the Washington University Medical Center. Independent research programs of the division deal with genetic epidemiology of cardiovascular and metabolic diseases, bioinformatics and statistical issues in imaging sciences and Alzheimer's disease. A number of theoretical and applied problems are addressed, including nature-nurture resolution and identification of the genetic basis of risk factor domains such as lipids, obesity, blood pressure and hypertension, and insulin resistance and diabetes; exploration of gene-gene and gene-environment interactions; and multivariate associations among multiple risk factors.

Current and recent collaborative research projects include: a coordinating center for a multicenter study to assess the genetic basis of response to exercise training (HERITAGE); a coordinating center for a multicenter NETWORK study on the genetics of hypertension (HyperGEN), and the Family Blood Pressure Program (FBPP); coordinating centers for a multicenter study to assess the genetic basis of response to intervention through incorporation of gene-environment interactions (Gensalt); the coordinating center for the PRIDE program with the goal of mentoring junior faculty in underrepresented minorities and/or faculty with disabilities into

independent research careers in biomedical sciences; the coordinating center for the Data Analysis and Coordinating Center (DACC) which tracks the education and careers of people who have participated in the NHGRI Diversity Action Plan (DAP) and NHGRI T-32s that concentrate on genomics and genetics; important collaborative studies through support roles as biostatistics cores on the Washington University Institute of Clinical and Translational Sciences, the Alzheimer's Disease Research Center, the Adult Children's Study, Healthy Aging and Senile Dementia (HASD), The Dominantly Inherited Alzheimer Network (DIAN), the Alvin J. Siteman Cancer Center, the Silent Infarct Transfusion Study, the Optimization of Chemotherapy for Control and Elimination of Onchocerciasis, the Washington University Spotrias Center, the Washington University Intellectual & Developmental Disabilities Research Center and Childhood Obesity Treatment. We also have a significant role on studies that focus on lung transplants, asthma, COPD, pediatric heart and ischemic heart disease and on several epidemiological research projects developing methods for increasing public awareness and utilization of measures that are known to decrease the likelihood of developing heart disease and for encouraging behaviors that will improve prognosis following a heart attack.

The division provides consultation through the Washington University Institute of Clinical and Translational Sciences (ICTS), the Washington University Intellectual & Developmental Disabilities Research Center, and the Biostatistics Consulting Service in a wide range of areas including the statistical design of experiments and clinical trials, protocol development, database management, analysis of data and interpretation of results. Some of the areas of special strength and expertise include cardiovascular biostatistics, computing and statistical packages. The division is well-equipped to provide assistance at the stage of preparing grant applications, including careful discussions of study design, sample size calculations, randomization schemes, computer resources and data analysis.

One of the division's specialties is statistical genetics/genetic

epidemiology. We participate in a postdoctoral training in this area. Statistical genetics is the scientific discipline that deals with an analysis of the familial distribution of traits, with a view to understanding any possible genetic basis. However, one cannot study genes except as they are expressed in people living in certain environments, and one cannot study environmental factors except as they affect people who have certain genotypes. Statistical genetics is a unique interdisciplinary field that seeks to understand both the genetic and environmental factors and how they interact to produce various diseases and traits in humans. These studies are carried out in relatively large samples of participants in relevant populations, thus, the population history and dynamics often come into play. Population dynamics alter the frequency and distribution of both genetic and environmental factors, and thus, their net effect on the phenotype of interest. Some population characteristics also can be exploited for the purposes of gene discovery and mapping because the history has affected the genomic structure in a way that specific genotypes associated with disease can be identified.

Human diseases have been the focal point of these studies, and recent efforts are directed toward complex disorders such as coronary heart disease, hypertension, diabetes, obesity, cancer, atopy and allergies, and neurological and psychiatric disorders, to name a few. It is commonly thought that an understanding of the genetic underpinnings of such disorders will revolutionize medicine in the 21st century, enabling better preventive measures, diagnosis, prognosis and novel treatments. Given progress in the Human Genome Project, in computing power and in the creation of powerful statistical methods of analysis, we are poised to shepherd this revolution. It is an exciting time in science, and opportunities for careers in statistical genetics/genetic epidemiology abound.

NIH Sponsored Training Programs

The PRIDE Summer Institute in Cardiovascular Genetic Epidemiology with a focus on Cardiovascular and other Heart, Lung, Blood and

Sleep Disorders: An all-expense-paid summer institute continues in the summer of 2014 with funding from the NHLBI. The goal is to mentor junior faculty in underrepresented minorities and/or faculty with disabilities into independent research careers in biomedical sciences. For further information, visit the website at <http://www.biostat.wustl.edu/pridege/> or contact the program administrator at pride-ge@wubios.wustl.edu.

Graduate Studies

The Division of Biostatistics sponsors a Master of Science in Biostatistics (MSIBS), a Master of Genetic Epidemiology (for post doctoral students only) and a Certificate in Genetic Epidemiology. The Division had sponsored the Genetic Epidemiology Masters of Science (GEMS) program from 2002 – 2012. In 2012 the GEMS program was streamlined into the MSIBS program. Students who would benefit from the GEMS program should look into the Statistical Genetic pathway of the MSIBS program.

Masters of Science in Biostatistics (MSIBS)

This 18-month program offers excellent training in biostatistics and statistical genetics for students who earned undergraduate or higher degrees with majors in mathematics, statistics, computer science, biomedical engineering or other related major. It prepares graduates for rewarding employment in academia and industry and for further graduate studies.

Academic Calendar

The MSIBS program begins approximately July 1 each year with preparatory workshops, followed by intensive summer semester courses. For the fall and spring courses, the MSIBS program follows the calendar of the College of Arts & Sciences. See the current MSIBS calendar at <https://biostatistics.wustl.edu>.

Location

The MSIBS program is in the Division of Biostatistics, on the third floor of Shriners Building (706 S. Euclid Ave. at Clayton Road), Rooms 3301-3312.

Further Information

See our web site, <https://biostatistics.wustl.edu>, contact the Program Manager at (314) 362-1384, send email to msibs@wubios.wustl.edu or write to:

The MSIBS Program
Division of Biostatistics
Campus Box 8067
660 S. Euclid Ave.
St. Louis, MO 63110-1093
Telephone: (314) 362-1384
Fax: (314) 362-2693

Biostatistics Courses

M21 503 STATISTICAL COMPUTING WITH SAS®

Department: Division of Biostatistics

Course masters: Karen Schwander

Credit hours: 2 units

Frequency: Every summer

Intensive hands-on summer training in SAS® during nine full weekdays. Students will learn how to use the SAS® system for handling, managing and analyzing data. Instruction is provided in the use of the SAS® programming language, procedures, macros and SAS® SQL. The course will include exercises using existing programs

written by SAS® experts. Instruction manual and computer lab will be provided. This course meets the prerequisite for M21 560 Biostatistics I offered in fall. The registration/grade option of "Audit" is not available.

Participants are required to participate in the Computing/Unix Workshop offered free of charge immediately prior to this course in early July.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 506 R PRIMER

Department: Division of Biostatistics

Course master: Jeff Gill

Credit hours: 1 unit

Frequency: Every summer

This is a short 1-credit primer to introduce the R Statistical Environment to new users. R is "a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modeling, statistical tests, time series analysis, classification, clustering, etc. The goal is to give students a set of tools to perform statistical analysis in medicine, biology, or epidemiology. At the conclusion of this primer, students will: be able to manipulate and analyze data, write basic models, understand the R environment for using packages, and create standard or customized graphics. This primer assumes some knowledge of basic statistics as taught in a first semester undergraduate or graduate sequence. Topics should include: probability, cross-tabulation, basic statistical summaries, and linear regression in either scalar or matrix form.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 515 FUNDAMENTALS OF GENETIC EPIDEMIOLOGY

Department: Division of Biostatistics

Course masters: Treva Rice and Yun Ju Sung

Credit hours: 3 units

Frequency: Every summer

Intensive two-week summer course. Lectures cover causes of phenotypic variation, familial resemblance and heritability, Hardy-Weinberg Equilibrium, ascertainment, study designs and basic concepts in genetic segregation, linkage and association. The computer laboratory portion is designed as hands-on practice of fundamental concepts. Students will gain practical experience with various genetics computer programs (e.g., SOLAR, MERLIN, QTDT and PLINK). Auditors will not have access to the computer lab sessions.

Participants are strongly encouraged to participate in the computing/UNIX Workshop offered free of charge prior to this course in early July. For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager: msibs@wubios.wustl.edu or (314) 362-1384.

M21 550 INTRODUCTION TO BIOINFORMATICS

Department: Division of Biostatistics

Course master: Jingqin (Rosy) Luo, Co-Coursemaster: C. Charles Gu

Credit hours: 3 units

Frequency: Every summer

Intensive two-week summer course designed to provide broad exposure to the basic concepts, methodology and application of bioinformatics to solve biomedical problems. Specifically, students will learn the basics of online genomic databases and database mining tools and will acquire understanding of mathematical algorithms in genome sequence analysis (alignment analysis, gene finding/predicting), gene expression microarray (genechip) analysis, and the impact of recent developments such as protein microarrays or whole-genome DNA chips for genome-wide association studies. Students will also take computer labs and learn basics of bioinformatics tools and databases (BLAST/WUBLAST, Prospector, etc.), practice basics of R/Bioconductor programming, and apply specialized R packages to solve bioinformatics problems pertinent to

real medical research of human diseases. Auditors will not have access to the computer lab sessions.

Participants are strongly encouraged to participate in the computing/UNIX Workshop offered free of charge prior to this course in early July. Prerequisite: M21 506, R Primer.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 5483 HUMAN LINKAGE AND ASSOCIATION ANALYSIS

Department: Department of Genetics

Course master: John Rice

Credit hours: 3 units

Frequency: Every fall

Basic genetic concepts: meiosis, inheritance, Hardy-Weinberg Equilibrium, linkage, segregation analysis; Linkage analysis: definition, crossing over, map functions, phase, LOD scores, penetrance, phenocopies, liability classes, multipoint analysis, non-parametric analysis (sibpairs and pedigrees), quantitative trait analysis, determination of power for mendelian and complex trait analysis; linkage disequilibrium analyses: allelic association (case control designs and family based studies), QQ and Manhattan plots, whole genome association analysis; population stratification; quantitative trait analysis; measured genotypes and variance components. Hands-on computer lab experience doing parametric linkage analysis with the program LINKAGE, model free linkage analyses with Genehunter and Merlin, power computations with SLINK, quantitative trait analyses with SOLAR, LD computations with Haploview and WGAViewer, and family-based and case-control association analyses with PLINK and SAS. The methods and exercises are coordinated with the lectures, and students are expected to understand underlying assumptions and limitations and the basic calculations performed by these computer programs. Auditors will not have access to the computer lab sessions. Prerequisite: M21 515 Fundamentals of Genetic Epidemiology. Cross-listed as L41 5483.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 560 BIOSTATISTICS I

Department: Division of Biostatistics

Course masters: Kenneth Schechtman and Kathryn Trinkaus

Frequency: Every fall (ending mid-October)

This course is designed for students who want to develop a working knowledge of basic methods in biostatistics. The course is focused on biostatistical and epidemiological concepts and on practical hints and hands-on approaches to data analysis rather than on details of the theoretical methods. We will cover basic concepts in hypothesis testing, will introduce students to several of the most widely used probability distributions, and will discuss classical statistical methods that include t-tests, chi-square tests, regression analysis, and analysis of variance. Both in-class examples and homework assignments will involve extensive use of SAS. Prerequisite: M21 503, Statistical Computing with SAS®, or student must have good practical experience with SAS®.

For details, to register and/or to obtain the required permission of the Course Master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 570 BIOSTATISTICS II

Department: Division of Biostatistics

Course masters: Kenneth Schechtman and Kathryn Trinkaus

Credit hours: 3 units

Frequency: Every fall (from mid-October to mid-December)

This course is designed for students who have taken Biostatistics I or the equivalent and who want to extend their knowledge of biostatistical applications to more modern and more advanced methods. Biostatistical methods to be discussed include logistic and Poisson regression, survival analysis, Cox regression analysis, and several methods for analyzing longitudinal data. Students will be introduced to modern topics that include statistical genetics and

bioinformatics. The course will also discuss clinical trial design, the practicalities of sample size and power computation and meta analysis, and will ask students to read journal articles with a view towards encouraging a critical reading of the medical literature. Both in-class examples and homework assignments will involve extensive use of SAS. Prerequisite: M21 560, Biostatistics I or its equivalent as judged by the course masters.

For details, to register, and/or to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 617 STUDY DESIGN AND CLINICAL TRIALS

Department: Division of Biostatistics

Course masters: Jingxia (Esther) Liu

Credit hours: 3 units

Frequency: Every spring

The course will focus on statistical and epidemiological concepts of study design and clinical trials. Topics include: different phases of clinical trials, various types of medical studies (observational studies, retrospective studies, adaptive designs, and comparative effectiveness research), and power analysis. Study management and ethical issues are also addressed. Students will be expected to do homework and to practice power analysis during lab sessions.

Prerequisites: M21 560 Biostatistics I and M21 570 Biostatistics II.

Permission of the course master required.

For details, to register, and/or to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 618 SURVIVAL ANALYSIS

Department: Division of Biostatistics

Course masters: Ling Chen

Credit hours: 3 units

Frequency: Every spring

This course will cover the basic applied and theoretical aspects of

models to analyze time-to-event data. Basic concepts will be introduced including the hazard function, survival function, right censoring, and the Cox-proportional hazards (PH) model with fixed and time dependent covariates. Additional topics will include regression diagnostics for survival models, the stratified PH model, additive hazards regression models and multivariate survival models. Prerequisites: Calculus I and II, M21-560 Biostatistics I and M21-570 Biostatistics II. Permission of the course master required.

For details, to register, and/or to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 621 COMPUTATIONAL STATISTICAL GENETICS

Department: Division of Biostatistics

Course masters: Michael Province and Aldi Kraja

Credit hours: 3 units

Frequency: Every spring

This course covers the theory and application of both classical and advanced algorithms for estimating parameters and testing genomic hypotheses connecting genotype to phenotype. Students learn the key methods by writing their own program to do (simplified) linkage analysis in pedigrees in SAS for a simulated dataset provided by the coursemaster. Topics covered in the course include Maximum Likelihood theory for pedigrees and unrelated individuals, Maximization routines such as Newton-Raphson and the E-M Algorithm, Path analysis, Variance components, Mixed model algorithms, the Elston-Stewart and Lander-Green Algorithms, Simulated Annealing and the Metropolis Hastings algorithm, Bayesian and MCMC methods, Hidden Markov Models, Coalescent Theory, Haplotyping Algorithms, Genetic Imputation Algorithms, Permutation/Randomization Tests, classification and Data Mining Algorithms, Population Stratification and Admixture Mapping Methods, Loss of Heterozygosity models, Gene Networks, Copy Number Variation methods, Multiple comparisons corrections and Power and Monte-carlo simulation experiments. Course not available to auditors. Prerequisites: M21 5483 Human Linkage &

Association, M21 560 Biostatistics I, and M21 570 Biostatistics II or, with permission of the course master.

For details, to register, and/or to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 600 MENTORED RESEARCH

Department: Division of Biostatistics

Course masters: DC Rao and Chengjie Xiong

Credit hours: 6 units

Frequency: Every spring, summer and fall

Student undertakes supervised research in a mentor's lab. The goal is to acquire important research skills as well as good writing and presentation skills. The student finds a mentor who is willing to work with him/her and they together identify a research topic. A written thesis based on the research, prepared in the format of an actual scientific publication, must be submitted and presented to a select audience. The course masters will organize a few meetings throughout to facilitate the whole process. The course masters will determine the grade (pass/fail) in consultation with the mentors. Permission of the Course Masters is required.

For details, to register, and/or to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

M21 630 INTERNSHIP

Department: Division of Biostatistics

Course masters: D.C. Rao and J. Philip Miller

Credit hours: 3 or 6 units

Frequency: Every summer beginning in 2012

The primary goal of the Internship program is for all students to acquire critical professional experience so that they will be well prepared to enter the job market upon graduation. This provides an opportunity for students to test-drive the job market, develop contacts, build marketable skills and perceive likes and dislikes in the

chosen field. Students are required to spend a total of 440 hours in the laboratories of their chosen mentors. One of two types of projects may be pursued as part of the Internship experience. A student may elect to pursue a “Data Analysis Project” involving data management and extensive analyses of data which may lead to a publication-quality manuscript (possibly earning co-authorship for the student). Alternatively, a student may choose a highly focused research-oriented project and carry out “Mentored Research” by working closely with the mentor. In this case, the student will assist the mentor by preparing a publication-quality manuscript as part of the Internship. In either case, as part of the Internship requirements, each student will submit a one-page abstract of the work performed as part of the internship and will give a 5-minute presentation of the Internship experience. Internship presentations will be scheduled in late summer. The grade for each student will be determined in consultation with the mentor. Internships will be facilitated and coordinated by an Internship Committee consisting of professors J. Philip Miller & D.C. Rao (Co-Chairs), Ken Schechtman and Chengjie Xiong. Available to Master of Science in Biostatistics (MSIBS) students only.

M21 640 BIOSTATISTICS CONSULTING LAB

Department: Division of Biostatistics

Course masters: Karen Steger-May and Kenneth Schechtman

Credit hours: 1 unit

Frequency: Every fall beginning in 2012

All M.S. in Biostatistics students are required to take this course with the primary goal to train the students to develop competency for collaborating with and providing biostatistics consultation services to clinical and applied scientists. Students will be trained to develop the art and skill necessary to be good collaborators. Students will work on real time consultation projects and will have opportunities to interact with the Principal Investigators on the projects under close supervision from experienced faculty and staff. This is an invaluable opportunity for students to develop contacts with potential employers upon graduation. Prerequisites: M21 560 Biostatistics I

and M21 570 Biostatistics II. Required of Master of Science in Biostatistics (MSIBS) students and to pre-selected others who have the prerequisites and the specific permission of the course master.

For details, to register, and/or to obtain the required permission of the course master, contact the MSIBS Program Manager:

msibs@wubios.wustl.edu or (314) 362-1384.

Biostatistics Faculty: See Appendix

Master of Science in Clinical Investigation Program

The Master of Science in Clinical Investigation (MSCI) Program provides high-quality, multidisciplinary training in clinical research to promote the successful career development of clinical investigators. It is designed as a one- to three-year full- or part-time degree program for young investigators committed to pursuing academic careers in clinical research. The unique program combines didactic coursework with mentored research and career development opportunities and provides students with the knowledge and tools to excel in the areas of clinical investigation most relevant to their careers. The MSCI is available to postdoctoral scholars, junior faculty and predoctoral students enrolled in established clinical research training programs. The program is also available to other Washington University affiliated postdoctoral

health sciences scholars. Postdoctoral scholars and junior faculty must be within the medicine and allied health professions, conducting clinical research at Washington University or with an affiliated program. Predoctoral students in medicine, psychology, the Division of Biology and Biomedical Sciences, social work, audiology, physical therapy, occupational therapy and related disciplines in the Graduate School of Arts & Sciences who have completed or are enrolled in the Predoctoral Interdisciplinary Clinical Research Training Program (PICRT) are also eligible. For further information, email crtc@dom.wustl.edu, call 312-362-0916 or visit <http://crtc.wustl.edu>.

Program requirements

The MSCI requires the following core curriculum in clinical investigation:

M17 513 DESIGNING OUTCOMES AND CLINICAL RESEARCH

3 credits, Fall Semester, Wednesdays, 3:30 p.m. to 5:45 p.m., Brian Gage, MD, MSc, course master

This course includes lectures from faculty of Medicine, Surgery, Otolaryngology and Pediatrics. You will learn how to select a clinical research question, write a research protocol and execute a clinical study. Topics include subject selection, observational and experimental study design, sample size estimation, clinical measurements, questionnaires and data management. The course is designed for clinicians and health-care professionals who wish to conduct outcomes and patient-oriented clinical research. Students receive ongoing feedback as they incorporate research design concepts into their own research proposals. At the end of the course, students are required to submit a research protocol or a draft of a manuscript describing their research and pass the final exam. The course consists of lectures. Each student gives an oral presentation and presents a written paper or grant protocol for discussion and critique by faculty and other students.

OR

M17 588 EPIDEMIOLOGY FOR CLINICAL RESEARCH

3 credits, Spring Semester, Wednesdays, 4:30 p.m. to 7 p.m., Anjali Deshpande, PhD, course master

This course introduces principles of epidemiology as they apply to clinical research. The course provides basic tools used in descriptive and analytical epidemiology, which are crucial for making informed decisions in the care of patients. Critical thinking and scientific/analytic competencies are emphasized throughout the course.

M17 510 ETHICAL AND LEGAL ISSUES IN CLINICAL RESEARCH

2 credits, Fall and Spring Semesters, Mondays, 4:00 p.m. to 6 p.m., Stephanie Solomon, PhD, course master

This course prepares clinical researchers to critically evaluate ethical and regulatory issues in clinical research. The principal goal of this course is to prepare clinical researchers to identify ethical issues in clinical research and the situational factors that give rise to them, to identify ethics and compliance resources and to foster ethical problem-solving skills.

M17 522 INTRODUCTION TO STATISTICS FOR CLINICAL INVESTIGATION

3 credits, Fall Semester, Thursdays, 4:30 p.m. to 7 p.m., Dorina Kallogjeri, MD, MPH, course master

This is a basic course in statistics with particular focus on the health sciences. It is taught in a user-friendly manner with emphasis on use of SPSS, statistical analysis software commonly used in clinical research. The course will teach basic statistical methods in which clinical researchers should have facility to execute their own analyses.

M17 590 INTERMEDIATE METHODS FOR CLINICAL & OUTCOMES RESEARCH

3 credits, Spring Semester, Wednesdays, 4:30 p.m. to 7 p.m., Mario Schootman, PhD, course master

This course will focus on the application of epidemiologic principles and tools in clinical research, clinical issues and understanding the medical literature concerning these issues. Course content will go beyond basic applications to clinical research. The course provides scholars with clinical epidemiological tools, which are crucial for making informed decisions in the care of patients. Critical thinking and scientific and analytic competencies are emphasized throughout the course. Prerequisite, M17-513 or M17-588.

M17 524 INTERMEDIATE STATISTICS FOR THE HEALTH SCIENCES

3 credits, Spring Semester, Thursdays, 4:00 p.m. to 6:30 p.m., Dorina Kallogjeri, MD, MPH, course master

This course is designed to build on skills developed in Introduction to Statistics for the Health Sciences and to foster basic expertise required to independently use common multivariate biostatistical methods to analyze clinical research data for peer-review presentation and publication.

M17 528 GRANTSMANSHIP

2 credits, Fall Semester, Tuesdays, 4:15 p.m. to 6:15 p.m., Jay Piccirillo, MD, Karen Dodson, MBA, course masters

Scholars create a focused research plan that incorporates well-formulated hypotheses, rationales, specific objectives and long-range research goals; organize and present a sound research plan that accurately reflects the ideas and directions of the proposed research activities; develop and justify a budget for the proposed research activities; avoid many common grant-writing mistakes; discuss the peer-review process in grant evaluation and formulate a

grant proposal that is maximally compatible with that process. You must have a grant identified that you will be submitting for this course.

OR

M17 529 SCIENTIFIC WRITING AND PUBLISHING

2 credits, Spring Semester, Tuesdays, 4:15 p.m. to 6:15 p.m., Jay Piccirillo, MD, and Karen Dodson, MBA, course masters

The objective of this course is to teach the proper techniques of writing and publishing a biomedical manuscript. Writing a working title and structured abstract as well as hand drawing of figures and tables is covered. Publishing strategies are also discussed.

Scholars also:

- Conduct independent research under the tutelage of a mentorship committee (7 credits)
- Participate in an ongoing seminar series to present and discuss research as a work-in-progress (1 credit each semester, minimum of 4 semesters)
- Take elective course work related to their research interests (minimum 6 credits)
- Submit a final thesis consisting of a submitted manuscript

Advanced placement credit can be earned for past equivalent course work as determined on an individual basis. The MSCI is a 33-credit degree and typically takes two to three years to complete.

Tuition

Tuition is \$1,150 per credit hour. Training grant or departmental funds are typically used to cover tuition costs. However, some costs of the degree may be the responsibility of the scholar. Trainees currently enrolled in other medicine and allied health programs should contact the program director or program coordinator to

discuss entry into the MSCI program.

Location

Most courses and seminars are taught during late afternoon or early evening hours in various locations on the Medical School campus.

Further information

Further information, including complete admissions details and program descriptions, may be obtained from the Clinical Research Training Center website (<http://crtc.wustl.edu>) or through the following contacts:

Jennifer McKanry
Project Manager – Curriculum and Evaluation
(314)362-0916
jmckanry@dom.wustl.edu

Washington University in St. Louis
School of Medicine
Master of Science in Clinical Investigation Program
Campus Box 8051
660 S. Euclid Ave.
St. Louis, MO 63110
crtc.wustl.edu

Clinical Investigation Faculty

Program directors

David K. Warren, MD, MPH

Associate Professor of Medicine
Director, Master of Science in Clinical Investigation Program
Co-Director, Postdoctoral Program
Division of Infectious Diseases, Department of Medicine, Washington
University School of Medicine

Bradley A. Evanoff, MD, MPH

Richard A. and Elizabeth Henby Sutter Professor of Occupational,
Industrial and Environmental Medicine
Chief, Division of General Medical Sciences, Department of Medicine
Director, Institute of Clinical and Translational Sciences
Division of General Medical Sciences, Department of Medicine,
Washington University School of Medicine

Victoria J. Fraser, MD

Chair, Department of Medicine
J. William Campbell Professor of Medicine
Director, Clinical Research Training Center, Career Development
Award Program
Division of Infectious Diseases, Department of Medicine, Washington
University School of Medicine

Jane M. Garbutt, MBChB, MHSc

Research Associate Professor of Medicine and of Pediatrics
Medical Director of Washington University Pediatric and Adolescent
Ambulatory Research Consortium (WU PAARC)
Director, Postdoctoral Program
Co-Director, Career Development Award Program
Co-Director, Master of Science in Clinical Investigation Program
Division of General Medical Sciences, Department of Medicine,
Washington University School of Medicine

Jay F. Piccirillo, MD

Professor of Otolaryngology
Director, Clinical Outcomes Research Office
Director, Predoctoral Interdisciplinary Clinical Research Training
Program, and ASPIRE Program

Department of Otolaryngology, Washington University School of
Medicine

Jeffrey F. Peipert, MD, MPH, MHA

Robert J. Terry Professor of Obstetrics and Gynecology
Vice Chair of Clinical Research
Obstetrics and Gynecology Residency Program Director
Co-Director, Predoctoral Interdisciplinary Clinical Research Training
Program
Department of Obstetrics and Gynecology, Washington University
School of Medicine

Mario Castro, MD, MPH

Professor of Medicine
Director, Office of Training Grants
Co-Director, Office of Faculty Management
Department of Medicine, Washington University School of Medicine

Susan L. Stark, PhD, OTR/L

Assistant Professor of Occupational Therapy and of Neurology
Co-Director, Predoctoral Interdisciplinary Clinical Research Training
Program
Program in Occupational Therapy, Washington University School of
Medicine

Allyson R. Zazulia, MD

Associate Professor of Neurology and of Radiology
Associate Director, Postdoctoral Program
Department of Neurology, Washington University School of Medicine

Course masters

Anjali Deshpande, PhD

(Epidemiology for Clinical Research)
Assistant Professor of Medicine
Director, Applied Health Behavior Research Masters Program
Division of General Medical Sciences, Department of Medicine

Karen L. Dodson, MBA

(Scientific Writing, Grantsmanship)

Adjunct Instructor, Department of Medicine

Director of Faculty Development and Academic Publishing Services,
Office of Faculty Affairs, Washington University School of Medicine

Brian F. Gage, MD, MSc

(Designing Outcomes and Clinical Research)

Associate Professor of Medicine, Division of General Medical

Sciences, Department of Medicine, Washington University School of
Medicine

Dorina Kallogjeri, MD, MPH

(Introduction to Statistics for Clinical Investigation, Intermediate
Statistics for the Health Sciences)

Research Statistician, Department of Otolaryngology, Washington
University School of Medicine

Leslie McIntosh, MPH, PhD

(Medical Data and Information Management)

Research Assistant Professor of Pathology and Immunology, Division
of Laboratory and Genomic Medicine, Department of Pathology and
Immunology, Washington University in St. Louis

Jay F. Piccirillo, MD

(Scientific Writing, Grantsmanship)

Professor of Otolaryngology

Director, Predoctoral Interdisciplinary Clinical Research Training
Program and ASPIRE Program

Department of Otolaryngology, Washington University School of
Medicine

Rachel M. Presti, MD, PhD

(Bench Fundamentals of Translational Research)

Assistant Professor of Medicine, Division of Infectious Diseases,

Department of Medicine, Washington University School of Medicine

Mario Schootman, PhD

(Intermediate Methods for Clinical and Outcomes Research)

James R. Kimmey Endowed Chair in Public Health; Professor of Epidemiology and of Health Services Research and of Medicine, Saint Louis University

Stephanie Solomon, PhD

(Ethical and Legal Issues in Clinical Research)

Assistant Professor of Health Care Ethics

Albert Gnaegi Center for Healthcare Ethics, Saint Louis University

Instructors and guest lecturers

Thomas C. Bailey, MD

Professor of Medicine, Division of Infectious Diseases, Department of Medicine, Washington University School of Medicine

Laura J. Bierut, MD

Professor of Psychiatry, Department of Psychiatry, Washington University School of Medicine

Graham A. Colditz, MD, DrPH

Niess-Gain Professor in the School of Medicine

Chief, Division of Public Health Sciences, Department of Surgery, Washington University School of Medicine

Associate Director, Prevention and Control, Siteman Cancer Center

Adjunct Professor, Community Health, Division of Epidemiology, Saint Louis University School of Public Health

Anjali D. Deshpande, PhD, MPH

Research Assistant Professor PEFA, Division of Health Behavior

Research, Department of Medicine, Washington University School of Medicine

Bettina F. Drake, PhD, MPH

Assistant Professor of Surgery, Division of Public Health Sciences,

Department of Surgery, Washington University School of Medicine

Rebecca Dresser, JD

Daniel Noyes Kirby Professor of Law and Professor of Ethics in Medicine, Washington University School of Law

Jim Dubois, PhD, DSc

Hubert Mader Endowed Chair and Director, Bander Center for Medical Business Ethics, Social Science Research Group and Center for Research Ethics and Integrity, Albert Gnaegi Center for Health Care Ethics, Saint Louis University

Bradley A. Evanoff, MD, MPH

Richard A. and Elizabeth Henby Sutter Professor of Occupational, Industrial and Environmental Medicine
Director, Institute of Clinical and Translational Sciences
Division of General Medical Sciences, Department of Medicine, Washington University School of Medicine

Jane M. Garbutt, MB, ChB

Associate Professor of Medicine and of Pediatrics
Medical Director of Washington University Pediatric and Adolescent Ambulatory Research Consortium (WU PAARC)
Director, Postdoctoral Program
Division of General Medical Sciences, Department of Medicine, Washington University School of Medicine

Bijoy George

Biomedical Informatics Program Manager, Department of Laboratory and Genomic Medicine, Washington University School of Medicine

Jonathan M. Green, MD

Associate Dean for Human Studies and Executive Chair of the Institutional Review Board (IRB), Washington University School of Medicine

Snehil Gupta

Bioinformaticist, Division of Laboratory and Genomic Medicine, Department of Pathology and Immunology, Washington University

School of Medicine

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Golman Professor of Medicine, Division of Pulmonary and Critical
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School of Medicine; Director, Medical Intensive Care Unit and
Director, Respiratory Care Services, Barnes-Jewish Hospital

Laura B. Langton, PhD

Research Development Manager, Office of the Vice Chancellor for
Research, Washington University School of Medicine

Judith E. Lieu, MD

Assistant Professor, Department of Otolaryngology, Washington
University School of Medicine

Mark J. Manary, MD

Professor of Pediatrics, Division of Emergency Medicine, Department
of Pediatrics, Washington University School of Medicine

Timothy McBride, PhD

Professor and Associate Dean for Public Health, George Warren
Brown School of Social Work, Washington University

Jay R. McDonald, MD

Assistant Professor of Medicine, Division of Infectious Diseases,
Department of Medicine, Washington University School of Medicine

Leslie D. McIntosh, PhD

Research Instructor, Department of Pathology and Immunology,

Washington University School of Medicine

J. Phillip Miller

Professor of Biostatistics, Division of Biostatistics, Washington University School of Medicine

David A. Mulvihill

Project Manager IS, Division of Laboratory and Genomic Medicine, Department of Pathology and Immunology, Washington University School of Medicine

Peter Nagele, MD

Assistant Professor of Anesthesiology, Department of Anesthesiology, Division of Clinical Research, Washington University School of Medicine

Anthony O. Odibo, MD, MSCE

Associate Professor of Obstetrics and Gynecology, Division of Maternal-Fetal Medicine and Ultrasound, Department of Obstetrics and Gynecology, Washington University School of Medicine

Chijioke G. Ogbuka, MDiv, MA

Pre-doctoral Fellow, Center for Clinical Research Ethics, Albert Gnaegi Center for Health Care Ethics, Saint Louis University

Margaret A. Olsen, PhD, MPH

Research Associate Professor of Medicine, Division of Infectious Diseases, Department of Medicine, Washington University School of Medicine

Diana L. Owyong

Research Administrator, Department of Cell Biology and Physiology, Washington University School of Medicine

Jay F. Piccirillo, MD

Professor, Department of Otolaryngology
Director, Clinical Outcomes Research Office
Director, Predoctoral Interdisciplinary Clinical Research Training

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program
Department of Otolaryngology, Washington University School of
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Fred W. Prior, PhD

Lab Director, Electronic Radiology Lab
Research Associate Professor, Department of Radiology, Washington
University School of Medicine

Michael A. Province, PhD

Professor of Genetics and Director, Division of Statistical Genetics,
Department of Genetics, Washington University School of Medicine

Erica K. Salter, PhD

Instructor, Albert Gnaegi Center for Health Care Ethics, Saint Louis
University

Cathy C. Sarli

Librarian, Washington University School of Medicine

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Kathryn M. Trinkaus

Research Statistician, Department of Biostatistics, Washington
University School of Medicine

Mark A. Watson, MD, PhD

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Immunology, Washington University School of Medicine

Roger D. Yusen, MD, MPH

Associate Professor of Medicine, Division of Pulmonary and Critical Care Medicine, Division of General Medical Sciences, Department of Medicine, Washington University School of Medicine

More information

Please visit our website at

<http://crtc.wustl.edu>, email crtc@dom.wustl.edu, or write to:

Washington University in St. Louis School of Medicine
Master of Science in Clinical Investigation Program
Campus Box 8051
660 S. Euclid Ave.
St. Louis, MO 63110

Doctor of Philosophy

The Division of Biology and Biomedical Sciences (DBBS) at Washington University in St. Louis offers exceptional doctoral training at one of the nation's preeminent biomedical research centers. The DBBS is organized into twelve academic programs, each representing a different scientific area.

Prospective students apply to the Division rather than to an individual program. Students are admitted into a specific program but may change their Program affiliation as their interests develop. Faculty members from 30 plus departments across the university contribute to the admission, teaching and research training of the Division's students. Each Program has its own steering committee to provide students with personal attention, guiding them and addressing their needs during the first years of training. Steering

committee members are conversant with the broad range of opportunities available to the student pursuing a graduate degree at Washington University, and they work for a precise match of interest, aptitude, Program and course of study.

Each of the 12 Programs establishes its own requirements for earning the PhD degree, and progress toward the degree is monitored by the Program steering committee. The PhD degree is granted by Washington University's Graduate School of Arts and Sciences.

Doctoral programs:

- Biochemistry
- Computational and Molecular Biophysics
- Computational and Systems Biology
- Developmental, Regenerative and Stem Cell Biology
- Evolution, Ecology and Population Biology
- Human and Statistical Genetics
- Immunology
- Molecular Cell Biology
- Molecular Genetics and Genomics
- Molecular Microbiology and Microbial Pathogenesis
- Neurosciences
- Plant Biology

For more information

For complete admissions details and program descriptions, visit the [DBBS website](#) or contact:

Mailing address:

Division of Biology & Biomedical Science
Washington University in St. Louis
Campus Box 8226
660 South Euclid Ave.
St. Louis, MO 63110

Physical location:

660 South Euclid Ave.

Bernard Becker Medical Library, Fifth floor

Main phone numbers:

Phone: (314) 362-3365

Toll Free: (800) 852-9074

Fax: (314) 362-3369

Masters in Genetic Epidemiology (GEMS) for Post Doctoral Students

The Division of Biostatistics now offers an option for those who have completed a doctoral degree (PhD, MD, or equivalent) to pursue a post-doctoral masters degree in Genetic Epidemiology (GEMS). The Division of Biostatistics includes world-renowned scientific leaders in their respective areas. D.C. Rao, PhD, Director of the Division of Biostatistics and the Program Director, is one of the founding fathers of the field. The 31-credit-hour program can be pursued either full time or part time but must be completed in within three years. See <https://biostatistics.wustl.edu/training/msibs> for details.

The GEMS program for post doctoral students has eight required courses, listed below, as well as two electives:

M21 503 STATISTICAL COMPUTING WITH SAS

M21 515 FUNDAMENTALS OF GENETIC EPIDEMIOLOGY

M21 550 INTRODUCTION TO BIOINFORMATICS

M21 5483 HUMAN LINKAGE AND ASSOCIATE ANALYSIS

M21 560 BIostatISTICS I

M17 510 ETHICAL AND LEGAL ISSUES IN CLINICAL RESEARCH

M21 618 RESEARCH METHODS

M21 610 MENTORED RESEARCH

Prospective students

Anyone interested in pursuing the post-doctoral GEMS degree should contact the Program Manager in the Division of Biostatistics for information regarding the application process.

Location

The program is located in the Division of Biostatistics, on the third floor of Shriners Building (706 S. Euclid Ave. at Clayton Road), Rooms 3301-3312.

More information

See our website,

<http://biostatistics.wustl.edu/training/msibs/prospectivestudents/GEMS>, contact the Program Manager at (314) 362-1384, send email to msibs@wubios.wustl.edu or write to:

GEMS Post-Doctoral Program Division of Biostatistics

Campus Box 8067

660 S. Euclid Ave.

St. Louis, MO 63110-1093

Telephone: (314) 362-1384

Fax: (314) 362-26

Certificate in genetic epidemiology

The Certificate in Genetic Epidemiology training program provides a multidisciplinary educational opportunity for people who want to work at the dynamic nexus of genetics and medicine. There are growing needs for scientists with this training both in academia and industry. With the wealth of data from the Human Genome Project

and the availability of powerful new computational approaches, abundant opportunities are now available to explore and characterize the interplay between genes and the environment that affect the biological processes that underlie disease.

The GEMS Certificate program is sponsored by the Division of Biostatistics and includes world-renowned scientific leaders in their respective areas. D.C. Rao, PhD, director of the Division of Biostatistics and the Program Director, is one of the founding fathers of the field. The 17-credit-hour program is designed to prepare students to work at the interface of genetics, biostatistics, epidemiology and computing. See <https://biostatistics.wustl.edu/training/msibs/pages> for details.

The Certificate in Genetic Epidemiology is earned after successful completion (with a minimum of a "B" average) of six core courses plus labs (17 credit hours) that are normally offered to master's candidates in Biostatistics. To earn the certificate, these courses may be taken over one or two years:

M21 503 STATISTICAL COMPUTING WITH SAS (summer)
M21 515 FUNDAMENTALS OF GENETIC EPIDEMIOLOGY (summer)
M21 550 INTRODUCTION TO BIOINFORMATICS (summer)
M21 560 BIOSTATISTICS I (fall)
M21 570 BIOSTATISTICS II (fall)
M21 5483 HUMAN LINKAGE AND ASSOCIATION (fall)

Prospective students

Since genetic epidemiology is a multidisciplinary field, we expect applicants to come from a variety of backgrounds, but primarily those who have earned a terminal degree such as physician scientists and other clinical investigators, particularly postdoctoral fellows and people with terminal degrees in other (related) disciplines who seek to gain expertise in genetic epidemiology. All prospective students must provide evidence of basic skills in computer programming through course work, documented

experience or by passing a proficiency exam. Promising candidates who do not meet all the prerequisites will work with the Program Director to take the appropriate courses or training to rectify weaknesses.

Location

The program is located in the Division of Biostatistics, on the third floor of Shriners Building (706 S. Euclid Ave. at Clayton Road), Rooms 3301-3312.

Registration instructions

All students will register with the Program Manager at msibs@wubios.wustl.edu. Before registering, current Washington University students must obtain appropriate consent from their division or department. Students outside of the program wishing to enroll in individual courses must have permission of the course master.

Academic calendar

The certificate program begins approximately July 1 each year with preparatory workshops, followed by intensive summer semester courses. For the fall courses, the certificate program follows the calendar of the College of Arts & Sciences.

Further information

For complete admissions details and program descriptions, please visit our website, <https://biostatistics.wustl.edu/training/msibs>, contact the Program Manager at (314) 362-1384, send email to msibs@wubios.wustl.edu or write to:

The MSIBS Program
Division of Biostatistics
Campus Box 8067

660 S. Euclid Ave.
St. Louis, MO 63110-1093
Telephone: (314) 362-1384
Fax: (314) 362-2693

Genetic Epidemiology Courses

M21 503 STATISTICAL COMPUTING WITH SAS® (Required for both Certificate and GEMS)

Department: Division of Biostatistics

Course master: Karen Schwander

Credit hours: 2 units

Frequency: Every summer

Intensive hands-on summer training in SAS® during nine full weekdays. Students will learn how to use the SAS® system for handling, managing and analyzing data. Instruction is provided in the use of the SAS® programming language, procedures, macros and SAS® SQL. The course will include exercises using existing programs written by SAS® experts. Instruction manual and computer lab will be provided. This course meets the prerequisite for M21 560 Biostatistics I offered in fall. The registration/grade option of "Audit" is not available.

Participants are required to participate in the Computing/Unix Workshop offered free of charge immediately prior to this course in early July.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

M21 506 R PRIMER

Department: Division of Biostatistics

Course master: Jeff Gill

Credit hours: 1 unit

Frequency: Every summer

This is a short 1-credit primer to introduce the R Statistical Environment to new users. R is “a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modeling, statistical tests, time series analysis, classification, clustering, etc. The goal is to give students a set of tools to perform statistical analysis in medicine, biology, or epidemiology. At the conclusion of this primer, students will: be able to manipulate and analyze data, write basic models, understand the R environment for using packages, and create standard or customized graphics. This primer assumes some knowledge of basic statistics as taught in a first semester undergraduate or graduate sequence. Topics should include: probability, cross-tabulation, basic statistical summaries, and linear regression in either scalar or matrix form.

M21 515 FUNDAMENTALS OF GENETIC EPIDEMIOLOGY (Required for both Certificate and GEMS)

Department: Division of Biostatistics

Course masters: Treva Rice and Yun Ju Sung

Credit hours: 3 units

Frequency: Every summer

Intensive two-week summer course. Lectures cover causes of phenotypic variation, familial resemblance and heritability, Hardy-Weinberg Equilibrium, ascertainment, study designs and basic concepts in genetic segregation, linkage and association. The computer laboratory portion is designed as hands-on practice of fundamental concepts. Students will gain practical experience with various genetics computer programs (e.g., SOLAR, MERLIN, QTDT and PLINK). Auditors will not have access to the computer lab sessions.

Participants are strongly encouraged to participate in the computing/UNIX Workshop offered free of charge prior to this course in early July. For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

M21 550 INTRODUCTION TO BIOINFORMATICS (Required for both Certificate and GEMS)

Department: Division of Biostatistics

Course master: Jingqin (Rosy) Luo, Co-Coursemaster: C. Charles Gu

Credit hours: 3 units

Frequency: Every summer

Intensive two-week summer course designed to provide broad exposure to the basic concepts, methodology and application of bioinformatics to solve biomedical problems. Specifically, students will learn the basics of online genomic databases and database mining tools and will acquire understanding of mathematical algorithms in genome sequence analysis (alignment analysis, gene finding/predicting), gene expression microarray (genechip) analysis, and the impact of recent developments such as protein microarrays or whole-genome DNA chips for genome-wide association studies. Students will also take computer labs and learn basics of bioinformatics tools and databases (BLAST/WUBLAST, Prospector, etc.), practice basics of R/Bioconductor programming, and apply specialized R packages to solve bioinformatics problems pertinent to real medical research of human diseases. Auditors will not have access to the computer lab sessions.

Participants are strongly encouraged to participate in the computing/UNIX Workshop offered free of charge prior to this course in early July. Prerequisite: M21 506, R Primer.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

M21 5483 HUMAN LINKAGE AND ASSOCIATION ANALYSIS (Required for both Certificate and GEMS)

Department: Department of Genetics

Course master: John Rice

Credit hours: 3 units

Frequency: Every fall

Basic genetic concepts: meiosis, inheritance, Hardy-Weinberg Equilibrium, linkage, segregation analysis; linkage analysis: definition, crossing over, map functions, phase, LOD scores, penetrance, phenocopies, liability classes, multipoint analysis, non-parametric analysis (sibpairs and pedigrees), quantitative trait analysis, determination of power for Mendelian and complex trait analysis; linkage disequilibrium analyses: allelic association (case control designs and family based studies), QQ and Manhattan plots, whole-genome association analysis; population stratification; quantitative trait analysis; measured genotypes and variance components. Hands-on computer lab experience doing parametric linkage analysis with the program LINKAGE, model-free linkage analyses with Genehunter and Merlin, power computations with SLINK, quantitative trait analyses with SOLAR, LD computations with Haploview and WGAViewer, and family-based and case-control association analyses with PLINK and SAS. The methods and exercises are coordinated with the lectures, and students are expected to understand underlying assumptions and limitations and the basic calculations performed by these computer programs. Auditors will not have access to the computer lab sessions. Prerequisite: M21 515 Fundamentals of Genetic Epidemiology. Cross-listed as L41 5483.

For details, to register and to obtain the required permission of the course master, contact the MSIBS Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

M21 560 BIOSTATISTICS I (Required for both Certificate and GEMS)

Department: Division of Biostatistics

Course masters: Kenneth Schechtman and Kathryn Trinkaus

Frequency: Every fall (ending mid-October)

This course is designed for students who want to develop a working knowledge of basic methods in biostatistics. The course is focused on biostatistical and epidemiological concepts and on practical hints and hands-on approaches to data analysis rather than on details of the theoretical methods. We will cover basic concepts in hypothesis testing, will introduce students to several of the most widely used probability distributions, and will discuss classical statistical methods that include t-tests, chi-square tests, regression analysis and analysis of variance. Both in-class examples and homework assignments will involve extensive use of SAS. Prerequisite: M21 503, Statistical Computing with SAS®, or student must have good practical experience with SAS®.

For details, to register and/or to obtain the required permission of the course master, contact the Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

M21 570 BIOSTATISTICS II (Required for Certificate)

Department: Division of Biostatistics

Course masters: Kenneth Schechtman and Kathryn Trinkaus

Credit hours: 3 units

Frequency: Every fall (from mid-October to mid-December)

This course is designed for students who have taken Biostatistics I or the equivalent and who want to extend their knowledge of biostatistical applications to more modern and more advanced methods. Biostatistical methods to be discussed include logistic and Poisson regression, survival analysis, Cox regression analysis and several methods for analyzing longitudinal data. Students will be introduced to modern topics that include statistical genetics and bioinformatics. The course will also discuss clinical trial design, the practicalities of sample size and power computation and meta analysis, and will ask students to read journal articles with a view towards encouraging a critical reading of the medical literature. Both in-class examples and homework assignments will involve extensive use of SAS. Prerequisite: M21 560, Biostatistics I or its equivalent as judged by the course masters.

For details, to register, and/or to obtain the required permission of the course master, contact the Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

M21 600 MENTORED RESEARCH (Required for GEMS)

Department: Division of Biostatistics

Course masters: DC Rao and Chengjie Xiong

Credit hours: 6 units

Frequency: Every spring, summer and fall

Student undertakes supervised research in a mentor's lab. The goal is to acquire important research skills as well as good writing and presentation skills. The student finds a mentor who is willing to work with him/her and they together identify a research topic. A written thesis based on the research, prepared in the format of an actual scientific publication, must be submitted and presented to a select audience. The course masters will organize a few meetings throughout to facilitate the whole process. The course masters will determine the grade (pass/fail) in consultation with the mentors. Permission of the Course Masters is required. For details, to register and/or to obtain the required permission of the course master, contact the Program Manager at msibs@wubios.wustl.edu or (314) 362-1384.

Genetic Epidemiology Faculty: See Appendix

Occupational Therapy

The Program in Occupational Therapy prepares students for professional practice and through its research generates knowledge to address the issues facing individuals with disabilities, chronic diseases and developmental disabilities. Students are prepared as generalists but, in addition, can concentrate their studies for work in pediatrics, aging, rehabilitation, work and industry or social participation. The curriculum focuses on the dynamic interaction of the biological and psychological, environmental and occupational factors that enable persons to fulfill roles, and lead meaningful and productive lives. Students interact with leading physicians and scientists whose practice and science is contributing to better methods of treatment of persons with disabilities. In addition, students are linked with community agencies and leaders that are providing services to individuals with disabling conditions.

Undergraduate students in pre-medical, psychology, biology or anthropology will find that the program offers a means of applying their knowledge in a professional field. Applicants must hold a bachelor's degree or be a participant in an approved three-two program and have completed prerequisite courses from an accredited college or university. The Program in Occupational Therapy is accredited by the Accreditation Council for Occupational Therapy Education of the American Occupational Therapy Association. Graduates of the program will be eligible to sit for the national certification examination administered by the NBCOT. (Note: A felony conviction may affect a graduate's ability to sit for NBCOT certification examination or attain state licensure.)

Master of science in occupational therapy degree program

The professional Master of Science in Occupational Therapy degree requires courses that develop the knowledge and skills necessary to practice occupational therapy. Each candidate for a Master of Science in Occupational Therapy degree must complete a minimum of 70 hours of course work, usually accomplished in five semesters

of study (two academic years and the intervening summer.) Six months of supervised clinical fieldwork (12 credits) is required to be completed within 12 months of completion of course work.

Doctor of occupational therapy degree program

The Doctor of Occupational Therapy (OTD) is a degree providing students the opportunity to focus their occupational therapy studies in one of five areas of concentration: Productive Aging, Social Participation and the Environment, Rehabilitation, Work and Industry, and Pediatrics. The OTD requires seven semesters of study and three clinical placements for students entering professional practice. Postprofessional students enrolled in the OTD have varying program lengths based on prior degree and experience.

Fees

Tuition and fieldwork fees (MSOT, full time) per semester: \$14,350 for first five semesters, \$7,175 per semester for last two semesters while on fieldwork.

Tuition and fieldwork fees (OTD, full-time): \$14,350 per semester first five semesters, \$14,825 per semester last two academic semesters, and \$7,175 for each semester student is on clinical fieldwork or apprenticeship.

Part-time tuition: \$1,150 per credit

More information

Complete admissions information and a full description of degrees in Occupational Therapy are available from the office of the Program in Occupational Therapy:

Program in Occupational Therapy
Washington University School of Medicine
Campus Box 8505, 4444 Forest Park Ave.

St. Louis, MO 63108-2212

(314) 286-1600

(800) 279-3229

TDD: (314) 286-1651

wuotinfo@wusm.wustl.edu

Website: ot.wustl.edu

Occupational Therapy Courses

OT 5023 THEORY AND FOUNDATIONS FOR OCCUPATIONAL THERAPY PRACTICE (3)

Students explore the knowledge, skills and attitudes of the professional occupational therapist through the study of occupation, participation and well-being, some of the core concepts of the profession. The course acquaints students with the profession's history, current health issues and emerging areas of practice. Students explore the relationship between occupation, development, culture and health at the person, organization and population levels. Students are introduced to the Occupational Therapy Practice Framework and the International Classification of Function. The theoretical foundation of practice is emphasized.

OT 5225 FUNDAMENTALS OF HEALTH CARE AND PROFESSIONAL PRACTICE (3)

This course prepares students to manage the changing paradigms of practice that will be encountered over their career, with particular focus on bridging biomedical perspectives with narratives regarding organizational, community, and population health and well-being. Understanding the current continuum of care settings, professional team roles, and health policy sets the foundation for this course. Professional behavior and ethics will be introduced. Preparation of

leadership skills and an entrepreneurial approach to practice will be introduced. Partnering with community agencies to meet the unmet needs of those we serve and to open up new potential markets will be explored.

OT 5630 FUNDAMENTALS OF PROFESSIONAL COMMUNICATION (3)

The ability to communicate and work with individuals and groups are essential skills for an occupational therapist. Effective practitioners employ therapeutic use of self, activity analysis, behavioral management, and group leadership skills to effect change in those served. Concepts of self-management and basic tenets of learning theories will be explored and applied to various populations served. Occupational therapists must be able to meet the psychosocial needs of all clients across the continuum of care.

OT 5452 FUNDAMENTALS OF EVIDENCE-BASED PRACTICE (3)

Through critical reading and analysis of professional scientific literature, students build a foundation for life-long learning and evidence-based clinical practice. Students will be introduced to measurement principles, learn qualitative and quantitative analysis, and apply concepts learned to designing single case studies for clients served. Evaluation is at the core of evidence based practice: Interactions with clients are dependent on the ability to measure therapeutic effect.

OT 5315 TOOLBOX TO SUPPORT PROFESSIONAL PRACTICE (3)

This course serves as an introduction to the essential skills required of therapists in contemporary clinical practice. Students will be introduced to resources supporting professional practice and will learn and apply a variety of skills including transfers, documentation, goal-writing, common precautions, infection control, monitoring of vital signs, basic splinting techniques, chart reading, orientation to residential care environments, fundamentals of activity analysis, and searching relevant literature to facilitate evidence-based practice.

OT 5120 CONTEMPORARY ISSUES IN OT PRACTICE I (1)

This first of a series of three seminar courses provides students with

the opportunity to explore current, emerging, and future trends in OT practice. Students will utilize the most recent research and policy information to critically examine and discuss potential developments in OT practice, including new areas of practice such as habilitation and telemedicine, effects of legislation and novel technologies, and a focus on community and population health, participation, and well-being.

OT 5782 NEUROSCIENCE PRINCIPLES OF PERFORMANCE I (3)

In this first of a two-course sequence, students learn how the brain and nervous system support the sensory, perceptual, cognitive, emotional, and physiological capacity of individuals as they perform activities of daily life. Emphasis is placed on sensory processing, motor processing, cognitive performance, learning and memory, and communication. Students will also learn about specific neurological conditions commonly encountered in clinical practice.

OT 5762 BODY STRUCTURES SUPPORTING DAILY FUNCTION I (3)

Students engage in the study of the contribution of the structure, function, and development of body systems that support daily activity. This semester emphasizes anatomical systems and neuromusculoskeletal substrates for activity, joint integrity, strength and cardiopulmonary function.

OT 5770 FUNDAMENTALS OF ASSESSMENT I (3)

The course runs concurrently with Body Structures Supporting Daily Function and Neuroscience Principles of Performance. In this first of a two-course sequence, students apply anatomical and kinesiological principles to occupational performance through assessment of anatomical structures and physiological health. Students learn how to identify sensory, cognitive, perceptual, and emotional performance capacities of individuals by focusing on neuroanatomical and neuro-physiological substrates of sensory, motor, arousal, cognitive, motivational and emotional systems. The students connect the neuroscience of the physiological, neurobehavioral, cognitive and psychological systems to the motor, process and communication performance skills and performance

patterns that support occupational performance. Additionally, selected chronic diseases, disorders and conditions will be introduced. Etiology, pathology, clinical course, prognosis and medical management will inform the evaluation process as it impacts occupational performance. Students will build clinical reasoning for core OT practice skills including assessment of person, occupation and environment factors, activity analysis and activity gradation, observation, administering and interpreting assessments, building measurement models, and documenting the evaluation process. Evidence based practice is emphasized through exploration of the scientific and medical literature. Students will apply measurement principles and skills in selection, administration and interpretation of assessments through case studies, laboratory and fieldwork or in-context experiences.

OT 5163 ENVIRONMENTAL FACTORS FACILITATING PERFORMANCE AND PARTICIPATION I (2)

In this first of a two-course sequence, students gain in- depth understanding of the psychological, social, political, physical, and cultural elements of the environment that influence occupational performance, participation, and health. Disability and chronic health conditions as consequences of environmental barriers and the relationship between the person and environments as both change across the life span will be discussed. Assessment and intervention strategies that promote health and maximize participation in daily activities will be examined in home, school, workplace, and other community settings. Students are provided with opportunities to practice and demonstrate skills acquired through community based experiences including a group community consultation project.

OT 5125 CONTEMPORARY ISSUES IN OT PRACTICE II (1)

This second of a series of three seminar courses provides students with the opportunity to explore current, emerging, and future trends in OT practice. Students will utilize the most recent research and policy information to critically examine and discuss potential developments in OT practice, including new areas of practice such as habilitation and telemedicine, effects of legislation and novel

technologies, and a focus on community and population health, participation, and well-being.

OT 5610 FIELDWORK I (1)

This is the first course in a series that emphasizes the growth of the student as a professional. Students will build on the electronic professional portfolio developed in the fall semester and participate in self-directed learning experiences to enhance personal growth and professional competence. An intensive one week, 40 hour, supervised fieldwork experience in a clinical or community setting allows the student to practice the skills learned in the classroom.

OT 601 APPLIED CLINICAL RESEARCH I (3) is the first of a four course sequence offering the students opportunities to: 1) perform a systematic investigation, 2) develop a research project, and 3) perform testing and evaluation. The class is designed to develop or contribute to generalizable knowledge of occupational therapy or occupational performance. Activities that meet this definition include ongoing work in the laboratories of the faculty, controlled clinical trials, pilot studies to determine feasibility of future studies, demonstrations and community programs that may lead to new services or policy demonstrations. In the sequence, the student will work on his/her research project. The project will include collecting, processing, and analyzing data. The student will also begin to write about their work. Students may observe practitioners who work with the population related to their research projects.

OT 605 APPLIED CLINICAL PRACTICE I (3) is the first of a four course sequence offering students opportunities to: 1) enhance clinical skills, 2) support evidence based practice, 3) provide leadership opportunities, and 4) allow specialization in an area of clinical practice. The opportunities will present themselves by associating with clinics or other OT related facilities in the greater St. Louis area. The course is a self-directed learning experience under the guidance of an OT clinical faculty member and a community practitioner. The student will be guided by a clinical mentor and work on a clinical project related to the needs of the facility. A final report and

presentation will be made and the end of the sequence.

OT 5783 NEUROSCIENCE PRINCIPLES OF PERFORMANCE II (1)

In this second of a two-course-sequence, students learn how the brain and nervous system support the sensory, perceptual, cognitive, emotional, and physiological capacity of individuals as they perform activities of daily life. Emphasis is placed on sensory processing, motor processing, cognitive performance, learning and memory, and communication. Students will also learn about specific neurological conditions commonly encountered in clinical practice.

OT 5763 BODY STRUCTURES SUPPORTING DAILY FUNCTION II (1)

Students examine the complexity of movement and the integration of functions that are necessary to enable participation in everyday activities. Biomechanical principles are presented and applied to the body structures, allowing students to understand the kinesiological underpinnings of occupational performance.

OT 5771 FUNDAMENTALS OF ASSESSMENT II (2)

The course runs concurrently with Body Structures Supporting Daily Function and Neuroscience Principles of Performance. In this second of a two-course-sequence, students apply anatomical and kinesiological principles to occupational performance through assessment of anatomical structures and physiological health. Students learn how to identify sensory, cognitive, perceptual, and emotional performance capacities of individuals by focusing on neuroanatomical and neuro-physiological substrates of sensory, motor, arousal, cognitive, motivational and emotional systems. The students connect the neuroscience of the physiological, neurobehavioral, cognitive and psychological systems to the motor, process and communication performance skills and performance patterns that support occupational performance. Additionally, selected chronic diseases, disorders and conditions will be introduced. Etiology, pathology, clinical course, prognosis and medical management will inform the evaluation process as it impacts occupational performance. Students will build clinical reasoning for core OT practice skills including assessment of person,

occupation and environment factors, activity analysis and activity gradation, observation, administering and interpreting assessments, building measurement models, and documenting the evaluation process. Evidence based practice is emphasized through exploration of the scientific and medical literature. Students will apply measurement principles and skills in selection, administration and interpretation of assessments through case studies, laboratory and fieldwork or in-context experiences.

OT 5164 ENVIRONMENTAL FACTORS FACILITATING PERFORMANCE AND PARTICIPATION II (1)

In this second of a two-course sequence, students gain in-depth understanding of the psychological, social, political, physical, and cultural elements of the environment that influence occupational performance, participation, and health. Disability and chronic health conditions as consequences of environmental barriers and the relationship between the person and environments as both change across the life span will be discussed. Assessment and intervention strategies that promote health and maximize participation in daily activities will be examined in home, school, workplace, and other community settings. Students are provided with opportunities to practice and demonstrate skills acquired through community based experiences including a group community consultation project.

OT 5130 CONTEMPORARY ISSUES IN OT PRACTICE III (1)

This third of a series of three seminar courses provides students with the opportunity to explore current, emerging, and future trends in OT practice. Students will utilize the most recent research and policy information to critically examine and discuss potential developments in OT practice, including new areas of practice such as habilitation and telemedicine, effects of legislation and novel technologies, and a focus on community and population health, participation, and well-being.

OT 602 APPLIED CLINICAL RESEARCH II (2) is the second of a four course sequence offering the students opportunities to: 1) perform a systematic investigation, 2) develop a research project, and 3)

perform testing and evaluation. The class is designed to develop or contribute to generalizable knowledge of occupational therapy or occupational performance. Activities that meet this definition include ongoing work in the laboratories of the faculty, controlled clinical trials, pilot studies to determine feasibility of future studies, demonstrations and community programs that may lead to new services or policy demonstrations. In the sequence, the student will work on his/her research project. The project will include collecting, processing, and analyzing data. The student will also begin to write about their work. Students may observe practitioners who work with the population related to their research projects.

OT 606 APPLIED CLINICAL PRACTICE II (2) is the second of a four course sequence offering students opportunities to: 1) enhance clinical skills, 2) support evidence based practice, 3) provide leadership opportunities, and 4) allow specialization in an area of clinical practice. The opportunities will present themselves by associating with clinics or other OT related facilities in the greater St. Louis area. The course is a self-directed learning experience under the guidance of an OT clinical faculty member and a community practitioner. The student will be guided by a clinical mentor and work on a clinical project related to the needs of the facility. A final report and presentation will be made and the end of the sequence.

OT 5825 INTERVENTIONS SUPPORTING RECOVERY AND PARTICIPATION OF INDIVIDUALS WITH SENSORIMOTOR CHALLENGES

(3)

Sensorimotor deficits and delays impact daily life and participation. Throughout this course, students will explore how to utilize assessment results to implement theory driven evidence-based treatment plans to improve occupational performance and participation in daily life. Lifespan and practice setting issues from birth to older adults will be addressed in relation to sensory and motor deficits and delays. Students will utilize a variety of hands on, case-based, and self-directed learning activities to develop clinical skills.

OT 5835 INTERVENTIONS SUPPORTING RECOVERY AND PARTICIPATION OF INDIVIDUALS WITH COGNITIVE AND LEARNING CHALLENGES (3)

This 3 credit course is designed to provide the foundation skills for evidence based intervention for individuals with cognitive impairment across the lifespan. Students will explore various intervention approaches and therapeutic techniques for individuals faced with cognitive challenges arising from developmental issues, injuries, and/or disease processes focused on increasing independence and participation in daily life activities. Lectures, case studies, lab experiences, and client treatments in the community will provide the foundation for the learning experiences. Related skills in documentation, goal setting, and ethical issues which may arise will be incorporated into classroom discussions and assignments.

OT 5380 HEALTH PROMOTION, PARTICIPATION AND WELLNESS FOR PERSONS WITH CHRONIC DISEASE (3)

The impact of chronic disease on daily participation affects health-related quality of life and well-being. Students will study health promotion and preventive individual and group models of service delivery for community-dwelling people. Using Healthy People 2020 topic areas, students will explore theory-driven, evidence-based health education solutions for consumers with chronic conditions to strengthen their community participation. Students will discover therapeutic interventions to empower people to self-manage their conditions and connect with community resources for health promotion, prevention and wellness.

OT 5801 CASE BASED LEARNING I (2)

In this first course of a two semester sequence, students are engaged in learning experiences that includes divergent case method, inquiry learning, and problem-based learning. Using a self-directed learning process, clinical reasoning and group process skills, students explore practice problems and apply specific occupational therapy evaluations and intervention techniques for persons of all ages and disability categories. The context of cases are integrated with material covered concurrently in the Interventions courses and

focus on direct clinical treatment interventions.

OT 5615 FIELDWORK I (1)

This is the second course in a series that emphasizes the growth of the student as a professional. Students will continue to build on their electronic professional portfolio and participate in self-directed learning experiences to enhance personal growth and professional competence. An intensive one week, 40 hour, supervised fieldwork experience in a clinical or community setting allows the student to practice the skills learned in the classroom.

OT 603 APPLIED CLINICAL RESEARCH III (3) is the third of a four course sequence offering the students opportunities to: 1) perform a systematic investigation, 2) develop a research project, and 3) perform testing and evaluation. The class is designed to develop or contribute to generalizable knowledge of occupational therapy or occupational performance. Activities that meet this definition include ongoing work in the laboratories of the faculty, controlled clinical trials, pilot studies to determine feasibility of future studies, demonstrations and community programs that may lead to new services or policy demonstrations. In the sequence, the student will work on his/her research project. The project will include collecting, processing, and analyzing data. The student will also begin to write about their work. Students may observe practitioners who work with the population related to their research projects.

OT 607 APPLIED CLINICAL PRACTICE III (3) is the third of a four course sequence offering students opportunities to: 1) enhance clinical skills, 2) support evidence based practice, 3) provide leadership opportunities, and 4) allow specialization in an area of clinical practice. Students will have an opportunity to develop occupation-based programs for clinics or other community agencies in the St. Louis region. The course is a collaborative self-directed service learning experience under the guidance of an OT faculty member and a community partner. The student will be guided by the needs of the agency in helping to build the agency's capacity.

OT 5220 SUPPORTING PARTICIPATION WITH TECHNOLOGY AND ENVIRONMENTAL INTERVENTIONS (3)

This course introduces technology and environment related interventions to preserve, augment or improve social, emotional, physical and academic well being. Intervention strategies that promote health and maximize participation in daily activities for people with chronic conditions and disabilities will be examined in home, school, workplace, and community settings. The tools and interventions will include descriptions of special equipment (i.e. self-care tools and compensatory techniques), assistive technology devices (i.e. computer access, mobility devices, augmentative communication systems, environmental control units, vehicles adaptations and recreational equipment), and environment adaptations and modifications (i.e. universal design, home and work modifications). Lectures will focus on the ethical, legislative, funding, assessment and psychosocial issues. Labs will provide an opportunity for hands on learning experiences with a broad range of tools in context specific personal, community and organizational settings.

OT 5845 INTERVENTIONS SUPPORTING RECOVERY AND PARTICIPATION OF INDIVIDUALS WITH PSYCHOSOCIAL CHALLENGES(3)

OT 5285 PROMOTING POPULATION HEALTH THROUGH COMMUNITY PARTNERSHIPS (2)

This course offers a service learning experience through partnership with local community agencies to enhance population health. Mentored teams collaborate with personnel in community non-profit agencies. Students provide a capacity-building service through a needs assessment and a written program plan with an evaluation component. The intent is to enhance sustainability of the organizations' programs. The target population served by the organization benefits from expansion and/or enhancement of services. Examples of programs include: parent education, youth skill development, worker health advocacy, neighborhood/ residential services, and employee/ volunteer programs.

OT 5093 MANAGEMENT IN A CHANGING PRACTICE ENVIRONMENT

(3)

This course applies management and organizational principles to occupational therapy services in current and potential practice environments, and entrepreneurial opportunities. Through discussions with business professionals, and case studies, this course highlights organizational, managerial, marketing, financial, regulatory, and funding influences on the development, delivery and evaluation of OT practice. Business plans are developed through case studies. Fieldtrips and interactions with managers and corporate leaders allow students the opportunity for experiential learning.

OT 5802 CASE BASED LEARNING II (2)

In this second of a two-course sequence, students are engaged in a learning process that includes divergent case method, inquiry learning, self-directed learning, problem-based learning, clinical reasoning and group process skills. Students explore practice problems, and apply specific occupational therapy evaluations and intervention techniques for persons of all ages and disability categories within the context of cases integrated with material covered concurrently in the Interventions courses. The focus is on direct clinical treatment interventions. This is a small seminar class with 8-9 students and a faculty mentor.

OT 5620 PREPARATION FOR PROFESSIONAL PRACTICE (1)

This course emphasizes the growth of the student as a professional. Topics include the preparation for national certification and state requirements for credentialing, standards of practice, ethical behaviors and continuing competence. Students will prepare a personal marketing package and participate in self-directed learning experiences. Preparation for the students' fieldwork Level II and Apprenticeships will be emphasized in this course. Topics include the FWII evaluation process, completing FWII prerequisites, communicating with FW Educators and other professionals.

OT 604 APPLIED CLINICAL RESEARCH IV (2) is the fourth of a four

course sequence offering the students opportunities to: 1) perform a systematic investigation, 2) develop a research project, and 3) perform testing and evaluation. The class is designed to develop or contribute to generalizable knowledge of occupational therapy or occupational performance. Activities that meet this definition include ongoing work in the laboratories of the faculty, controlled clinical trials, pilot studies to determine feasibility of future studies, demonstrations and community programs that may lead to new services or policy demonstrations. In the sequence, the student will work on his/her research project. The project will include collecting, processing, and analyzing data. The student will also begin to write about their work. Students may observe practitioners who work with the population related to their research projects.

OT 608 APPLIED CLINICAL PRACTICE IV (2) is the fourth of a four course sequence offering students opportunities to: 1) enhance clinical skills, 2) support evidence based practice, 3) provide leadership opportunities, and 4) allow specialization in an area of clinical practice. The opportunities will present themselves by associating with clinics or other OT related facilities in the greater St. Louis area. The course is a self-directed learning experience under the guidance of an OT clinical faculty member and a community practitioner. The student will be guided by a clinical mentor and work on a clinical project related to the needs of the facility. A final report and presentation will be made and the end of the sequence.

M01 593A FIELDWORK II

Instructor: Jeanenne Dallas

Provides fieldwork experiences under the supervision of an occupational therapist. Students' participation includes in-depth experience in delivering occupational therapy services to clients including evaluation, treatment and intervention. Students have the opportunity to practice in a variety of clinical or community-based settings. During the fieldwork process, students are expected to assume increasing responsibilities related to patient or client care. The fieldwork experience is designed to promote clinical reasoning, professionalism and competency. Duration is 12 weeks.

M01 593B FIELDWORK II

Instructor: Jeanenne Dallas

Provides a second fieldwork experience under the supervision of an occupational therapist. Students' participation includes in-depth experience in delivering occupational therapy services to clients including evaluation, treatment and intervention. Students have the opportunity to practice in a variety of clinical or community-based settings. Because this is the second of two fieldwork experiences, students are expected to build on their first fieldwork and assume increasing responsibilities related to patient or client care. The fieldwork experience is designed to progressively build competencies in clinical reasoning, professionalism and entry level skills. Duration is 12 weeks.

M01 595 INDEPENDENT STUDY

Instructor: Varied

Active participation in research activities with program faculty. A written plan of study agreed upon by faculty and student.

OTD Only Courses

M01 630 SEMINAR IN PROPOSAL DEVELOPMENT AND APPLIED CLINICAL RESEARCH

Instructor: Jack Engsberg

This course is designed to prepare the OTD student to write a research proposal supporting the identified direction of their clinical doctorate work under the supervision of their graduate faculty mentor. Using a seminar format, students will support each other in this endeavor. After a systematic review of interventions, proposals are developed that may lead to policy work that supports clinical services, development or piloting of clinical interventions, developing a program evaluation proposal, writing a business plan to support funding of research, or writing a grant. In all cases the student will refine a problem statement and will have a clear understanding of the research design and methods that will develop into the research proposal.

M01 750 DIRECTED PRACTICE RESEARCH I

Instructor: Varied

This is the first course in a series of three courses designed as an applied clinical experience or clinical research project under the guidance of a graduate faculty mentor. The focus of the project will be in productive aging. The project, over the course of three semesters, will result in a scholarly paper. Students enter this course after they have completed OT630, the Proposal Seminar course.

M01 751 DIRECTED PRACTICE/RESEARCH II

Instructor: Varied

Student will engage in applied clinical research under the guidance of a graduate faculty member. Topics will be in the area of specialization chosen by the student in consultation with the faculty member.

M01 752 DIRECTED PRACTICE/RESEARCH III

Instructor: Varied

Student will engage in applied clinical research under the guidance of a graduate faculty member. Topics will be in the area of specialization chosen by the student in consultation with the faculty member.

M01 760A OT PRACTICE SEMINAR I

Instructor: Carolyn Baum

The seminar will focus on the World Health Organization's International Classification of Function, Health, and Disability. This class focuses on the relationship of person factors to occupation. Students engage in critical readings and discussion as they construct a model that will support their area of practice.

M01 760B OT PRACTICE SEMINAR II

Instructor: Carolyn Baum

The seminar will focus on World Health Organization's International Classification of Function, Health, and Disability. This class focuses on the relationship of environment to occupation. Students engage in critical readings and discussion as they construct a model that will

support their area of practice.

M01 762 SEMINAR IN EDUCATION STRATEGIES

Instructor: Christine Berg

This seminar offers an opportunity for students to reflect on and examine concurrent occupational therapy teaching assistantship (TA) experiences. Attention is given to teaching and learning theories underlying practice, teaching tools and strategies, and situated and distributed learning. Activities will include critical reading, journaling, Washington University Teaching Center Workshops and shared critical incident reflection.

M01 793C FIELDWORK III — APPRENTICESHIP

Instructor: Varied

Provides a customized fieldwork experience specific to the doctoral pursuit of the student. Students may participate in research, policy, clinical practice, advocacy, teaching, etc. Students are expected to achieve specific goals established by the student and their doctoral chair. Duration is 12 weeks.

Occupational Therapy Faculty: See Appendix

Pharmacy Student Research Training Program

A key academic institution in our biomedical and clinical health

center environment is the St. Louis College of Pharmacy. It is one of the premier institutions in the country for the teaching and training of pharmacists. The College's extensive pharmaceutical sciences curriculum has generated interest by a number of their students in laboratory biomedical research. Students beyond their fourth year at St. Louis College of Pharmacy who demonstrate interest in science and research, and are recommended by the College faculty, will have an opportunity to complete 10- to 14-week fellowships in any of the laboratories at the School of Medicine. Students can, with consent of their advisors at the College of Pharmacy and the laboratory principal investigator, extend their stay. This joint research collaboration should encourage those students in the program to pursue graduate degrees in the Division of Biomedical Sciences at the School of Medicine.

Physical Therapy

Physical therapy is the science of human movement applied to rehabilitation, injury, fitness, injury prevention and overall health. Practicing in a variety of settings, physical therapists diagnose and treat movement dysfunction in patients with skill, competence and compassion. The Program in Physical Therapy is committed to providing students with excellent scientific and clinical education in an environment that strives to continually lead the industry in practice, research, innovation and advocacy of movement health.

The Program in Physical Therapy at the School of Medicine offers three formal curricula that collectively foster opportunities for lifelong learning and comprehensive career development.

The professional doctor of physical

therapy

The professional curriculum is an intensive three-year experience leading to the degree of Doctor of Physical Therapy. The principle focus of this professional training is to develop scientific and clinical expertise in the diagnosis and treatment of movement-related conditions. By integrating biomedical and physical sciences and clinical education with behavioral and social sciences, this curriculum provides students with the scientific expertise, critical thinking skills and interpersonal communication necessary for effective clinical practice, comprehensive treatment design, patient advocacy, patient education and health promotion. Applicants for admission must have completed 1) a bachelor's degree at an accredited institution, and 2) prerequisite courses in biology, chemistry, physics, mathematics, anatomy, physiology, English, psychology, social sciences and humanities, 3) have a minimum math/science, core prerequisites and science GPA of 3.0 and 4) the Graduate Record Examination.

Doctor of philosophy in movement science

The focus of the interdisciplinary doctoral program in movement science is to prepare future researchers and faculty members who can enhance the profession of physical therapy. Admission to this curriculum requires acceptable scores on the Graduate Record Examination, excellence in previous academic work and demonstrated beginning abilities in posing questions of importance to the study of movement.

The faculty members of the Program in Physical Therapy are committed to being leaders in discovering and transmitting new knowledge related to movement dysfunction, preparing clinicians to assume multiple roles in a complex health-care environment and fulfilling the service mission to society through active participation in humanistic, scientifically-based patient care. Students in all curricula are expected to participate actively in an environment that values integrity, initiative, creativity and the strong belief that physical

therapy intervention promotes health. In these ways, all individuals associated with the Program in Physical Therapy may achieve their highest professional and personal potential.

Tuition

Professional curriculum: \$17,564 per semester

Doctoral curriculum: \$22,850 per semester

Further information

Further information, including complete admissions instructions and program descriptions, may be obtained by direct correspondence with the Program in Physical Therapy:

Program in Physical Therapy

Washington University School of Medicine

Campus Box 8502

4444 Forest Park Avenue

St. Louis, MO 63108-2212.

Phone: (314) 286-1400

Fax: (314) 286-1410

Email: ptprog@wustl.edu

Web site: pt.wustl.edu

Physical Therapy Courses

Courses — doctor of physical therapy degree

Semester 1

M02 601 DIAGNOSIS AND EVIDENCE ANALYSIS IN PT I

Department: Program in Physical Therapy

Course Master: Nancy Bloom, PT, DPT, MSOT

Credit Hours: 2The program is located in the Division of Biostatistics, on the third floor of Shriners Building (706 S. Euclid Ave. at Clayton Road), Rooms 3301-3312.Includes processes required for effective clinical decision-making such as the use of models for classifying patient problems, decision trees, diagnostic classification systems, patient interviewing, health histories and outcome measures. Patient cases will be used to practice clinical decision-making skills. An introduction to basic research methods and systematic review of the literature.

M02 602 PROFESSIONAL ISSUES AND SKILL DEVELOPMENT I

Department: Program in Physical Therapy

Course Masters: Jennifer Stith, PT, PhD, LCSW, and Suzanne Cornbleet, PT, DPT

Credit Hours: 3

Semester: 1

An introduction to the profession of physical therapy, the APTA, professional behavior and clinical activities such as documentation and quality improvement. Includes ethics, legal issues and policies that guide professional behavior. Interpersonal skills and issues related to human diversity will be addressed. Students will complete a personal and family health history. Students will learn and practice using principles of patient teaching, negotiation and team building. Students will spend 80 hours at clinical sites.

M02 603 ESSENTIAL SKILLS IN PHYSICAL THERAPY I

Department: Program in Physical Therapy

Course Master: Susan Strecker, PT, DPT, and Judith Gelber, PT, DPT

Credit Hours: 4

Semester: 1

Beginning skills for patient management include using systems

screening and reliable assessment of impairments including visual appraisal, vital signs, sensation, reflexes, pain, range of motion, muscle strength, infection control. Skill and safety in positioning, draping and managing wheelchairs and other equipment during patient-care activities such as walking and transfers will be developed.

M02 604 CELLS, SYSTEMS AND DISEASE I

Department: Program in Physical Therapy

Course Master: Ruth Clark, PT, PhD

Credit Hours: 4

Semester: 1

The first of a two-semester course, this course focuses on a comprehensive review of normal physiology of the organ systems: musculoskeletal, cardiovascular, respiratory, renal, gastrointestinal, endocrine, immune and digestive. Regulatory mechanisms to maintain homeostasis will be emphasized throughout the course. Students will be introduced to pharmacology and to the relevance of clinical laboratory values. Patient case studies will be used to integrate information. Introduction to the medical management will be provided for some diseases.

M02 605 NEUROSCIENCE

Department: Program in Physical Therapy

Course Master: Gammon Earhart, PT, PhD

Credit Hours: 3

Semester: 1

Focuses on the study of structures, organization and function of the nervous and muscular systems. Emphasis is on the sensory and motor systems involved in motor control and on basic knowledge required for clinical practice.

M02 606 KINESIOLOGY I

Department: Program in Physical Therapy

Course Master: Marcie Harris Hayes, PT, DPT, MSCI, OCS

Credit Hours: 3

Semester: 1

An introduction to the analysis of normal human movement activities through the application of mechanical concepts including displacement, velocity, acceleration, force and torque. Emphasizes kinematic and kinetic concepts relevant to human movement and study of the structures involved in movement.

Semester 2

M02 610 CELLS, SYSTEMS AND DISEASE II

Department: Program in Physical Therapy

Course Master: Ruth Clark, PT, PhD

Credit Hours: 4

Semester: 2

A continuation of the first semester. Physicians will discuss medical management of selected diseases including the etiology, diagnosis, medical management and prognosis of medical diseases frequently encountered in the practice of physical therapy. Three areas of clinical competency will be emphasized through assigned readings and case studies: 1) screening for medical referral including emergent medical referral; 2) clinical decision skills pertaining to pathological implications of underlying disease processes and their relevance to guiding physical therapy intervention; 3) clinical decision skills pertaining to implications of medical management and their relevance to guiding physical therapy activity and exercise prescription.

M02 611 HUMAN ANATOMY

Department: Program in Physical Therapy

Course Master: Stacy Tylka, PT, DPT, WCS, CLT

Credit Hours: 5

Semester: 2

Emphasis is on 1) musculoskeletal, neural and vascular systems of

the extremities, head, neck and trunk, and 2) anatomical features relevant to current physical therapy practice. Lectures are complemented by student-performed dissection of human cadavers, instructor-prepared prosections and computer-assisted instruction.

M02 612 DIAGNOSIS AND EVIDENCE ANALYSIS IN PT II

Department: Program in Physical Therapy

Course Master: Barbara Norton, PT, PhD, FAPTA

Credit Hours: 2

Semester: 2

Continuation of research methods from the first semester. Includes descriptive, experimental and quasi-experimental research designs and statistics, hypothesis testing, continuation of measurement issues, hierarchy of credibility for rating research articles.

M02 613 KINESIOLOGY II

Department: Program in Physical Therapy

Course Master: Renee Ivens, PT, DPT, and Judith Gelber, PT, DPT

Credit Hours: 5

Semester: 2

Emphasizes principles of maturation and motor learning relative to the application of biomechanical principles to the analysis of human movement. Topics include developmental, anatomical, electromyographical and physiological elements of kinesiology with regard to individual joints and common functional activities such as gait and transitional movements.

M02 614 DIAGNOSIS AND MANAGEMENT OF MUSCULOSKELETAL CONDITIONS IN PT I

Department: Program in Physical Therapy

Course Masters: Suzanne Cornbleet, PT, DPT, and Gregory Holtzman, PT, DPT

Credit Hours: 3

Semester: 2

Students will learn postural assessment and application of Movement Systems Balance. Analysis of functional activities, the essential components and compensatory strategies will prepare the student to begin to plan interventions for individuals with musculoskeletal problems. Skill in providing interventions of manual exercise, fitness training and functional mobility training will be developed. Cases will provide use of diagnostic systems relevant to musculoskeletal conditions.

M02 615 PROFESSIONAL ISSUES AND SKILL DEVELOPMENT II

Department: Program in Physical Therapy

Course Master: Gregory Holtzman, PT, DPT

Credit Hours: 0.5

Semester: 2

Students will be assigned to part-time clinical experiences for 40 hours to allow practice of acquired skills in patient care, documentation and communication. Additional class time allows students to role play a clinical situation involving a patient examination and supervision by a clinical instructor.

M02 691 and 691A CLINICAL EXPERIENCE I (8 WEEKS)

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS

Credit Hours: 4

Semester: 2

An eight-week, full-time clinical experience supervised by clinical faculty. Allows the student to practice evaluation and treatment skills acquired in the classroom and laboratory. Also emphasizes development of professional behaviors.

Semester 3

M02 621 EXERCISE PHYSIOLOGY

Department: Program in Physical Therapy

Course Masters: Susan Racette, PhD, and David Sinacore, PT, PhD,

FAPTA

Credit Hours: 3

Semester: 3

A study of the responses of various physiological systems to exercise. Includes application and integration of these systems to various diseases and to human performance. Content will be coordinated with Diagnosis and Management of Cardiopulmonary Conditions in PT.

M02 622 DIAGNOSIS AND MANAGEMENT OF CARDIOPULMONARY CONDITIONS IN PT

Department: Program in Physical Therapy

Course Masters: Tamara Burlis, PT, DPT, CCS, and Ethel Frese, PT, DPT

Credit Hours: 3

Semester: 3

Students will learn to assess, diagnose and treat movement-related cardiopulmonary conditions. Treatment techniques will include exercise and conditioning, breathing techniques, postural drainage and percussion. Interpretation of laboratory tests and pharmacology will prepare students to work with patients safely. Case studies will prepare students for general practice.

M02 623 ORTHOPEDIC MEDICINE

Department: Program in Physical Therapy

Course Master: Renee Ivens, PT, DPT

Credit Hours: 2

Semester: 3

Physician lectures will provide students with information on surgical and nonsurgical procedures and post-operative management of patients with orthopedic conditions. Physicians will discuss medical diagnosis, clinical signs and symptoms, and management of selected conditions to prepare the student to use this information in Diagnosis and Management of Musculoskeletal Conditions in PT II – III.

M02 624 DIAGNOSIS AND MANAGEMENT OF MUSCULOSKELETAL CONDITIONS IN PT II

Department: Program in Physical Therapy

Course Masters: Mary Kate McDonnell, PT, DPT, OCS and Stacy Tylka, PT, DPT, WCS, CLT

Credit Hours: 3

Semester: 3

Students will acquire the skills needed to manage and prevent movement-related musculoskeletal problems of the spine, hip, knee and shoulder. Acute and post-acute care will be addressed.

Integration of information from previous and concurrent courses will be stressed with emphasis on screening, examination, analysis of findings, diagnosis, design and implementation of intervention programs for patients with increasingly complex problems.

Functional activities across the life span also will be addressed.

M02 625 NEUROLOGY MEDICINE

Department: Program in Physical Therapy

Course Master: Brendan Tanner, PT, DPT

Credit Hours: 2

Semester: 3

Physician lectures will provide students with information on the medical management of patients with neurological conditions.

Physicians will discuss medical diagnosis, clinical signs and symptoms and their natural progression, and management of selected conditions to prepare the student to use this information in Diagnosis and Management of Neuromuscular Conditions in PT.

Students attend class with occupational therapy students and work independently to meet the objectives of the course.

M02 627 ESSENTIAL CLINICAL SKILLS IN PT II

Department: Program in Physical Therapy

Course Masters: Tracy Spitznagle, PT, DPT, WCS and Gregory Holtzman, PT, DPT

Credit Hours: 3

Semester: 3

Skill in providing interventions including massage and mobilization and the application of thermal, mechanical, hydro and electrotherapeutic modalities will be developed. Students will learn the basic indications for and prescription of adaptive equipment and wheelchairs.

M02 628 CASE INTEGRATION LAB I

Department: Program in Physical Therapy

Course Masters: Cheryl Caldwell, PT, DPT, CHT and Patricia McGee, PT, DPT, PCS

Credit Hours: 1

Semester: 3

Paper, video and live patient cases provided by faculty and students will be completed to provide practice in managing patients with varying movement-related diagnoses. Students participate in faculty-facilitated small groups to discuss their own patient cases and to develop skill in asking clinical questions, using the literature to support, practice and write a modified case report.

M02 629 DIAGNOSIS AND MANAGEMENT OF NEUROMUSCULAR CONDITIONS IN PT I

Department: Program in Physical Therapy

Course Masters: Beth Crowner, PT, DPT, NCS, MPPA, and Susan Strecker, PT, DPT

Credit Hours: 4

Semester: 3

Students will acquire the skills to examine patients with neuromuscular disorders. Emphasis will be on screening, selecting tests and measures, examination, determining impairments and functional loss, and making a movement system diagnosis. Students will practice examining both adult and pediatric patients. Content related to motor control and motor learning will be integrated into

the course. Course content will be integrated with the concurrent Neurology Medicine course.

M02 692 and 692A CLINICAL EXPERIENCE II (8 WEEKS)

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS

Credit Hours: 4

Semester: 3

An eight-week, full-time clinical experience supervised by clinical faculty. Allows the student to practice evaluation and treatment skills acquired in the classroom and laboratory. Also emphasizes development of professional behaviors.

Semester 4

M02 626 MODERATORS OF HEALTH, WELLNESS AND REHABILITATION

Department: Program in Physical Therapy

Course Master: Jennifer Stith, PT, PhD, LCSW

Credit Hours: 3

Semester: 4

Designed to explore individual attitudes toward health, illness, disability and death. Emphasizes the effect of these attitudes on individual goals, motivation, expectations, interpersonal relationships and exercise adherence. Investigates individual health attitudes, personal values, family interaction, stress management and concepts of wellness. Age-related issues will be addressed.

M02 635 PROFESSIONAL ISSUES AND SKILL DEVELOPMENT III

Department: Program in Physical Therapy

Course Master: Jennifer Stith, PT, PhD, LCSW

Credit Hours: 3

Semester: 4

Focuses on clinical application of compliance and motivation

principles. Peer teaching, communication, consultation skills, leadership skills, lobbying legislation, documentation and negotiation in the clinic will be practiced. Students will practice decision making, supervision and delegation. Students will prepare résumés and begin career planning.

M02 636 DIAGNOSIS AND MANAGEMENT OF GENERAL MEDICAL CONDITIONS IN PT

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS and Traci Norris, PT

Credit Hours: 3

Semester: 4

Students will acquire the skills needed to manage movement-related problems in patients with diabetes, burns, arthritis, wounds, amputation, obesity, oncological problems, incontinence, pregnancy, pain, genetic conditions and orthotic needs. Students will become familiar with care in both the neonatology unit and emergency room. Integration of information from previous and concurrent courses will be stressed with emphasis on screening, examination, analysis of findings, diagnosis, design and implementation of intervention programs for patients with increasingly complex problems. Functional activities across the life span will be addressed.

M02 638 DIAGNOSIS AND MANAGEMENT OF MUSCULOSKELETAL CONDITIONS IN PT III

Department: Program in Physical Therapy

Course Master: Gregory Holtzman, PT, DPT

Credit Hours: 3

Semester: 4

Students will acquire the skills needed to manage and prevent movement-related musculoskeletal problems of the spine, neck, elbow, wrist and hand, ankle and foot. Integration of information from previous and concurrent courses will be stressed with emphasis on screening, examination, analysis of findings, diagnosis, design and implementation of intervention programs for acute and

post-acute patients with increasingly complex problems. Functional activities across the life span will be addressed.

M02 642 CASE INTEGRATION II

Department: Program in Physical Therapy

Course Masters: Nancy Bloom, PT, DPT, MSOT, and Tracy Spitznagle, PT, DPT, WCS

Credit Hours: 1

Semester: 4

Students will be updated on the use of movement-related diagnostic systems and hear a practice case from a faculty member. Using data on a patient studied during CE II, students will work in small groups with a faculty mentor to 1) orally present the case in five minutes using a rounds fashion; 2) develop a clinical question; 3) search the literature for 6-8 articles that will address the clinical question, summarizing the articles and completing a systematic review using matrix method; and 4) complete a modified case report.

M02 643 DIAGNOSIS AND MANAGEMENT OF NEUROMUSCULAR CONDITIONS IN PT II

Department: Program in Physical Therapy

Course Masters: Beth Crowner, PT, DPT, NCS, MPPA, and Susan Strecker, PT, DPT

Credit Hours: 4

Semester: 4

Students will build on their skills for examining patients with neuromuscular disorders and diagnosing movement system dysfunction. Additional skills acquired will be designing and implementing intervention plans to address impairments and functional loss in patients of all ages. To aid in selecting appropriate interventions students will consider patient prognosis. Students will learn to prescribe wheelchairs and orthotics, fabricate splints, apply kinesiotape, and use a variety of medical equipment. Motor control and motor learning principles will be integrated into the course.

M02 693 and 693A CLINICAL EXPERIENCE III (10 WEEKS)

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS

Credit Hours: 5

Semester: Summer

A full-time clinical experience supervised by clinical faculty. Allows the student to practice evaluation and treatment skills acquired in the classroom and laboratory. Also emphasizes development of professional behaviors.

M02 694 and 694A CLINICAL EXPERIENCE IV (12 WEEKS)

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS

Credit Hours: 6

Semester: Fall

A full-time clinical experience supervised by clinical faculty. Allows the student to practice evaluation and treatment skills acquired in the classroom and laboratory. Also emphasizes development of professional behaviors.

M02 650 DIAGNOSIS AND EVIDENCE ANALYSIS IN PT III

Department: Program in Physical Therapy

Course Masters: Nancy Bloom, PT, DPT, MSOT, and Tracy Spitznagle, PT, DPT, WCS

Credit Hours: 3

Semester: 5

Students will prepare written case reports based on patients seen during their clinical experiences. Students will defend the use of diagnostic classifications and integrate the literature to support their case. Students will practice selecting appropriate outcome measures, designing clinical research questions, and using data to make decisions about individual and group treatment. Students will apply concepts of reliability and validity to assess their measurements.

M02 651 ORGANIZATIONAL AND MANAGEMENT ISSUES

Department: Program in Physical Therapy

Course Master: Beth Crowner, PT, DPT, NCS, MPPA

Credit Hours: 3

Semester: 5

Dynamics of organizations and department will be discussed using case examples. Focuses on the knowledge and skills needed by physical therapists early in their careers. Principles of administration and management that enable the physical therapist to supervise supportive personnel, to understand fiscal issues including reimbursement and to recommend staffing schedules and patterns will be addressed. Students will learn marketing and public relations strategies.

M02 652 ALTERNATIVE SKILLS AND PRACTICE ENVIRONMENTS

Department: Program in Physical Therapy

Course Master: Lynette Khoo-Summers, PT, DPT

Credit Hours: 3

Semester: 5

Physical therapy practice in work and community settings will be addressed. Special PT tests and the interpretation of other tests will be integrated into cases. Students also will be introduced to care in the ER, issues related to genetics and genomics and the importance of changes in medical care to PT. A unit on ergonomics is included. Alternative medicine and alternative PT practice (using an evidence-based practice approach) will be studied. PT topics may include craniosacral therapy, pilates, tai-chi, functional stabilization, therapeutic horsemanship, muscle energy, magnets and others. Student will learn about chiropractic, acupuncture, functional capacity evaluation and focus more on chronic pain. Students will also explore recreational options for disabled populations.

M02 653 HEALTH, FITNESS AND PREVENTION

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS

Credit Hours: 3

Semester: 5

Emphasis will be on critiquing and designing fitness and wellness programs for well and special populations. Programs will focus on those for employee fitness, diabetes, arthritis, obesity and the elderly. Students will participate in and evaluate group treatments and recreational exercise. Use of exercise equipment will be addressed.

M02 654 CASE INTEGRATION LAB III

Department: Program in Physical Therapy

Course Masters: Mary Kate McDonnell, PT, DPT, OCS, and Suzanne Cornbleet, PT, DPT

Credit Hours: 3

Semester: 5

A variety of teaching methods, including rounds format, assessment centers and student presentations will enable students to integrate information from across the curriculum to complete complex case studies. Emphasis will be on pharmacology, other tests, moderators, establishing time frames and setting priorities for care. Age-related issues will be addressed.

M02 655 PROFESSIONAL ISSUES AND SKILL DEVELOPMENT IV

Department: Program in Physical Therapy

Course Master: Tamara Burlis, PT, DPT, CCS

Credit Hours: 4

Semester: 5

Focus will be on the professional skills students need to function in entry-level practice in a variety of settings. Students will study licensure, participate in lobbying and a mock House of Delegates. Skills in serving as an expert witness, a leader, peer instructor and clinical instruction will be developed. Students will be expected to participate in a service project and activities of the APTA. Cultural and race issues will be actively explored.

Courses — PhD in movement science program

L63 5110 INSTRUMENTATION THEORY AND APPLICATION I

Department: Movement Science

Course Master: Joe Klaesner, PhD

Credit Hours: 4

Semester: Fall

This course is designed for the student to have a greater understanding of computer hardware, software and the interaction between these two which makes the use of the computer so useful in research. Basic computer architecture and operating systems will be discussed in this class. The student will gain a basic understanding of software programming logic and structures. The student will use "C" to write several programs for the class. The students will also be exposed to software packages that may include LabView, Matlab, Visual-3D and Excel. The class is organized in a lecture/lab structure.

L63 5115 INSTRUMENTATION THEORY AND APPLICATION II

Department: Movement Science

Course Master: Joe Klaesner, PhD

Credit Hours: 3

Semester: Spring

The main goal of this class is to make students comfortable in the identification of data acquisition equipment that is appropriate for their chosen research area. Instrumentation II is an introduction to electrical components and circuits and their role in the function of laboratory instrumentation. The student will be exposed to basic electronic design of filters, amplifiers and A/D sampling. Also included is exposure to selected pieces of laboratory instrumentation. The class is organized in a lecture/lab structure.

L63 5210 TEACHING PRACTICUM I

Department: Movement Science

Course Master: Ruth Clark, PT, PhD

Credit Hours: 2

Semester: Fall and Spring

The teaching practicum provides an opportunity for the doctoral student to engage in a focused and supervised classroom teaching experience. The student's teaching should be in a content area relevant to the student's area of interest. Students are expected to provide at least 6 hours of formal classroom instruction; to include a minimum of 4 hours of lecture presentation to an appropriate educational audience.

L63 5220 LAB PRACTICUM I

Department: Movement Science

Course Master: Faculty

Credit Hours: 1-2

Semester: Fall and Spring

Supervised and focused laboratory research experience. Development of a specific portion of ongoing research by generating a project proposal and pilot data. Culminates with the production of a written report on the project.

L63 5230 LAB PRACTICUM II

Department: Movement Science

Course Master: Faculty

Credit Hours: 1-2

Semester: Fall and Spring

Supervised and focused laboratory research experience. Development of a specific portion of ongoing research by generating a project proposal and pilot data. Culminates with the production of a written report on the project.

L63 5410 MOVEMENT SCIENCE I: BIOENERGETICS

Department: Movement Science

Course Master: W. Todd Cade, PT, PhD

Credit Hours: 3

Semester: Spring

This didactic course is designed to provide a comprehensive examination of skeletal muscle bioenergetics: structure, function, physiologic regulation of substrate utilization and physiological/pathological adaptation (mutability) to external and internal stimuli. The course is designed to provide the student with a solid basis in muscle structure, function and physiology needed for high-level clinical care. Course content will include skeletal muscle histology, function of intracellular and extracellular muscle proteins, mechanisms of contraction, myogenesis, utilization of fuel substrates including hormonal control and the effects of exercise, mechanical properties of muscle and the response of muscle to training, disuse and selected pathologies.

L63 5510 MOVEMENT SCIENCE II: BIOMECHANICS

Department: Movement Science

Course Master: Dequan Zou, DSc

Credit Hours: 3

Semester: Fall

The focus of this course will be upon understanding mechanical principles as they relate to the study of human movement. The course will use an integration of quantitative principles and published literature to explore methods to study biomechanics and also to learn how the human body responds to mechanical stimuli in healthy and selected disease conditions.

L63 5610 MOVEMENT SCIENCE III: BIOCONTROL

Department: Movement Science

Course Master: Catherine Lang, PT, PhD

Credit Hours: 3

Semester: Fall

This goal of this course is to understand how the nervous system controls movement and how human movement is affected after

pathology to the nervous system. Each class session will consist of an introductory lecture followed by student-led discussions of selected papers. During the course, we will gain insight into how the enormous repertoire of human movements (e.g., gait, posture, voluntary hand movements) is controlled by a distributed motor system (e.g., spinal cord, basal ganglia, motor cortex), how pathology to the system alters movements and how various structures in the system may or may not be able to compensate for each other.

L63 5710 INDEPENDENT STUDY IN MOVEMENT SCIENCE

Department: Movement Science

Course Master: Faculty

Credit Hours: 1-6

Semester: Fall and Spring

Opportunity to pursue individual projects under supervision of a Movement Science faculty member.

L63 5720 RESEARCH IN MOVEMENT SCIENCE

Department: Movement Science

Course Master: Faculty

Credit Hours: 1-6

Semester: Fall and Spring

Opportunity to pursue non-dissertation research on an individual basis under the supervision and direction of a Movement Science faculty member.

L63 5730 READINGS IN MOVEMENT SCIENCE

Department: Movement Science

Course Master: Faculty

Credits 1-6

Semester: Fall and Spring

Opportunity to pursue individual work under the supervision and direction of an IPMS faculty member.

L63 5850 PROGRAM SEMINAR

Department: Movement Science

Course Master: Gammon Earhart, PT, PhD

Credit Hours: 1

Semester: Fall and Spring

Departmental seminar focused on review of current literature, scholarly presentation and the development of skills in developing and presenting grant proposals. Required for each of the first four semesters of enrollment in the Movement Science program.

M17 522 INTRODUCTION TO STATISTICS FOR THE HEALTH SCIENCES

Department: Clinical Investigation

Course Master: Sarah Boslaugh, PhD

Credit Hours: 3

Semester: Every Fall

This is a basic course in statistics with particular focus on the health sciences. It is taught in a user-friendly manner with emphasis on use of SPSS, statistical analysis software commonly used in clinical research. The course will teach basic statistical methods in which clinical researchers should have facility to execute their own analyses.

M17 524 INTERMEDIATE STATISTICS FOR THE HEALTH SCIENCES

Department: CRTC

Course Master: Sarah Boslaugh, PhD

Credit Hours: 3

Semester: Every Spring

This 15-week course is designed to build on skills developed in Introduction to Statistics for the Health Sciences and to foster basic expertise required to independently use common multivariate biostatistical methods to analyze clinical research data for peer-review presentation and publication.

M17 588 EPIDEMIOLOGY FOR CLINICAL RESEARCH

Department: CRTC

Course Master: Mario Schootman, PhD

Credit Hours: 3

Semester: Every Spring

This course introduces principles of epidemiology as they apply to clinical research. The course provides basic tools used in descriptive and analytical epidemiology, which are crucial for making informed decisions in the care of patients. Critical thinking and scientific/analytic competencies are emphasized throughout the course.

BIO 5011 ETHICS AND MEDICAL RESEARCH

Department: Division of Biology and Biomedical Sciences

Course Master: Robert Mercer, PhD

Credit Hours: 1

Semester: Spring

Physical Therapy Faculty: See Appendix

Population Health Sciences

The Master of Population Health Sciences (MPHS), offered by the School of Medicine, is a 10-month degree program for clinicians, clinical doctorates, medical students and health sciences students seeking training in clinical research methods. The curriculum

emphasizes the role of epidemiology and biostatistics in approaching clinical effectiveness and outcomes research for all medical specialties. The MPHS does not require a research thesis upon completion of the program. Instead, the program innovatively uses applied course work to focus on the long-term mastery of skills. Using topics relevant to their careers and interests, MPHS students practice the art of developing research study protocols, performing systematic reviews, designing epidemiologic studies and much more. Many students go on to produce award-winning research using their applied coursework and skills learned in the program. MPHS students deepen their learning by choosing one of four concentrations: Clinical Epidemiology, Health Services, Quantitative Methods or Psychiatric and Behavioral Health Sciences.

Prospective students

Applicants should be in the process of completing a degree in a clinical training program at the doctoral level or should have completed such a degree. The pace of course work assumes students have familiarity with clinical medicine.

Program format

The MPHS program is a full-time, 10-month format. A minimum of 12 credit hours is required for full-time student status, and the maximum course load is 18 credit hours per semester. Part-time study options are available.

Core MPHS courses

Introduction to SAS for Clinical Research (M19 510)
Introductory Clinical Epidemiology
Applied Epidemiology
Introductory Biostatistics for Clinical Research
Intermediate Clinical Epidemiology
Ethics in Population and Clinical Health Research

Current Topics in Public Health (medical and health sciences students only)

Information on elective courses is available at <http://www.mphs.wustl.edu/courses>.

MD/MPHS program

The MD/MPHS provides medical students with an opportunity to supplement their clinical training and course work with a quantitative approach to population health science research. Students develop core skills in epidemiology and biostatistics, which can be applied to research in any clinical field, from primary to specialty care. The program is intended for medical students who plan to incorporate clinical or population health research into their clinical careers, including clinical effectiveness and outcomes research. The program is not restricted to Washington University medical students; students from other medical schools are encouraged to apply. The program combines the traditional medical school curriculum with one additional year of full-time study for the MPHS degree. This added year is typically taken after the second or third year of medical school.

Application deadlines

For 2015-16 academic year: January 9, 2015

Notification of students of admission decision: February 13, 2015

Commitment deadline: April 3, 2015

Further information

The director of the MPHS program is Graham Colditz, MD, DrPH.

Additional information can be obtained at

<http://www.mphs.wustl.edu> or by emailing mphs@wustl.edu.

Population Health Sciences Faculty

Arpana Agrawal, PhD

Assistant Professor, Department of Psychiatry

Ross Brownson, PhD

Professor, George Warren Brown School of Social Work

Kathleen Bucholz, PhD

Professor, Department of Psychiatry

Ken Carson, MD

Instructor, Department of Medicine

Graham Colditz, MD, DrPH

Niess-Gain Professor, Department of Surgery

Benjamin Cooper, MPH

Manager, Public Health Data & Training Center

Bettina Drake, PhD, MPH

Assistant Professor, Department of Surgery

Grant Farmer, PhD, MPH, MA

Postdoctoral Research Associate, Division of Public Health Sciences

Sarah Gehlert, PhD

E. Desmond Lee Professor, George Warren Brown School
of Social Work

Anne Glowinski, MD, MPE

Associate Professor, Department of Psychiatry

Melody Goodman, MS, PhD

Assistant Professor, Division of Public Health Sciences, Department of Surgery

Richard Griffey, MD, MPH

Assistant Professor, Department of Internal Medicine

Richard Grucza, PhD, MPE

Associate Professor of Psychiatry, Department of Psychiatry

Aimee James, MD, MPH

Assistant Professor, Department of Surgery

Kim Kaphingst, ScD

Assistant Professor, Department of Surgery

Allison King, MD, MPH

Assistant Professor, Department of Occupational Therapy

Esther Liu, PhD

Faculty, Institute of Clinical and Translational Sciences

Ying Liu, MD, PhD

Instructor, Division of Public Health Sciences

Margaret Olsen, PhD, MPH

Associate Professor, Department of Internal Medicine

Amy Ostendorf

Department of Surgery

Jeffery Peipert, MD, MPH, MHA

Robert J. Terry Professor, Department of Obstetrics and Gynecology

Mary Politi, PhD

Assistant Professor, Department of Surgery

Rumi Price, PhD, MPE

Professor, Department of Psychiatry

Enola Proctor, PhD

George Warren Brown School of Social Work

D.C. Rao, PhD

Director, Division of Biostatistics

Seth Strobe, MD, MPH

Assistant Professor, Division of Urologic Surgery

Alexandre Todorov, PhD

Research Professor of Psychiatry, Department of Psychiatry

Adetunji Toriola, MD, MPH, PhD

Assistant Professor of Surgery

Methodius Tuuli, MD, MPH

Assistant Professor of Obstetrics and Gynecology

Jean Wang, MD, PhD

Assistant Professor, Department of Medicine

Anke Winter, MD, MSc

Assistant Professor of Surgery

Yan Yan, MD, PhD

Research Associate Professor, Division of Public Health Sciences

Postgraduate Training

Residency training

Postgraduate residency training in an approved hospital is considered essential preparation for the practice of medicine. Most

Washington University graduates serve three or more years of residency training, and many will gain additional experience as postdoctoral fellows.

To aid students in obtaining desirable residency appointments, an active counseling program is maintained. Students in their preclinical years can participate in a career counseling workshop in which they are given specific information about subspecialties. They are encouraged to look at their own interests, attributes and priorities and, with this information, begin to make decisions about the specialty best suited for them. In addition, small group conferences are held for students to meet with faculty members from a variety of the specialty divisions at Washington University to learn more about the fields that they are interested in.

During their third and fourth years, students interact closely with the Career Counseling Office, which provides them with individual counseling to help plan for the residency application process. Students receive general background information about the kinds of residencies available, special issues concerning certain extremely competitive residencies and help identifying faculty members for further assistance. The Career Counseling Office maintains a web site (residency.wustl.edu) where students can find information regarding 20 residency specialties. The number of U.S. seniors applying in the match each year has been steadily increasing. The match process continues to be competitive, and students must make their choices with considerable care. The School participates in the National Resident Matching Program, which offers distinct advantages to applicants.

Results of these efforts have been gratifying. The PGY-1 residencies selected in the most recent residency matching (2014) are identified in the Alphabetical List of Students in the Register of Students section of this web site.

The school maintains an active interest in its graduates and is pleased to assist them in subsequent years as they seek more

advanced training or staff appointments in the communities in which they settle.

Postdoctoral training

Those departments that offer postdoctoral fellowships individualize such educational activity up to a maximum of 36 months of academic time. Such fellowships lead integrally to certification by the appropriate specialty and/or subspecialty boards of the American Medical Association.

Fellowship and other funds

Alexander and Gertrude Berg Fellowship Fund. Created in 1952 through the bequest of Gertrude Berg to provide a fellowship in the Department of Molecular Microbiology.

Glover H. Copher Fellow in Surgical Research. Established in 1971 to support a postdoctoral fellow in surgery.

William H. Danforth Loan Fund for Interns and Residents in Surgery. Provides financial assistance in the form of loans for postdoctoral students in surgery.

Ron and Hana Evens Fellowship. Established in 2014 to support a Post-Doctoral Fellowship in the Mallinckrodt Institute of Radiology.

Antonio Hernandez, Jr. Fellowship in Pediatric Cardiology. Established in 1987 as a memorial to Dr. Hernandez.

Leopold and Theresa Hofstatter Fellowship. Established in 2000 from the estate of Leopold and Theresa Hofstatter to be used to support fellowships in neurological research.

J. Albert Key Fellowship Fund. Provides a stipend for a fellow in orthopaedic surgery.

Louis and Dorothy Kovitz Fellowship Fund. Established in 1970 by

an alumnus and his wife to provide support for research by qualified residents or students interested in surgery, at the discretion of the Head of the Department of Surgery.

Carol B. and Jerome T. Loeb Teaching Fellowships at the School of Medicine. Established in 2004 to honor and thank St. Louis-area physicians with clinical excellence to encourage teaching that excellence to residents and students.

Stephen I. Morse Fellowship. Established in 1980 by Carl and Belle Morse in memory of their son; awarded to predoctoral or postdoctoral students pursuing research careers in microbiology, immunology and infectious diseases.

William D. Owens Anesthesiology Research Fellowship. Established in 2000 in honor of William D. Owens, MD. This fund will allow an individual to do a clinical or basic research fellowship for a two-year period.

The Esther and Morton Wohlgemuth Foundation Fellowship. Established to support a fellow in the Division of Cardiovascular Diseases.

Continuing medical education

The study of medicine is a lifelong process with continuing medical education being an integral component of the continuum. Since 1973 the School of Medicine has supported this learning endeavor through the operation of the Continuing Medical Education Program. Continuing Medical Education's mission is to facilitate lifelong learning through providing learning opportunities for educational renewal and advancement in order to assist health care professionals to maintain and enhance professional competencies and performance to improve health care.

Pursuant to this mission the objectives of the continuing medical education program include the following:

- Enable the acquisition of new knowledge and skills for the delivery of quality patient care
- Translate the results of research to clinical diagnosis and treatment for practicing physicians
- Apply educational approaches in support of continuous quality improvement in health care delivery
- Integrate clinical outcome measures into the educational process
- Assist the physicians' adaptation to changing health care delivery environments
- Support faculty development as postgraduate medical educators and leaders
- Evaluate and refine educational activities

Each year more than 180 symposia and more than 170 recurring academic rounds and conferences as well as videos and monographs are provided with CME credit by this office. About 8,000 registrants attend these courses annually and receive more than 115,000 hours of instruction. CME-Online provides educational programs via the Internet. Since starting in 2000, the **CME online program** has grown to include more than 200 hours of potential CME credit. The educational program is fully accredited by the Accreditation Council for Continuing Medical Education and provides credits to physicians pursuant to the Physician's Recognition Award of the American Medical Association, as well as various other types of state and specialty recertification and relicensure activities.

Admission

Costs, admission requirements and application procedures vary from program to program. Please contact individual programs for

more information.

Financial Assistance — Graduate and Professional Programs

The Ability to finance a graduate/professional education at Washington University School of Medicine does not influence the student selection process. As all students accepted for admission have proven scholastic ability, financial assistance is awarded solely on the basis of documented financial need which cannot be met by student and family resources.

Accepted students interested in applying for financial aid will receive electronic communication from the Financial Aid Office providing instructions for completing the FAFSA and additional forms necessary for a financial aid award to be determined. Everyone applying for financial aid must complete a Free Application for Federal Student Aid (FAFSA) and designate Washington University School of Medicine, School Code #G24620, as a recipient. Financial aid application documents and detailed instructions will be made available after January 1.

The financial aid application materials solicit information about the applicant and their spouse, if married, including a detailed description of resources and liabilities. The School expects the applicant to complete and submit the financial aid documents within two weeks from the date the applicant receives them. Specific items will always be outlined on your individual student portal, Netpartnerstudent.wustl.edu, to which access is granted after students are accepted by their program and their information is forward to the Financial Aid Office.

Once all documentation has been received and evaluated, an award package is determined for that student. He or she will then be notified via email once the award is available to view online. All awards must be accepted online using the student portal. Financial aid awards are credited toward payment of tuition and fees on the student's WebSTAC account. If there is an excess of funds on a student's account after tuition and other charges, the Registrar's Office will issue a student refund check.

Students may reapply for financial assistance in succeeding years if they remain in good academic and personal standing, and if there is continued financial need. Awards made to a student may vary from year to year, depending upon the student's needs and upon the availability of funds. Students are responsible for filing applications for renewal of awards in the spring of each year.

The financial aid committee holds that students receiving assistance have an obligation to notify the committee in writing if their financial situation changes, for example, through employment or receipt of a scholarship not anticipated at the time the application was submitted.

All scholarship funding is awarded by a student's specific program and not through the Financial Aid Office. The Financial Aid Office applies all program scholarships to a student's financial aid award and awards Federal and Institutional program-specific loans when applicable.

MD Program Admission

Visit the [MD Admissions website](#) for full admissions information and to check the status of your application.

Admission requirements for the study of medicine

Entrance requirements to the School of Medicine include:

1. Evidence of superior intellectual ability and scholastic achievement;
2. Completion of at least 90 semester hours of college courses in an approved college or university;
3. Completion of the Medical College Admission Test of the Association of American Medical Colleges; and
4. Evidence of character and integrity, a caring and compassionate attitude, scientific and humanitarian interests, effective communication skills, and motivation suitable for a career in medicine.

Chemistry, physics and mathematics provide the tools for modern biology, for medicine and for the biological basis of patient care. Thus, a firm grounding in these subjects is essential for the study of medical sciences. Entering students are expected to have accomplished at least the equivalent of one-year courses at the undergraduate level in physics and biology; mathematics through calculus, including integral equations and differential equations; and chemistry, including one year of general or inorganic chemistry and one year of organic chemistry. Course work in biochemistry is encouraged although not required. In addition one semester of biochemistry can be substituted for one semester of organic chemistry. Similarly, one semester of statistics can be substituted for one semester of calculus. In selected instances, one or more of these prerequisites may be waived by the Committee on Admissions, but applicants are strongly advised to pursue their interests in these and in other areas of science.

A major goal of undergraduate college work should be development of the intellectual talents of the individual. This often involves the pursuit of some area of knowledge in-depth, whether in the humanities, social sciences or natural sciences. At the same time, a

diversity of background is encouraged in order to provide a necessary foundation for the development of cultural awareness, sensitivity and competence. Specific courses, other than the few in the natural sciences, are not prerequisites because a great variety of courses and life experiences may prepare students for the many roles they may play in their medical careers.

Application procedure

General information for prospective medical students and how to apply can be found on the [MD Admissions website](#).

Washington University School of Medicine participates in the American Medical College Application Service (AMCAS) of the Association of American Medical Colleges. AMCAS provides a centralized system for applying to any participating medical school with only one application and one set of official transcripts of academic work.

The AMCAS Application for Admission, common to all participating medical schools, is available online at <https://www.aamc.org/students/>. Applicants are urged to file their applications as early as possible.

Applicants to the first-year class must submit their AMCAS application no later than December 1 of the year prior to that in which they want to matriculate. On receipt of the application from AMCAS, the Office of Admissions contacts the applicant regarding the additional steps to be taken to complete the application. These include completing a supplemental application via the Internet at <http://wumsapply.wustl.edu>, submission of letters of recommendation and payment of a nonrefundable Application Service Fee of \$80. These materials must be received no later than December 31. Applicants can check the status of their application via the Internet at the <http://wumsapply.wustl.edu> web site. Once the application is complete, the Committee on Admissions evaluates it.

Selected applicants are invited for a personal interview, as well as a tour of the School of Medicine and the Washington University Medical Center. This visit provides extensive opportunities for the applicant to meet and talk with students and faculty members.

If an applicant is planning a trip to the St. Louis area, it is appropriate to contact us by email (wumscoa@wustl.edu) to inquire if an interview has been authorized. The inquiry should be submitted at least three weeks in advance of the anticipated travel. The Office of Admissions is open weekdays from 8:30 a.m. to 5 p.m. Central Time.

Admission decisions are made by the Committee on Admissions on a rolling schedule beginning in early October. Applicants are notified as soon as a final decision has been made on their application, but by April 15, every applicant should be notified whether he or she is accepted, on the waiting list or not accepted.

Upon notification of acceptance for admission to the School, the applicant is required to file a Statement of Intent to Matriculate within two weeks. Three options are presented: 1) accept the offer of admission; 2) accept the offer of admission and request financial aid materials; or 3) decline the offer of admission. The School of Medicine abides by the traffic rules regarding application timelines as established by AMCAS. Accepted applicants who are non-compliant with AMCAS traffic rules and medical school deadlines may have their acceptance into the class rescinded.

After the applicant has been accepted, matriculation is contingent upon sustained superior academic performance as well as continued ethical, honest and mature deportment. Accepted applicants must report to the Registrar all institutional judicial or academic sanctions and/or legal actions in which he/she has been a party prior to matriculation at the School of Medicine. Accepted applicants must report all institutional judicial and academic charges and/or legal charges brought against them before matriculation at the School of Medicine where such charges could result in sanctions. Concealing or failing to report such sanctions and/or charges promptly and,

more generally, failure to maintain high standards of moral and ethical behavior may result in rescission of acceptance or dismissal from the School of Medicine or revocation of the Doctor of Medicine degree.

Merit-based scholarships

Please see the [Financial Assistance](#) section.

Policy for International Students

The admission decision at Washington University School of Medicine is based on academic and personal merit and not on the ability of the student to pay the costs of education. However, individuals who are not citizens of the United States of America or who do not hold U.S. Permanent Resident Visa status are not eligible for financial aid due to regulations covering many programs used by the School to fund financial assistance. Therefore, in order for the School to complete the required documents which are necessary for issuance of a visa, the student must document, by a date and in a manner designated by the School, that the necessary amount of funds, as established by the School, is available to pay the costs of education (tuition and living expenses) for the anticipated period of enrollment, normally four years. Documentation of the required amount of financial resources may be by a letter of credit or by deposit of funds in an escrow account with a bank designated by the School.

Background Checks and Screening for Controlled Substances

Students entering the School of Medicine who will have contact with patients are required to have criminal background checks and screening for controlled substances (THC-cannabis, cocaine, opiate, amphetamine, PCP-phencyclidine) in order to qualify for participation in patient care activities at Washington University School of Medicine-affiliated facilities. Drug screening usually will be conducted during student orientation prior to the start of classes. Incoming, prematriculant students, or visiting students will be disqualified to study at the School of Medicine if they do not consent to background checks, if they have significant positive findings on the background checks, or if they have illicit substances detected on drug screening without a bona fide medical indication. Disqualified prematriculant students and disqualified visiting students will be precluded from matriculation and will not be registered as students in the School of Medicine.

In addition, no final action will be taken on an application until the Admissions Committee has received satisfactory statement(s) ("Dean's Certification" form(s)) from each college or university at which the applicant has completed a program of study. The certification form(s) inquire whether the applicant was subject to disciplinary charges or actions and must be completed by institutional official(s) with access to the applicant's disciplinary records. The certification inquires about past, current, pending or future disciplinary charges or actions.

Third-Year Class Transfer Program

Each year, Washington University School of Medicine accepts a limited number of transfer students into its third-year class depending on the availability of positions. Transfer applications are accepted from well-qualified second-year students who are enrolled in good standing and eligible to continue in their LCME-accredited U.S. medical schools. Applicants must also have a compelling personal reason for requesting transfer and must have the full approval of the dean of their current school. Accepted students are required to successfully complete the USMLE Step 1 examination. Transfer application forms for admittance into the third-year class are available after October 1 for the following academic year. The deadline for submission of applications is March 31. Those applicants selected for interview will be invited to visit the Washington University Medical Center. Applicants will be notified of the decision of the Committee on Admissions by May 15 or when a position becomes available. Inquiries should be directed to:

Third-Year Class Transfer Program
Washington University School of Medicine
Campus Box 8077
660 S. Euclid Ave.
St. Louis, MO 63110-1093
Phone: (314) 362-6844
Fax: (314) 362-4658
wumscoa@wustl.edu

Cost of Education

For the first-year class matriculant, tuition and estimated expenses for the 2014-15 academic year are listed below. Students who enter in 2014 will benefit from a tuition stabilization plan, which provides that their annual tuition of \$56,212 will be constant for up to five consecutive years. The stabilized rate will expire five academic years after matriculation. Therefore, students whose medical education is interrupted for any reason for more than one year will be charged the rate of the class they rejoin. Appeals of this policy should be submitted in writing to the registrar. The items listed below provide an estimate of the expenses for a single student in the 39-week first-year class. The total of these figures suggests a basic minimum budget of approximately \$74,516. Allowances for entertainment, travel, clothing and other miscellaneous items must be added to this estimate.

Tuition (includes Student Health Service and Microscope Lending Plan): \$56,212

Books, supplies and instruments: \$1,428

Housing and food: \$12,306

Travel and personal: \$4,570

Registration, Payment of Financial Obligations, Withdrawal and Refunds Policy

For the convenience of our students, the Washington University billing system provides a central financial account against which most student expenses incurred at the University will be posted, including but not limited to tuition, dormitory charges, parking, library fines, etc. This policy, when referring to tuition and other charges, includes any and all charges posted to this account.

All payments of tuition and other University charges are due and payable on the dates specified in the published calendars of the programs in the School of Medicine. Failure of a student to register when required and pay tuition and other charges incurred on or before the date specified in the published calendar will result in a late fee of \$50 to be added to the amount due. The late fee will be imposed seven days after the due date if full payment has not been received. Tuition and other charges are usually payable twice a year, at registration time and again at the middle of the academic year as listed on the schedule on the academic calendar.

Any payment due from the student and not paid by the specified date will accrue interest at the usury rate in effect on the first business day of the month in which the payment is due. This fee will be imposed on any accounts not paid in full within 30 days of the due date. Any amount not paid when due plus accrued interest thereon must be paid in full within three months of the due date to avoid suspension from classes.

If a student fails to settle such unpaid amounts within three months of the original due date, the School will not release the student's academic record, grade reports or transcript pending settlement of the unpaid account. A student who has not satisfied all of his/her delinquent financial obligations to Washington University (tuition, Olin Residence Hall rental, parking, etc.) one month before the end of the end of the academic year will not be allowed to progress to the next academic year, or be issued a diploma. Federal financial aid funds for the next academic year cannot be disbursed until all prior year balances are paid in full.

Students who rely on financial aid funds to meet their obligations should submit their applications for processing according to application deadlines published by the Office of Financial Aid. Deadlines allow for receipt of financial aid funds by payment due dates if applications are filed by the deadline. The Office of Student Financial Aid will assist students with loan applications and financial planning upon request.

A student who withdraws or takes a leave of absence from the School will receive a pro rata refund of tuition and appropriate fees. The refund will be based on the ratio of the class days enrolled (from the first day of classes to the termination date) to the total number of class days in the term for which tuition and fees were paid. It is understood that the date on which a student formally notifies the Registrar's Office in writing of the decision to withdraw or take a leave of absence from the School of Medicine shall be regarded as the termination date, with no retroactive clause to be accepted. A prospective date will be accepted, however. If tuition and fees were paid entirely or in part by financial aid from the School, the refund will be applied first to the total repayment of the accounts from which financial aid was drawn, with any remaining refund balance given to the student. Financial aid received in excess of the costs of tuition and fees must be refunded by the student to the School on the same pro rata basis as calculated for the tuition refund outlined above – per "Return of Title IV" Federal guidelines. Examples of the application of the refund policy may be requested from the Registrar's Office.

Standards for Satisfactory Academic Progress for Financial Aid Eligibility

Please visit the Policies section for [Standards for Satisfactory Academic Progress for Financial Aid Eligibility: MD Students](#).

Financial Assistance — Medical Students

The ability to finance a medical education at Washington University does not influence the student selection process. As all students accepted for admission have proven scholastic ability, financial assistance is awarded solely on the basis of documented financial need which cannot be met by student and family resources.

Students who consider themselves financially independent of their parents must arrange for loans to replace the amount of support parents are analyzed to have the potential to contribute. The School of Medicine's Office of Financial Aid (Box 8059) will assist students in making these arrangements.

In responding to the Admissions Committee's offer of admission, an accepted student may request financial aid application materials. The Financial Aid Office acknowledges the student's intent and provides instructions for completing the FAFSA. Everyone applying for financial aid must complete a Free Application for Federal Student Aid (FAFSA) and designate Washington University School of Medicine, School Code #G24620, as a recipient. Medical school financial aid application documents and detailed instructions will be made available after January 1.

The financial aid application materials solicit information about the applicant and parents, including a detailed description of resources and liabilities. If an applicant's parents are separated or divorced, the financial information is required from both biological parents (excluding income and assets of their spouse, if remarried). If the applicant is married, similar information is required of the spouse. The School expects the applicant to complete and submit the financial aid documents within two weeks from the date the applicant receives them. Official copies of both biological parents' individual U.S. Income Tax Returns and the applicant's official IRS transcripts complete the data required for financial aid

consideration.

While “permanent residents” of the United States are eligible for most federal financial aid programs, need-based financial aid from Washington is only awarded if the applicant and both biological parents can provide official, audited documents with the same detailed information as provided on a U.S. income tax return. All information is held in strict confidence.

Financial aid awards are credited toward payment of tuition and fees. Proceeds from loans may be disbursed directly to the borrower. The loan portion of an award will be funded through the resources of the School of Medicine or through the Federal Direct Loan program. Financial aid awards are made for a given academic year. Students may reapply for financial assistance in succeeding years if they remain in good academic and personal standing, and if there is continued financial need. Awards made to a student may vary from year to year, depending upon the student’s needs and upon the availability of funds to the Committee. Students are responsible for filing applications for renewal of awards in the spring of each year.

The committee holds that students receiving assistance have an obligation to notify the committee in writing if their financial situation changes, for example, through employment or receipt of a scholarship not anticipated at the time the application was submitted.

First- and second-year students are urged not to accept employment during the academic year. A number of fourth-year students find employment in hospitals within the Medical Center. The personnel office may provide assistance to students’ spouses seeking employment.

Merit-based scholarships

In 1978, the School of Medicine established a scholarship program that based selection on merit rather than financial need. As one of

the first merit scholarship programs for medical students, the Distinguished Student Scholarship Program has recognized and rewarded academic excellence and personal achievement for 33 years. And, to honor outstanding alumni of Washington University, the Medical Center Alumni Association created in 1989 the Distinguished Alumni Scholarship Program. In 1998, the Barnes-Jewish Hospital Medical Staff Association committed to funding one full-tuition, four-year scholarship to a student in each entering class. Beginning with the 2002-2003 academic year, one additional "named" scholarship was made available through the generosity of a donor.

Most merit-based scholarships are awarded to students in the first-year class and are subject to annual renewal. Recipients of these scholarships are expected to maintain academic excellence. If a scholarship is not renewed, the student may file for financial aid from the School. For scholarship recipients who document financial need above the full-tuition scholarship, additional funds are available to provide support up to the total cost of education. Scholarship recipients may not concurrently participate in the School's Medical Scientist Training Program, the Armed Forces Health Professions Scholarship Program, or the National Health Service Corps Scholarship Program.

Now known collectively as the Distinguished Scholars Program, its aim is to attract and enroll the most outstanding students in the School of Medicine, thus enriching the scholarly environment and broadening the scope of learning for all students. Scholarship recipients are selected on intelligence, character, personal accomplishments and goals, motivation for medicine, aptitude for science, leadership potential, communication skills and diversity of life experience. Scholarships awarded under this Program include the Barnes-Jewish Hospital Scholars, Danforth Scholars in Medicine, Distinguished Alumni Scholars (DAS), Distinguished Faculty Scholars (DFS), and Distinguished Student Scholars (DSS).

Barnes-Jewish Hospital Medical Staff Association Scholarship

One full-tuition, four-year scholarship will be awarded to a student in each entering class beginning in 1999. Selection of the Barnes-Jewish Hospital Medical Staff Association Scholar is the same as for the Distinguished Student Scholarship.

Danforth Scholars in Medicine

Named in honor of William H. and Elizabeth Gray Danforth, the chancellor and first lady of the University from 1971 to 1995, the Danforth Scholars Program is a tribute to their legacy of exemplary leadership and service.

Distinguished Alumni Scholarships

Up to four full-tuition scholarships are awarded annually to members of the entering first-year class. The application procedure and selection process are the same as for the Distinguished Student Scholarships. Since 1989, Distinguished Alumni Scholarships have been named in honor of:

Leonard Bacharier, MD

Walter F. Benoist, MD

Leonard Berg, MD

Grace E. Bergner, MD

Laura Bierut, MD

Ellen F. Binder, MD

Stanley J. Birge, MD

Eugene M. Bricker, MD

Keith H. Bridwell, MD

Elmer B. Brown, MD

J. William Campbell, MD

David B. Clifford, MD

Jennifer W. Cole, MD

John N. Constantino, MD

Justin J. Cordonnier, MD
Michael Crowder, MD, PhD
Carlos Daughaday, MD
John D. Davidson, MD
Louis P. Dehner, MD
Robert C. Drews, MD
Bradley Evanoff, MD, MPH
Ronald G. Evens, MD
Lewis C. Fischbein, MD
I.J. Flance, MD
James W. Fleshman, MD
Mark E. Frisse, MD
Bernard T. Garfinkel, MD
Deborah J. Gersell, MD
Jerome J. Gilden, MD
Harvey S. Glazer, MD
David Goldring, MD
Sidney Goldring, MD
Samuel B. Guze, MD
Paul O. Hagemann, MD
Marc R. Hammerman, MD
Alexis F. Hartmann, MD
Alexis F. Hartmann Jr., MD
John C. Herweg, MD
Scott G. Hickman, MD
Richard W. Hudgens, MD
Robert S. Karsh, MD
John M. Kissane, MD
Ira J. Kodner, MD
Allan E. Kolker, MD
Stuart A. Kornfeld, MD
Lawrence M. Kotner Jr., MD
Nicholas T. Kouchoukos, MD
William M. Landau, MD
Timothy J. Ley, MD
Virgil Loeb, MD

Maurice Lonsway, MD
Robert H. Lund, MD
Alan P. Lyss, MD
Philip W. Majerus, MD
Mark J. Manary, MD
Paul R. Manske, MD
Gerald Medoff, MD
Paul A. Mennes, MD
J. Neal Middelkamp, MD
Benjamin Milder, MD
Barbara S. Monsees, MD
Carl V. Moore, MD
George E. Murphy, MD
David G. Mutch, MD
D. Michael Nelson, MD, PhD
Robert C. Packman, MD
Charles W. Parker, MD
Mary L. Parker, MD
Alan L. Pearlman, MD
M. Alan Permutt, MD
Frederick D. Peterson, MD
Gordon W. Philpott, MD
Gary A. Ratkin, MD
Edward H. Reinhard, MD
Fred C. Reynolds, MD
William J. Ross, MD
Will R. Ross, MD, MPH
Joseph F. Ruwitch Jr., MD
Llewellyn Sale Jr., MD
George Sato, MD
Gustav Schonfeld, MD
Clay F. Semenkovich, MD
Hyman R. Senturia, MD
Donald Sessions, MD
Gary D. Shackelford, MD
Penelope G. Shackelford, MD

Larry Shapiro, MD
Bernard L. Shore, MD
Barry A. Siegel, MD
Emily L. Smith, MD
William F. Stenson, MD
Arnold W. Strauss, MD
Robert A. Swarm, MD
Steven L. Teitelbaum, MD
Jessie L. Ternberg, PhD, MD
Bradley T. Thach, MD
Mildred Trotter, PhD
Stanley Wald, MD
Stuart Weiss, MD
Alison J. Whelan, MD

Distinguished Alumni Scholarship Program honorees 2014-2015:

Angela Brown, MD '92
Brian Dieckgraefe, MD, PHD '88, HS '92
James Forsen Jr., MD '88, HS 94
Bradley Schlaggar, MD/PhD '94, HS '99

Distinguished Faculty Scholars

The Distinguished Faculty Scholar Program provides merit-based scholarships (up to full-tuition for four years) to students who demonstrate their commitment to bringing diverse people together and to enhancing service to disadvantaged groups. In addition, it links each of the scholarship recipients with a member of the faculty who has contributed to the diversity of the medical school. This faculty member will serve as a mentor to the scholarship recipient.

These awards are for students who have:

- challenged themselves and excelled academically;
- demonstrated leadership;

- engaged in or shown a commitment to community service;
- demonstrated their commitment to bringing diverse people together (as, for example, by having been involved in diversity initiatives in their schools or communities); and,
- demonstrated a commitment to serving historically underprivileged populations, and/or demonstrated achievement and determination in the face of personal challenges.

Distinguished Student Scholarships

Distinguished Student Scholarships are awarded annually (up to full-tuition for four years) to selected members of the entering first-year class based on meritorious academic and personal accomplishments. Final selection of scholarship recipients is made by a committee of the faculty based on demonstrated superior intellectual achievement as well as an assessment of the applicant's character, attitude, motivation and maturity.

Scholarship funds

Grace Bergner Abrams Scholarship. Established in 1995 through the bequest of Dr. Grace Bergner Abrams, MD '43. Friends and patients also contributed to this endowed scholarship.

Helen M. Aff-Drum Scholarship Fund. Established in 1988 to provide scholarship support to financially deserving medical students.

Anderson Student Scholarship. Established through bequest in 2001 by Rolf L. Anderson, MD '62.

Anonymous Scholarship in Honor of Dr. Ira Kodner. Established in 2014 to honor Dr. Ira Kodner, MD, Professor Emeritus of Surgery.

Isak and Breine Ascher Scholarship Fund. The late Dr. Eduard Ascher, MD, '42, established this scholarship through a trust to memorialize his parents, who were lost in the Holocaust during World War II. He chose Washington University School of Medicine because of their

willingness to “give a chance” to an Austrian refugee.

Dr. Arthur I. Auer MD '56 and Marian D. Auer NU '55 Scholarship. Established in 2012 by Dr. and Mrs. Auer to provide scholarship assistance to worthy students.

Dr. William Monroe Baker Fund. Established in 1988 under the will of Miss Lola Braxton in memory of Dr. Baker to provide scholarship assistance to worthy students.

Barnes-Jewish Hospital Medical Staff Association Scholarship. Established in 1998 by the Barnes-Jewish Hospital Medical Staff Association to provide financial assistance to students based on academic excellence.

Floyd A. and Rita Sue Barnett Scholarship. Established in 1994 from a trust agreement (1989) of Floyd and Rita Sue Barnett for scholarships for students who are academically well-qualified and financially deserving.

Dr. Frederick Barry Scholarship. Established in 2009 through the estate of Dr. Frederick Barry for medical student education.

The Dr. Joseph A. and Helene H. Bauer Scholarship. Created in 1987 by Dr. and Mrs. Joseph A. Bauer to provide scholarship support to academically well-qualified and financially deserving medical students.

Edward Baumhardt Scholarship. Established in 2014 through the estate Dr. Edward Earl Baumhardt.

William L. Becker, MD Scholarships. Established in 2012 by Dr. William Becker, MD '87 and awarded based on financial need.

Albert G. Blanke, Jr. Endowed Scholarship. Established by a generous gift in 1982, the fund provides scholarship assistance for deserving students in the School of Medicine.

Dr. John A. Bowers Scholarship Fund. Established through the estate of Dr. and Mrs. John Bowers. The scholarship is awarded based on need.

Warren Bowersox, MD Scholarship Fund. Established in 2005 by Mrs. Warren Bowersox in memory of her husband, who was a member of the MD class of 1943, to support scholarships.

Isabel Valle Brookings Scholarship. Established in 1957 by Isabel Valle Brookings (Mrs. Robert S.) for scholarships and loans in the School of Medicine.

Jane Stewart and Robert S. Brua, MD Scholarship Fund. Established in 1996 through the generosity of Dr. Brua.

The Bruce Family Scholarship. Established in 2012 by Robert and Suzanne Bruce to commemorate three generations of physicians: Helen L. Bruce, MD; her son, Robert M. Bruce, MD; and her grandson, Carl T. Bruce, Washington University School of Medicine, Class of 2015.

Robert W. Butcher, MD Scholarship. Established in 2012 by an anonymous donor.

Ruth Elizabeth Calkins Scholarship Fund. Established by Dr. Delevan Calkins in honor of his granddaughter.

Gilbert L. Chamberlain, MD Scholarship Fund. Created in 1971 by Dr. Gilbert L. Chamberlain to be used to aid worthy students in acquiring their medical education.

Cecil M. Charles – Nu Sigma Nu Medical Student Scholarship Fund. Established by the Nu Sigma Nu Medical Fraternity in memory of Dr. Charles.

T. H. Cheng, MD Endowed Scholarship in Medicine. Established in 2007 by Dr. Tien Hsin Cheng, MD '76, for deserving medical students with financial need.

Dr. Larry T. Chiang Scholarship. Established in 2003 to endow a scholarship fund for medical students.

Class of 1945 Scholarship. Established by the alumni from the Class of 1945 in honor of their 45th reunion.

Class of 1954 Scholarship In Memory of Dan Nathans. Established in 2000 by the alumni from the Class of 1954 in memory of their classmate, Daniel Nathans, who was awarded the Nobel Prize in Medicine in 1978. Members of the Nathans family also contributed to the establishment of the fund.

Class of 1956 Scholarship. Established in 1996 by members of the Class of 1956 in honor of their 40th reunion.

Class of 1959 50th Reunion Scholarship. Established in 2008 by members of the Class of 1959 in honor of their 50th reunion.

Class of 1960 Scholarship. Established in 2010 by the members of the Class of 1960 in honor of their 50th reunion.

Class of 1961 Scholarship. Established in 2001 by the members of the Class of 1961.

Class of 1964 Scholarship. Established in 1993 by the alumni from the Class of 1964 to support scholarships.

Class of 1968 Scholarship. Established in 1998 by the alumni from the Class of 1968 in honor of their 30th reunion to support student scholarships.

Class of 1969 Scholarship. Established in 1994 by members of the Class of 1969 in honor of their 25th reunion.

Class of 1970 Scholarship. Established in 1996 by members of the Class of 1970 in honor of their 25th reunion.

Class of 1971 Scholarship. Established in 1999 by members of the

Class of 1971 in honor of their 25th reunion.

Class of 1972 Scholarship. Established in 1999 by members of the Class of 1972 in honor of their 25th reunion.

Class of 1973 Scholarship. Established in 2000 by members of the Class of 1973 in honor of their 25th reunion.

Class of 1974 Scholarship in Honor of Dr. Jonathan Mann. Established in 2002 by members of the Class of 1974 for their 25th reunion and to honor the memory of their classmate, Dr. Jonathan Mann, a pioneering AIDS researcher, who died in the Swissair Flight 111 accident in 1998.

Class of 1975 Scholarship. Established in 2000 by members of the Class of 1975 in honor of their 25th reunion.

Class of 1976 Scholarship. Established in 2000 by members of the Class of 1976 in honor of their 25th reunion.

Class of 1977 Scholarship. Established in 2002 by members of the Class of 1977 in honor of their 25th reunion.

Class of 1978 Scholarship. Established in 2002 by members of the Class of 1978 in honor of their 25th reunion.

Class of 1979 Scholarship. Established in 2003 by members of the Class of 1979 in honor of their 25th reunion.

Class of 1980 Scholarship. Established in 2004 by members of the Class of 1980 in honor of their 25th reunion.

Class of 1981 Scholarship. Established in 2005 by members of the Class of 1981 in honor of their 25th reunion.

Class of 1982 Scholarship. Established in 2006 by members of the Class of 1982 in honor of their 25th reunion.

Class of 1983 Scholarship. Established in 2007 by members of the

Class of 1983 in honor of their 25th reunion.

Class of 1984 Scholarship. Established in 2008 by members of the Class of 1984 in honor of their 25th reunion.

Grace Strong Coburn Scholarship. Created in 1962 through the bequest of Mrs. Grace Strong Coburn for scholarships in the School of Medicine.

Jack W. Cole, MD Scholarships. Established in 2002 by Mrs. Ruth Kraft Cole, in memory of her late husband, a 1944 graduate of WUSM, and to recognize Dr. Cole's deep appreciation for the education he received. Preference will be given to a student pursuing a career in academic medicine.

T. Griswold Comstock Scholarships. Established under the will of Marilla E. Comstock for students who would otherwise be unable to obtain a medical education.

Robert Emmet Connor Family Scholarship Fund. Established in 2010 by Dr. Robert Connor in appreciation for the medical education he received at Washington University.

Robert Emmet Connor Family Scholarship Fund. Established in 2010 by Dr. Robert Connor in appreciation for the medical education he received at Washington University.

T. Griswold Comstock Scholarships. Established under the will of Marilla E. Comstock for students who would otherwise be unable to obtain a medical education.

Clark and Mildred Cox Scholarship for Women. Established in 1998 with a donation from the Clark Cox Trust.

Arpad Csapo, MD Memorial Scholarship Fund. Established in 1982 by Elise Csapo in memory of her husband, and by his friends and colleagues to provide assistance for students who have shown promise in fields relating to reproductive medicine.

William H. and Elizabeth Gray Danforth Scholars Program. Established in 1998 in honor of Chancellor Danforth's retirement. The Scholarship recipients must demonstrate outstanding academic promise and a record of community service that reflects Dr. Danforth's values and actions.

Harriet Arey and John D. Davidson Scholarship. Established in 2000 by Harriet Arey and John D. Davidson for scholarships in the School of Medicine.

Davie Family Endowed Scholarship. Established by Joseph Davie, MD '68, and his family to support scholarships for deserving medical students.

Paul H. and Ruth K. DeBruine Endowed Scholarship. Established in 1994 by Dr. and Mrs. Paul DeBruine in honor of his 35th medical school reunion to provide scholarship support to academically well-qualified and financially deserving medical students.

Distinguished Alumni Scholarship. These scholarships are made available by generous donations from our alumni. The Washington University Medical Center Alumni Association Executive Council names the scholarships for alumni each year to honor their outstanding contributions and leadership.

Distinguished Faculty Scholarship. These scholarships are for students who have challenged themselves and excelled academically, demonstrated leadership, engaged in or shown a commitment to community service, demonstrated their commitment to bringing diverse people together, and enhanced service to disadvantaged groups. In addition, it links each of the scholarship recipients with a faculty mentor who has contributed to the diversity of the medical school.

Distinguished Student Scholarship. These scholarships are awarded to students who are selected primarily on the basis of merit (demonstrated superior intellectual and personal achievements, and

an assessment of the applicant's character, attitude, motivation, and maturity.)

Dr. Charles Drabkin Scholarship. Created in 1964 to provide financial assistance to medical students.

Hazel B. Duncan Scholarship Fund. Established in 2003 through the bequest of Hazel B. Duncan, NU '26.

Eichner-Dominguez Family Scholarship. Established in 2005 by Lora Eichner, MD '93, to make it easier for students to attend medical school.

Dr. Howard Eisen and Dr. Judith Wolf Scholarship. Established in 2013 by Dr. Howard Eisen and Dr. Judith Wolf, who both completed their residencies at Washington University School of Medicine. Provides support to medical students based on need or merit.

Dr. and Mrs. Max Elliott Scholarship. Established in 2000 by Dr. Elliott, MD '64, to assist medical students.

Robert B. Fickel, DDS Scholarship Fund. Established by a 1941 graduate of Washington University School of Dental Medicine.

Carl Fisch Scholarship Fund. Created in memory of Dr. Fisch by his daughter, Marguerite F. Blackmer. Provides support to students who demonstrate financial need.

France Medical Scientist Traineeship. Established in honor of faculty member and alumnus I. Jerome France, MD '35 by the Harry Edison Foundation for support of a student in the Medical Scientist Training Program.

Ann Randolph Flipse, MD Scholarship in Medicine. Established in 2007 by Dr. Ann Randolph Flipse to support deserving medical students with a preference for students whose undergraduate degree was in English, history, philosophy, music, arts or a graduate degree in the humanities.

George F. Gill Scholarship in Pediatrics. Instituted in memory of a former clinical professor of pediatrics.

Helen H. Glaser Scholarship for Women Medical Students. Established in 1999 by Robert J. Glaser, M.D., emeritus trustee and former faculty member, in memory of his wife, Helen H. Glaser, MD '47.

Anne T. and Carl Goetsch Scholarship. This fund was established in 2003 through the bequest of Dr. Anne T. Goetsch, MD '41, HS44, and Dr. Carl Goetsch, HS '43, to support medical students.

Norman M. and Eleanor H. Gross Scholarship Fund. Established in 2001 through a bequest from Mr. Gross to provide financial assistance to qualified medical students.

Paul H. and Lila L. Guttman Scholarship Fund. Established in 1976 to provide financial assistance to qualified medical students.

Paul O. and Nancy P. Hagemann Scholarship Fund. Established by Dr. and Mrs. Hagemann to assist academically well-qualified students with documented financial need.

Donald R. and Mary N. Harkness Family Scholarship. Established in 2004 by Drs. Donald and Mary Harkness, both MD '58, in memory of their daughter, Laurel, MD '86.

Lee B. and Virginia G. Harrison Memorial Student Fund. Established in 1996 for scholarships for students who intend to pursue a career in internal medicine or family practice. Dr. Harrison was a 1927 graduate of the School of Medicine.

Thomas J. Hartford, Jr. Scholarship. Established in 2008. Priority is given to a medical student who is considering a career in health administration.

Harvielle-Bailey Scholarship for Medicine or Surgery. Established in 1970 under the will of Miss Isabel Bailey Harvielle as a memorial to

Dr. Charles Poplin Harvielle and Dr. Steele Bailey, Jr., alumni of the School.

Ronald C. and Nell W. Hertel Endowed Scholarship for the School of Medicine. Established in 1995 and endowed in 2005 in memory of Mrs. Nell Hertel to provide financial aid to medical students.

Raymond F. Holden, Jr. and Gertrude K. Holden Scholarship. Established in 2009 by the Estate of Dr. Raymond F. Holden, Jr., MD '33, to provide scholarship support to medical students.

Donald J. Horsh Scholarship. Established in 1985 to honor Dr. Donald J. Horsh, former Associate Professor and Deputy Director for the Health Administration Program. Provides support to medical students.

Dr. and Mrs. Charles Y. (Yueh-Gin Gung) Hu Scholarship. Established in 2002 to provide a scholarship to medical students.

Dr. Grace Huse Memorial Fund. Provides scholarship awards for deserving Washington University medical students.

Justan Icks Scholarship. Established in 2008 by anonymous donor to support students with high academic achievement.

Jackson Johnson Scholarship. Provided through a bequest in 1930 from Jackson Johnson.

Dr. Lorraine A. Johnsrud Scholarship. Established in 1983 as a memorial to Lorraine from her classmates, friends, and family to assist deserving medical students in the funding of their medical expenses.

Henry J. Kaiser Family Foundation – Medical Century Club Scholarship Fund. Following the foundation's generous gift in 1980 for medical student scholarships, the Medical Century Club accepted the challenge to raise new scholarship funds to match an additional gift from the foundation.

Jay and Ronnie Kaiser Endowed Scholarship. Established in 2004 by Dr. Jay Kaiser, MD '72, and Mrs. Ronnie Kaiser in appreciation of the financial aid Dr. Kaiser received as a student and to provide support for medical students.

George D. Kettelkamp Scholarship. Established in 1969 by Mrs. Kettelkamp in memory of her husband, an alumnus of the School of Medicine.

M. Kenton King, MD Scholarship. Created by the Executive Faculty to honor Dr. King at the time of his retirement in 1989 as Dean of the School of Medicine after having served in that position for 25 years.

Saulo Klahr Endowed Scholarship. Established in 2010 by Mrs. M. Carol Klahr in memory of her husband, Dr. Saulo Klahr, a WUSM professor of kidney disease for 46 years, to provide scholarship support to medical students.

Albert F. Koetter, MD Scholarship Fund. Established in 1978 by Mrs. Stella Koetter Darrow in memory of her father, an alumnus and former faculty member of the School of Medicine.

Nicholas T. Kouchoukos, MD '61 and Judith B. Kouchoukos Scholarship. Established in 2011 by Dr. Nicholas T. and Mrs. Judith B. Kouchoukos, to provide scholarship support to medical students.

Anne L. Lehmann Scholarship Fund. Established in 1983 to grant continued scholarship support to medical students.

Life Insurance Medical Scholarship Fund. Created in 1972 from residual funds in the Life Insurance Medical Research Fund. Scholarship support is now awarded to students in the MD degree program.

Maude L. Lindsey Memorial Scholarships. Created in 1976 to assist students in the School of Medicine.

John R. Lionberger, Jr. Medical Scholarship Endowment Fund.

Created in 1982 by Dr. John R. Lionberger to be used to aid worthy students in acquiring their medical education.

E.A. Marquard Memorial Student Scholarship. Established in 1994 from the E. Alfred Marquard Memorial Student Loan Fund to provide scholarships for deserving medical students.

Alma Mavis Scholarship. Created in 1988 under the will of Alma Mavis to assist students intending to practice family medicine.

Eliza McMillan Scholarship. Provides assistance to young women in any of several schools of the University to secure an education.

Medical Alumni Scholarship Fund. Awarded on the basis of academic achievement and financial need.

Edith and Martin Meltzer Scholarship. Established in 2004 by the Meltzer Family Foundation to honor Dr. Gerald Meltzer's MD '63, parents, who established the foundation.

Dr. Charles Miller, Jr. and Florence Noland Miller Scholarship. Established in 2014 to support medical students.

Roy B. and Viola R. Miller Memorial Fund. Created in 1963 through the bequest of Roy B. Miller to provide scholarships for medical students.

The Warren S. and Dorothy J. Miller Scholarship Fund. Established in 1982 through the bequest of Dorothy J. Miller to provide scholarships for any students engaged in studies leading to the degree of Doctor of Medicine.

Joseph J. and Ernesta G. Mira Scholarship Fund. Established in 1988 by Dr. and Mrs. Mira to provide assistance to students from the Alton, Illinois area. Available to others when there are no students from the Alton/Madison County area.

David and Janine Nelson Scholarship in Medicine. Established in

2011 by Dr. David Nelson, a 1963 graduate of Washington University School of Medicine, and his wife, Janine.

Mr. and Mrs. Spencer T. Olin Fellowships for Women. Provides for annual financial support to female graduates of an undergraduate institution in the United States in any of several disciplines.

Application deadline is February 1.

Spencer T. and Ann W. Olin Medical Fellowships. Created in an effort to help fill the continuing shortage of physicians who pursue careers in biomedical research, the awards are primarily for students in the Medical Scientist Training Program.

Dr. Roy W. Osterkamp Memorial Scholarship. Established in 2003 by Mrs. Linda Osterkamp Desloge and Mrs. Lila Osterkamp Haberberger, in memory of their father, Dr. Roy W. Osterkamp, DE '36. Preference will be given to a student pursuing a career in a medical field related to dental medicine, such as maxillo-facial surgery. If no student shares this interest, it will be awarded based on need.

F. Thomas Ott (MD '65) and Mary Miller Ott (MSN '68) Scholarship. Established in 2010 by Dr. F. Thomas and Mrs. Mary Miller Ott to provide scholarship support to medical students.

Dr. Sidney F. (Class of '29) and Dora K. Pakula Scholarship. Established in 2001 by Dr. and Mrs. Lawrence C. Pakula in memory of Dr. Pakula's parents to support student scholarships.

Mary Langston Parker Scholarship. Established in 2014 by The Parker Family to honor Dr. Mary Langston Parker, MD53, Professor Emerita of Preventive Medicine and past director of Student Health Services.

William B. Parker Scholarship. Established in 1976 by the School of Medicine in honor of William B. Parker's 51 years of service.

The Robert W. and Elise Hampton Parsons Scholarship Fund. Established in 2014 by Dr. Robert W. Prasons, MD54, to support

medical students.

William A. Peck, MD Scholars in Medicine. Established in 2002 to recognize Dr. Peck's 14 years of service to the Medical Center and Washington University community. University trustees, faculty, staff, alumni, and friends honored Dr. Peck with gifts to this scholarship.

Peterson Group Scholarship. Established in 2014 by Peterson Group to provide financial support to medical students.

Philpott Family Scholarship. Established in 1995 by the Philpott family to provide support for medical students with financial need and excellent academic achievement.

Pi Beta Phi – Charles Ruggieri Scholarship Fund. Established in 1985 by the Washington University Alumni of the Pi Beta Phi medical fraternity to honor Charles Ruggieri and to assist deserving medical students enrolled in Washington University School of Medicine with the funding of their medical education.

Pi Beta Phi – Charles Ruggieri Scholarship Fund. Established in 1985 by the Washington University Alumni of the Pi Beta Phi medical fraternity to honor Charles Ruggieri and to assist deserving medical students enrolled in Washington University School of Medicine with the funding of their medical education.

Philpott Family Scholarship. Established in 1995 by the Philpott family to provide support for medical students with financial need and excellent academic achievement.

The Virginia Keck, George M. (M.D. '32) and George K. (M.D. '64) Powell Medical Student Scholarship Fund. Established in 1984 by Mrs. George M. Powell in grateful appreciation for the medical education provided to her husband and son by Washington University School of Medicine, which so positively affected the lives of the Powell families.

Henry and Louise Reller Scholarship. To be given to medical students

in the name of the parents of Louise Reller.

Lyman K. Richardson, MD Scholarship Fund. Established in 1993 by Mrs. Ellen Richardson to provide scholarship support to medical students.

Samuel Jennings Roberts Scholarship Fund. Created to provide scholarships for any students engaged in study leading to the degree of Doctor of Medicine.

Robert Allen Roblee Scholarship Fund. Established in 1948 through a gift of Mrs. Joseph H. Roblee for students in the School of Medicine.

Thomas W. and Elizabeth J. Rucker Scholarship Fund. Created in 1956 through the bequest of Eugenia I. Rucker, in memory of her mother and father.

J. Max Rukes Scholarship Fund. Established in 1987, the fund provides scholarship support to deserving medical school students, with a preference for those who are interested in endocrinology.

Joseph H. Scharf Scholarship Fund. Provided in 1949 through the bequest of Dr. Joseph H. Scharf.

Robert G. and Maxine W. Scheibe Scholarship. Established in 1999 by Robert G. Scheibe, a 1960 Washington University graduate who also received his medical degree here in 1964 and his wife, Maxine, who is a 1966 graduate of the Washington University School of Nursing.

William H. and Ella M. Schewe. Established to provide financial assistance to worthy students in the medical school.

Dr. David Schlessinger Endowed Scholarship. Created in 2006 by Dr. Dan Longo in honor of his mentor, Dr. Schlessinger, who was a Professor of Molecular Microbiology, Professor of Genetics and Professor of Microbiology at Washington University School of Medicine.

Dr. Gustav and Mrs. Miriam Schonfeld Scholarship. Established in 2010 by Dr. Gustav and Mrs. Miriam Schonfeld to support medical students. Dr. Schonfeld, MD60, was past chair of the Department of Internal Medicine and physician-in-chief at Barnes-Jewish Hospital.

Edna Schrick, MD Scholarship Fund. Established in 1992 by Dr. Schrick to provide scholarship support.

Mordecai E. Schwartz Endowed Scholarship. Established in 2006 by Dr. Mary R. Schwartz, Dr. David Cech and Alexander I. Schwartz in memory of their father, who was committed to the training of future physicians.

Edward L. Schweich Scholarship. Established in 2010 by Mr. and Mrs. Henry L. Schweich, in memory of Edward L. Schweich, for medical student scholarship support.

Senior Merit Scholarship. Established by an anonymous alumnus of the School of Medicine, it provides a scholarship to a senior student who has earned a distinguished record of academic and personal achievements during the first three years in the medical school.

Charlie W. Shaeffer, Jr. Endowed Scholarship. Established in 2008 by Charlie Shaeffer (MD '64) and his wife, Claire, for medical students, based on academic merit and/or financial need.

Dr. John B. Shapleigh Scholarship Fund. Established in 1926 through the bequest of Dr. John B. Shapleigh and supplemented by contributions from Mrs. Shapleigh and Miss Margaret Shapleigh.

Alexander Balridge Shaw Scholarship Fund. Created in 1958 through the bequest of Roy A. Shaw in memory of his father, Dr. Alexander Balridge Shaw.

William T. Shearer and Lynn Des Prez Diversity Scholarship. Created by William T. Shearer, MD '70, and his wife, Lynn Des Prez. Scholarships are awarded with a preference for under-represented students.

Dr. Edward Hiroshi Shigeoka Scholarship Fund. Created in 1988 by Dorothy F. Shigeoka in memory of her husband, Dr. Edward Hiroshi Shigeoka, to help disadvantaged and deserving students pursue their careers in medicine.

Ernie Simms Scholarship Fund. Founded in 1984 by friends, colleagues and former students of Professor Simms in recognition of his contributions to scholarly research and teaching in the Department of Microbiology and Immunology.

Dr. and Mrs. Vergil N. Slee Endowed Scholarship Fund. Established in 2012 through a bequest from 1941 graduate of the School of Medicine, Dr. Vergil N. Slee and his wife.

Stanley B. Smith, MD Scholarship. Established in 2001 in memory of Samuel and Dora Smith, Dr. Smith's parents, to support student scholarships.

Beulah B. Strickling Scholarship Fund. Established in 1960 with a bequest from Mrs. Beulah B. Strickling.

Marleah Hammond Strominger Scholarship. Established in 1971 by Donald Strominger, MD and supported by family and friends of Marleah Hammond Strominger. The recipient shall be a motivated student with need for financial assistance.

Mary and Ernst Stuehrk Scholarship Fund. Established in 1987 to assist medical students with documented financial need.

Edwin H. and Virginia M. Terrill Scholarship Fund. Established in 1964 with the bequest of Dr. Edwin H. Terrill, an alumnus.

Betty L. Thompson Scholarship Endowment. Established in 2001 by Anthony Thompson, in honor of his mother, Betty.

Mildred Trotter Scholarship Fund. For students with documented financial need, the fund was established in 1979 by Dr. and Mrs. Paul Guttman, and supplemented by former students of Dr. Trotter, as a

tribute to her many years of teaching in the Department of Anatomy.

Hiromu Tsuchiya Scholarship Fund. Created to provide scholarships in the School of Medicine.

Tuholske-Jonas-Tuholske Medical Scholarship Fund. Established in 1974 by Rose T. Jonas in memory of her father, husband and brother. The recipient shall be a senior student preparing to enter the field of surgery, obstetrics and gynecology, or internal medicine.

Cornelia Van Prooyen, MD Scholarship Fund. Established in 1987, the fund provides scholarship support and other financial assistance to female medical students.

George S. and Aspasia N. Vellios Scholarship. Established by Frank Vellios, MD '46, in honor of his parents. Scholarships are awarded to deserving medical students with financial need.

Louis H. Waltke and Marie Waltke Memorial Fund for Medical Education. Created in 1984 to provide scholarships and fellowships at the School of Medicine.

George and Irene Wolf Medical Scholarship Fund. Established by the donors to benefit students in the School of Medicine.

Pamela F. Gallin Yablon, MD Scholarship. Established in 2008 by Dr. Pamela F. Gallin Yablon and Mr. Leonard H. Yablon to support medical students.

Dr. Mitchell and Elaine Yanow Scholarship Fund. Established in 2002 by the children of Dr. and Mrs. Yanow to honor the memory of their parents and to provide support for deserving medical students.

George Zografakis Memorial Scholarship Fund. Created by the family and friends of Dr. Zografakis, a distinguished faculty member in the Department of Surgery.

Loan funds

Auer-Rosenfeld Memorial Loan Fund. Established by Mrs. Elizabeth Auer to be used for educational loans to students.

Dr. John C. Boetto Loan Fund. Established in 1993 by a bequest from Mrs. Josephine D. Boetto as a memorial to her son to provide loans for deserving medical students.

Otto W. Brandhorst Loan Fund. Created in 1985 by the estate of Fern Crawford. This fund supports loans to students in the School of Medicine.

Dr. Harold A. Budke Loan. Established in 1998 to provide financial assistance to needy and deserving medical students.

Harold A. Budke, MD, Loan Fund II. Established in 2001 with a bequest from the estate of Etta Elise Wedemeyer to provide loans to needy and deserving female students who will practice family medicine, internal medicine or obstetrics-gynecology medicine.

Class of 1947 Loan Fund. Established in 1996 by members of the class of 1947 in honor of their 50th reunion.

Jess K. Goldberg Memorial Loan Fund by Ophelia H. Kooden and Violet G. Sachs. Created in 1970 to provide zero-interest loans for medical students in memory of the donors' brother who passed away while attending medical school.

Health Professions Student Loan Fund. Established by federal legislation for medical students with a demonstrated financial need. Loans are available for long terms at favorable rates.

William Randolph Hearst Medical Scholars Loan Fund. In 1989, the Hearst Foundation provided funding for a new and innovative loan program which provides interest-free loans to students in their last year of study.

Ursula Hecker Loan Fund. Established in 1967 by a bequest from Ursula Lee Hecker for the use and benefit of worthy, deserving and

needy medical students.

Kathy E. Holden Loan Fund. Established by Mrs. Roland Holden and the Roland and Ruby Holden Foundation in honor of her granddaughter, Kathy E. Holden, and in recognition of W. Edwin Dodson, MD, to support loans to deserving medical students.

Horncrest Foundation — School of Medicine Loan Fund. In 1982, the trustees of the Horncrest Foundation approved a proposal on behalf of the School of Medicine to match up to a generous annual cap for five year loan funds solicited by the School. The campaign was extremely successful and now provides loan funds to students with documented financial need.

W. K. Kellogg Foundation Loan Fund. Provides financial assistance to medical students in need of such aid.

Gustel and Edith H. Kiewitt Scholarship Loan Fund. Provides loan funds for medical students.

Medical Scholars Loan Program. Established in 1985 by members of the William Greenleaf Eliot Society, this fund provides an interest-free source of long-term student loans. Annual contributions from alumni and friends support this perpetual and growing resource upon which current and future medical students will draw.

George W. Merck Memorial Loan Fund. Established in 1959 by The Merck Company Foundation, the original purpose of the loan was modified in 1983 to provide loans to graduating students which would help bridge the transition from student to resident physician.

Edward F. Musgrave Loan Fund. Established in 1981 by Mrs. Jeannette L. Musgrave. The fund supports medical student loans.

Goldie H. Penn and Lloyd L. Penn, MD Student Loan Fund. Dr. Penn, MD '33 established the fund in 1977 to aid well-qualified and deserving students.

Perkins Student Loan. A federal program (formerly National Direct Student Loan) to provide loans to students with financial need. Permits repayment over an extended period at a favorable interest rate.

Dr. William C. and Elva Pratt Loan Fund. Established in 1982 for medical students with demonstrated financial need.

G. H. Reinhardt Memorial Scholarship Loan Fund. Established in 1947 through the bequest of G. H. Reinhardt.

Aline Rixman Loan Fund. Created in 1940 by William Rixman in memory of his wife, the fund is used to alleviate unexpected financial emergencies of medical students.

James L. and Dorothy Rouner Loan Fund. Established in 1997 by Dr. James and Mrs. Dorothy Rouner to be used for medical students pursuing a career in primary care—general internal medicine.

Caroline O. Schlesinger Loan Fund. Established in 1969 to provide financial support for medical students.

School of Medicine Student Loan Fund. Established to make loans to students with documented financial needs.

Washington University Medical Center Alumni Association Loan Fund. Provides emergency loans to medical students.

The Alan A. and Edith L. Wolff Loan Fund. Established in 1993 by Mrs. Edith L. Wolff to provide loans to students with demonstrated financial need who are in their final year of study for the Doctor of Medicine degree.

Applied Health Behavior Research Admission: See Appendix

Please visit the [Applied Health Behavior Research website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Audiology and Communication Sciences Admission: See Appendix

Please visit the [Program in Audiology and Communication Sciences website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Biology and Biomedical Sciences Admission: See Appendix

Please visit the [Division of Biology and Biomedical Sciences website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Biomedical Engineering Admission: See Appendix

Please visit the [Biomedical Engineering website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Biostatistics Admission: See Appendix

Please visit the [Division of Biostatistics website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Clinical Investigation Admission: See Appendix

Please visit the [Clinical Research Training Center website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Doctor of Philosophy Admission: See Appendix

Please visit the [Division of Biology and Biomedical Sciences website](#)

for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Genetic Epidemiology Admission: See Appendix

Please visit the [Division of Biostatistics website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Occupational Therapy Admission: See Appendix

Please visit the [Program in Occupational Therapy website](#) for admissions information.

Further information:

- [Financial Assistance](#)

- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Physical Therapy Admission: See Appendix

Please visit the [Program in Physical Therapy website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Population Health Sciences Admission: See Appendix

Please visit the [Master of Population Health Sciences website](#) for admissions information.

Further information:

- [Financial Assistance](#)
- [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

Student Life & Services

Students at Washington University of School of Medicine meet the highest academic standards and also possess many talents outside of their studies. With full support and encouragement from the School of Medicine, its students initiate and run a number of student organizations; their missions run the gamut from serving the community to professional development to pursuing personal interests in the arts. Students also participate in intramural sports and fully enjoy all that the city of St. Louis has to offer.

Student Services

The School of Medicine is fully dedicated to providing an outstanding learning environment in which students are supported in meeting their individual professional goals. Services include:

Office of Diversity Programs: Offers programs and services to prepare medical students to become leaders in a global society

The Office of Education: Supports School of Medicine educational programs at all levels, including graduate, postgraduate and continuing medical education

Office of Student Financial Planning: Guides students through the process of understanding and applying for financial aid

The Office of Medical Student Education: Supports all aspects of

medical student education for students, faculty and staff

Office of Medical Student Affairs: Provides support services in areas of physical and mental wellness, academics, mentoring and shadowing, and extracurricular activities

Office of the Registrar: Offers information about obtaining transcripts, access to student records, and tuition payment

Protective Services: Protects the Washington University School of Medicine campus and certain off-campus properties

Transportation Services: Offers campus parking passes, free passes for MetroLink and MetroBus, and access to shared WeCar services

Student Health Services: Provides quality medical care, including preventive services, for all students and their covered family members

Financial Aid/Student Financial Planning
For information on financial planning, please visit the Office of Student Financial Planning website.<http://finaid.med.wustl.edu>

Housing

Those who come to St. Louis to be associated with Washington University School of Medicine find apartments, houses, condos, lofts, and short-term housing that range in price from \$680 to \$2,000 per month, all in the immediate area. **Apartment Referral Services**, located on North Campus, maintains listings of housing appropriate for married and single students. For information, contact **Apartment Referral Services** at ars@wustl.edu, Campus Box 1016, 700 Rosedale Ave., St. Louis, MO 63112 or (314) 935-5092. Visit **Quadrangle Housing** for more information about Washington University-owned housing options.

Olin Residence Hall

The Spencer T. Olin Residence Hall, at 4550 Scott Ave. at the Washington University Medical Center, has accommodations for approximately 168 single men and women from all programs at the School of Medicine. The building was made possible by generous gifts from Spencer T. Olin, alumni and friends of the School of Medicine. Olin Hall is planned for the convenience of students in the medical or paramedical sciences and includes shared cooking facilities, a gymnasium, weight room and state-of-the-art workout facility, laundry room and penthouse with a recreational area and large-screen television with satellite system. Every effort is made to provide an atmosphere that not only aids residents in meeting their study obligations, but also recognizes their privileges as graduate students. We are dedicated to making your Washington University experience one that you will remember both in and outside the classroom by hosting events that spark your interest with community events. Our professional on-site staff is dedicated to serving your needs!

Phone: 314-362-3230 (normal business hours), 314-362-3100 (after hours)

Website: <http://facilities.med.wustl.edu/olin-residence-hall/>

Email: olinresidence@wusm.wustl.edu

Facilities

Danforth Chapel: Non-denominational chapel available for student use.

Reber Library: Available for student use for studying and leisure reading. DVD and book rental is also available for resident use. The library includes over 400 DVD's and more than 500 books for free rental.

Student Lounge: Available to all students for leisure and/or studying. The lounge is equipped with comfortable furniture, large

screen television with a state of the art satellite system. The multi-purpose room is available for music practice and small student or class gatherings.

Penthouse: The private 11th floor Penthouse, which offer striking views of the city, and serves as a recreational area for students. Complete with ping pong, shuffleboard, and pool tables, along with a large screen television with satellite system, the Penthouse is a place to kick back and relax. The Penthouse is only available to Olin Students at this time.

Dining Facilities: Dining facilities are located throughout campus. The Shell Cafe, is located just seconds from Olin Hall. The Shell Cafe, serves hot breakfast and lunch as well as snacks and drinks. Food trucks are also occasionally available just outside Olin's front door. Full kitchens are located on every other floor of Olin Hall and include an oven, stove, microwave, and ice maker.

Additional Amenities: Located on the ground floor is a large gymnasium perfect for a basketball or volleyball game with friends. Coin laundry is also available on site. The second floor has a state of the art workout facility reserved for medical school students.

Accommodations

Room types available at Olin Hall are singles, large singles, and suites. Single rooms are 12-1/2' x 10' 4-1/2", Large Singles are 15' x 11' and Suites are two rooms consisting of one 10-1/2' X 10-1/2' and one 11' by 10-1/2'.

Each room is provided with an X-long twin bed, chest of drawers, built-in desk, desk chair, and study lamp. All rooms are air conditioned and have mini blinds for privacy. You will be required to provide your own sheets (extra long twin 36" x 80"), pillow, blanket, towels, rug, fan, alarm clock, and anything else that will make your room feel more like home.

Single and large single rooms consist of a wash basin and medicine cabinet with common bathroom facilities on each floor. Suites consist of a bedroom, study room big enough for a couch or futon, and a private bathroom with full size tub shower, sink, and toilet.

Every other floor within the dorm contains a fully equipped kitchen for use by students. Students may bring a refrigerator (4-cubic feet or smaller), microwaves, and coffee pots for convenience in their rooms.

Network service is provided to the resident free of charge. Phone and cable are available at the student's expense.

Parking

Parking for a limited number of cars, at a monthly or yearly fee, is available at the Clayton-Taylor garage located just east of the Olin Residence Hall. For more information, please contact the Facilities Service Center at 314-362-3100 or wusmfacilities@wusm.wustl.edu.

Rates for 2014-2015

Summer 2014 (May 24 – August 3) 10 weeks

Current Resident

Single Room: \$1,444

Large Single: \$1,773

Solo Suite: \$2,150

New Resident

Single Room: \$1,466

Large Single: \$1,800

Solo Suite: \$2,182

School Year: August-Mid May (Nine months)

Current Resident

Single Room: \$4,823

Large Single: \$5,785

Solo Suite: \$7,027

New Resident

Single Room: \$4,894

Large Single: \$5,870

Solo Suite: \$7,131

Medical Student Carrels, Lockers and Mail

Medical student carrels

The [Farrell Learning and Teaching Center](#) offers study carrels for every first- and second-year student, equipped with personal desk space, secure storage and data ports.

Lockers

Student lockers with combination padlocks are on the third and fourth floors of the Farrell Learning and Teaching Center. Locker assignments are made by the [Registrar's Office](#) for a nominal fee to cover the cost of the padlock. Only padlocks issued by the Registrar's Office may be used.

Mail

First-class student mail sent to the School of Medicine will be put in student mailboxes. This can serve as a temporary mailing address until students are settled in St. Louis. It is important that mail addressed and sent to the School of Medicine include both student name and year, as follows:

Jane Doe, WUMS I
Washington University School of Medicine
Campus Box 8077
660 S. Euclid Ave.
St. Louis, MO 63110-1093

Voter Registration

The 1998 Higher Education Act requires all postsecondary institutions to make available voter registration forms to all degree-seeking students.

Voter registration forms are made available to students at various sites on campus several months prior to each federal election cycle.

To register to vote in Missouri, you must:

- be a citizen of the United States
- be a resident of Missouri (new residents may register immediately, but proof of residency shall be required.)
- register at least 28 days prior to the election
- be at least 17-1/2 years of age (you must be 18 to vote)
- not be on probation or parole after conviction of a felony, until finally discharged from such probation or parole

- not be convicted of a felony or misdemeanor connected with the right of suffrage
- not be adjudged incapacitated by any court of law
- not be confined under a sentence of imprisonment.

You may register to vote:

- By mail through the postcard registration application
- At the office of the local election authority — Board of Election Commissioners for the City of St. Louis, Saint Louis County Board of Election Commissioners
- At any Department of Motor Vehicles office, or state agency which provides a service to the public, including libraries.

For additional information on voter registration, contact:

Secretary of State

Elections Division

James C. Kirkpatrick State Information Center

P.O. Box 1767

Jefferson City, MO 65102-1767

(573) 751-2301 (voice)

(800) NOW-VOTE (669-8683)

(573) 526-3242 (Fax)

http://www.sos.mo.gov/elections/s_default.asp?id=voter

Office of Diversity Programs

For more information on diversity at the School of Medicine, please visit the Office of Diversity Programs website. <http://medschooldiversity.wustl.edu>

Parking and Transportation (UPass and Enterprise CarShare)

Hourly, daily and permit parking is available in the 2300-space School of Medicine Clayton Garage (corner of Clayton and Taylor avenues) and the 700-space School of Medicine Metro Garage (corner of

Children's Place and Taylor Avenue). Unreserved WUSM surface lots are available Monday-Friday from 2 p.m. to 7 a.m. and all day Saturday and Sunday. Parking in patient or visitor spaces by faculty, staff or students is strictly prohibited at all times. Additional information, maps and fees are available on the [Parking and Transportation](#) section of the Facilities Management Department website or by calling (314) 362-6824 or in our office in Becker Medical Library Lobby, 660 S. Euclid, from 9 a.m. to 3 p.m.

If you are interested in carpooling, vanpooling, [Metro](#) passes or coupon books, please contact the School of Medicine's [Transportation Services](#). For those who occasionally drive to the medical school, you can purchase a Prepaid Exit Pass (PEP) for either the WUSM Clayton or Metro Garage. The PEP can be purchased in advance via cash or check from WUSM Transportation Services in denominations of 5, 10 or 20 exits. Each card has bonus exits based on the number of exits purchased. The PEP is perfect for those who usually carpool, bike, walk or use Metro to get to campus.

Shuttle service is available for transportation from one site to another within the Medical Campus in accordance with specific shuttle schedules. If additional information, maps or shuttle schedules are needed, please visit the [Parking and Transportation website](#) or stop by our office in Becker Medical Library Lobby, 660 S. Euclid, from 9 a.m. to 3 p.m.

If you are a registered full-time student of Washington University, Washington University School of Medicine, or a benefit-eligible employee of the same; you can register for a U-PASS online at <http://parking.wustl.edu/upass.htm>. There is no charge for the U-PASS. The U-PASS allows you to access the [MetroBus](#) and [MetroLink](#) system; however, you must show your valid Washington University ID in conjunction with a valid U-PASS to ride free. The Danforth Campus, West Campus, North Campus and Medical Campus all have MetroLink stations. The Medical Campus also has the Central West End MetroBus hub located on the first level of the Metro Garage. Please note: Until an employee is fully approved in HRMS, or full time

students register for semester classes, your application will not be accepted for a U-PASS. This can take several days.

For those needing a car to run an errand or for overnight, we have a car-sharing program called Enterprise CarShare. Located on Lot B (off McKinley Avenue), an Enterprise CarShare is available for use for a minimal fee (there is a separate rate for overnight use). Go to <http://enterprisecarshare.com/university/overview/>, print the agreement and within three to six business days after membership approval, you will be issued your personal key fob and customer PIN number. Then go online and reserve a time.

Office of Education

For more information on education at the School of Medicine, please visit the Office of Education website. <http://wusmeducation.wusm.wustl.edu/Pages/Welcome.aspx>

Security

Security at the School of Medicine is the responsibility of **Protective Services**. Uniformed Protective Services Officers are on duty 24 hours a day, seven days a week to provide for personal safety, reduce the opportunity for crime, apprehend law violators, provide crime prevention and awareness training and assist in enforcement of University rules and regulations. Armed Response Officers and unarmed Public Safety Officers are radio-dispatched. They respond immediately to telephone calls made to 362-HELP (4357). Officers patrol the campus on foot, on bicycles and in marked mobile units. Contract Agency guards staff a few fixed posts to supplement the in-house officers.

The Medical School access control program makes the campus easily accessible after hours and on weekends. Faculty, staff and students are issued a photo identification badge that identifies the wearer as a member of the medical school community. The badge has a magnetic strip that activates the computerized door lock entrances to the School's buildings. These entrances have two-way intercoms

for direct communication with Protective Services' Communications Officers, as do direct-ring telephones located outside selected campus buildings and "Code Blue" emergency telephones on surface parking lots and in the garages.

Each year Protective Services publishes a summary of statistical information concerning campus crime, as required by federal law, on the [School of Medicine website](#). This information may be found under "Campus Crime Statistics 2011-2012-2013." A daily crime log, information on crime prevention tips and the many services and programs provided by Protective Services also appear on the web. For a printed copy of the annual security report, contact Washington University School of Medicine, Protective Services Department, Campus Box 8207, 660 S. Euclid Ave., St. Louis, MO 63110, or by calling (314) 362-0460.

Office of Medical Student Education

For more information about medical student education, please visit the Office of Medical Student Education website. <http://omse.wustl.edu/index.html>

Student Health Services

Director: Karen S. Winters, MD

Information/Appointments: (314) 362-3523

Billing/Benefits: (314) 362-2346

For a complete description of benefits please visit the [Student Health Services](#) website.

The Student Health Service provides a complete service for full-time students registered in the School of Medicine. The WUSM Student Health Service provides preventative and therapeutic health benefits through a mandatory self-funded program of services available to all full time medical degree seeking students and their eligible dependents. The goal of the Student Health Service is to deliver

efficient, accessible, high-quality essential medical care in order to prevent and treat health problems that may interfere with a student's education and professional goals while attending WUSM. The Student Health Service is under the direction of Karen S. Winters, MD. Benefits provided through this service include: ambulatory patient services, emergency services, ambulance services, hospitalization, maternity and newborn care, on and off campus mental health, including behavioral health treatment, prescription drugs, allergy services, physical therapy services, dermatology services, rehabilitative and habilitative services and devices, laboratory service, x-rays, preventive and wellness services, and chronic disease management, vision and dental care, and pediatric services. Students also receive disability and life insurance. Most medical care will be provided at no cost, except for applicable deductibles or co-pays.

The Student Health Service is a multidisciplinary facility conveniently located on campus and dedicated to providing quality health care to WUSM students and their covered family members. The well-qualified staff consists of physicians, nurses, psychologists, and other medical support personnel. The Student Health Service offers easy access to medical and psychiatric care so that physical and emotional problems will not interfere with university life.

The Health Service is open Monday through Friday from 8:00 a.m. to 4:00 p.m. The Student Health Service is closed Saturday, Sundays and University holidays. Services are available by appointment at 4525 Scott Ave., Suite 3420. The Health Service offers an after-hour phone service monitored by Dr. Winters. Students may call 362-3526 after hours for non-urgent care.

There are no lifetime or annual limits on Essential Health Benefits that the Student or Covered Dependent may claim from Student Health Services. However, covered services that are Non-Essential Health Benefits are subject to a \$2,000,000 per person annual benefit limit on all benefits covered by Student Health Services. Once you have reached the annual benefit limit, you will be responsible for

100% of all Non-Essential Health Benefits. The responsibility of the Student Health Service for hospitalization and emergency care will end 30 days after an individual ceases to be an officially enrolled student.

The Health Service pre-screens every incoming student prior to their arrival at the School to ensure all federal requirements have been met regarding communicable diseases. Entering students are required to have a medical examination and tuberculosis testing within one year of matriculation and to provide proof of immunity to measles (rubeola), rubella and mumps, varicella, hepatitis B and a tetanus-diphtheria (tdap at least one dose required since 2005). The Health Service tracks all immunizations during and prior to enrollment. Statements of Health for internships and practicums are provided.

Spouses, dependents

Students may enroll their eligible dependents in the Student Health Service by paying an additional Student Health Service access fee. Students may enroll dependents into this program only at the following times: At the time the student enrolls in WUSM (at student matriculation), or within thirty-one (31) days of a Qualifying Event. If a student elects to enroll his or her eligible dependents at matriculation, coverage for dependents will become effective on the same date the covered student's benefits become effective, provided enrollment for the dependents occurs on or before the deadline. No enrollment for dependents is allowed after the deadline unless a Qualifying Event occurs. Dependent coverage terminates when the student's coverage terminates or when the dependent no longer meets the definition of a Dependent as described above, if earlier.

Dental care

Benefits provided by Student Health Service for injury to a sound natural tooth only. Coverage for injury to a sound natural tooth is 100% of the first \$300 of expenses, and 80% of the balance, not to

exceed \$1,000 as a result of any one accident. Student Health Services will provide a list of private dentists upon request.

In addition to the benefit provided by Student Health Service, all eligible full-time students registered in the medical and allied professional schools of the Medical Campus and their enrolled dependents will be covered by a prepaid dental plan through Assurant Employee Benefits Heritage. All full-time students are covered automatically, with the coverage premium paid for by WUSM Student Health Service. There are no enrollment forms for the student to complete. However, you will NOT officially have coverage until a participating dentist is selected. To select a participating dentist, you may call Assurant Customer Service at (800) 443-2995 or visit their web site at www.assurantemployeebenefits.com. You must select a participating general dentist in Assurant's Heritage network before you can use your benefits. This plan is available to your family members as well for the yearly premium; see Student Health Benefit office for details.

Counseling services

Students at the Medical Center may have concerns over poor concentration, ineffective study habits, anxiety over their performance, low self-esteem, relationships, grief or depression. The psychiatry and clinical psychology staff members are available to help students cope with these concerns. Initial evaluations are made at the Student Health Service. Subsequent care may be at the Medical Campus or a designated physician's office. Call 362-3523 for more information. All records are confidential and may not be reviewed by anyone without the student's written consent.

In addition, Student Health Service provides a Student Assistance Program (SAP) for all enrolled students and their immediate family members. This prepaid benefit is offered as a way to help our Students resolve issues that may have an impact upon their personal lives and their school performance.

The SAP provides confidential, professional assistance to full-time enrolled students and their family members to help resolve problems that are affecting their personal life or school performance. The program is managed by ENI, a nationally known professional consulting firm specializing in SAP services.

Students can contact ENI 24 hours a day, seven days a week to arrange a confidential appointment with an SAP specialist. SAP specialists have professional training and expertise in a wide range of issues such as academic problems, eating disorders, credit problems, adjusting to school, marriage and family problems, alcohol and drug abuse, emotional and psychological concerns, financial difficulties, stress and much more.

The SAP can be reached by calling (800) 327-2255 and selecting prompt #3.

Disability insurance

All students are covered by group disability insurance. A student who is completely disabled for six consecutive months is eligible to receive \$500 per month benefit. Coverage increases to \$1,500 per month in the third year. Individual disability policies are issued to fourth-year students, increasing the total monthly benefit to \$2,000. Individual policies are portable, guaranteed issue and can be increased after graduation up to a maximum \$4,700 per month benefit. Call 362-2346 for more information.

Life insurance

All eligible full-time students registered in the Washington University Medical School and allied professional schools are covered automatically, premium paid for by WUSM Student Health Service. An enrollment form listing your beneficiaries is required to complete enrollment. In brief, the term life insurance plan and AD&D plan for medical students and affiliated programs provided by Guardian is as follows: term life plan provides \$10,000 of term life insurance and

the AD&D plan \$10,000 of accidental death and dismemberment protection. A detailed description of the plan is available at Student Health Services.

Upon graduation, you can convert the amount of your term life insurance to a participating whole life plan underwritten by Guardian.

Registrar's Office

For more information about the Office of the Registrar or its services, please visit the Office of the Registrar website. <http://registrar.med.wustl.edu>

Intramural Programs

Students enrolled in Washington University School of Medicine enjoy an active and diverse Intramural (IM) Program. The IM Program offers students the opportunity to participate in a wide range of sports. Utilizing the state-of-the-art facilities in the University's Athletic Complex, medical students pursue personal athletic interests and enjoy interaction with students enrolled in both undergraduate and graduate degree programs. The IM Program provides an excellent opportunity to socialize with colleagues as well as other graduate students. Differences in curricular demands among participants are considered in scheduling games so that neither academic nor athletic goals are compromised.

Traditionally, the School of Medicine is represented each year by teams or individuals in numerous intramural sports. In recent years, medical student teams competed in men's and women's flag football, soccer, volleyball, basketball, and softball, as well as coed ultimate

Frisbee, volleyball, inner tube water polo and softball. In addition, there are different levels of competition so that the needs of both the competitive and recreational athlete can be met.

The School has always made a strong showing in both the mixed and graduate school division.

For further information, visit <http://bearsports.wustl.edu/intramurals/index>.

Student Groups

Students at Washington University School of Medicine are active participants in medical student organizations on the local, state and national levels. The American Medical Student Association (AMSA), the Student National Medical Association (SNMA), the American Medical Women's Association (AMWA), the Asian-Pacific American Medical Students Association (APAMSA), the Medical Student Section of the American Medical Association (AMA-MSS), the Missouri State Medical Association (MSMA), the Organization of Student Representatives (OSR) in the Association of American Medical Colleges (AAMC) and the Student Organized Community Clinic (SOCC) provide forums for addressing the educational, social and political concerns of medical students. The School of Medicine supports student participation in these national organizations and provides partial funding for travel and other expenses on an annual basis. Medical Student Government (MSG) represents the student interests, supports social and educational activities and expands the perspectives of the future graduates of the medical school.

Visit the [Office of Medical Student Affairs](#) for a complete list of student groups.

Academic Societies

To foster communication between students and faculty, three academic societies — The Joseph Erlanger and Evarts Graham Society, The Carl and Gerty Cori Society, and The Oliver Lowry and Carl Moore Society — meet independently throughout the academic year to enjoy a social hour, dinner and conversation. The societies promote a collegial environment for the medical school's diverse faculty and student body. Medball, held in March of each year, is hosted in part by the academic societies and provides a formal social evening with medical faculty and medical students.

For a complete list of academic societies, visit the [Office of Medical Student Affairs](#).

Washington University Medical Center Housestaff Auxiliary (WUMCHA)

WUMCHA, the Washington University Medical Center Housestaff Auxiliary (a department of Barnes-Jewish Hospital) is an organization made up of medical students, residents, fellows, attending physicians, as well as the spouses, partners and “significant others” of those affiliated with Washington University Medical Center,

including Barnes-Jewish and St. Louis Children's hospitals, the School of Medicine and Mallinckrodt Institute of Radiology. The purpose of the organization is to provide friendship and social support among its members. In addition to sponsoring numerous recreational and educational activities, WUMCHA publishes a welcome guide containing information about relocating to St. Louis and area attractions. Annual dues are \$35. Information about membership and applications can be obtained by contacting Laura Hastie at (832) 215-1037 or wumchamembership@gmail.com, or by visiting <http://www.wumcha.com>.

Community Service Experience

Participation in a host of community service projects nurtures students' altruistic nature and provides an alternative educational experience. University-sponsored, student-run, community-based service activities include the Perinatal Project, which provides information concerning well-baby care and prenatal care to women from lower socioeconomic groups.

Students Teaching AIDS to Students (STATS) allows trained medical students to provide sixth- and seventh-graders with information about AIDS. The combined efforts of medical students, faculty, middle school teachers, parents and speakers with AIDS have made STATS a very successful program. The Geriatrics Outreach Program helps prepare students for the challenges and rewards of working with older patients.

Pediatric Outreach Program (POP) matches children in the St. Louis area who are suffering from chronic illnesses and the siblings of these children with big brothers and big sisters from Washington University School of Medicine. Community CPR trains medical

students to become instructors in CPR for the medical school curriculum and in the community of St. Louis.

The Mental Health Outreach Program (MHOP) works to increase the awareness of mental health issues among medical students and the general public. The Family Medicine Interest Group works with the local community by providing health screenings and nutritional classes. SPOTS (Sun Protection Outreach Teaching by Students) is piloted to teach middle school students about the dangers of skin cancer and how to protect themselves from the sun.

A newer group, the Public Health Interest Group (PHIG) is a student organization committed to partnering in the St. Louis community to include health screenings, nutrition outreach and public policy discussions. The Smoking Cessation Project works with the American Lung Association Freedom from Smoking Program and students are trained in counseling smoking cessation groups.

Student Publications

Students organize and spearhead several publications at the School of Medicine. The *Dis-Orientation Guide* is produced annually as a student-to-student guide to the curriculum and the city. *Hippocrene* is a literary magazine published once a year where you will find poetry, short stories, essays and photographs submitted by members of the WUSM community.

St. Louis

Situated at the confluence of two great North American rivers — the Mississippi and the Missouri — the St. Louis region has been a favored destination since Lewis & Clark began their historic westward “Corps of Discovery” here in 1804.

Today, the pioneers of St. Louis are the engineers, scientists, business leaders, educators, artists and other innovative and creative professionals who are working at the forefront of a multitude of fields and endeavors. Thanks in large part to Washington University, other regional universities and key Fortune 500 corporations, St. Louis has developed into a national hub for important research and business development, especially in the fields of biotechnology and plant science.

Consistently ranked among the nation’s most affordable and best places to live and raise a family, the St. Louis region offers many opportunities to watch or participate in a wide range of sports, recreational activities and cultural events. Not far from St. Louis’ urban core are the beautiful rolling hills of the Ozark Mountain region and outdoor activities such as hiking, canoeing and spelunking in some of Missouri’s more than 6,000 caves.

Cultural opportunities

New St. Louisans discover the rich cultural life here in theaters, galleries, museums and festivals. [The Saint Louis Symphony](#), among the finest in the nation, performs at historic Powell Hall. Symphony members bring their skills to the community through teaching and chamber concerts as well. In the downtown area, the rich St. Louis traditions in jazz, blues and ragtime music are continued in a number of lounges and clubs. [The Community Music School of Webster University](#) offers community music education to all ages,

and **COCA** (Center of Creative Arts) is the largest multidisciplinary arts institution in the metropolitan area.

The Opera Theatre of St. Louis has been enormously successful, nationally and internationally, bringing English-language versions of the classics and presentation of contemporary operas to the stage.

The Repertory Theatre of St. Louis has an extensive annual season, which includes experimental works and traditional dramas. The **Stages St. Louis Theatre Co.**, **Kirkwood Theatre Guild**, **West End Players Guild, Act. Inc.** and the **Saint Louis Black Repertory Company** enrich the dramatic offerings available in the immediate area. On campus, Edison Theatre offers the highest quality in national and international programs in theater, dance and music. For open-air summer entertainment, the **Shakespeare Festival of St. Louis** and **The Muny**, both in Forest Park, are prime destinations.

Broadway comes to St. Louis at the **Fox Theatre**, a renovation of a 1929 example of exotic cinema temple art. Galleries sprinkled throughout the area bring current visual arts to St. Louis, while antique shops remind us of the past. **The St. Louis International Film Festival** takes place every fall. Supplementing the standard movie fare available throughout the metropolitan area are two cinemas close to campus, the **Hi-Pointe** and the **Tivoli**, both offering excellent foreign and independent films.

When the **Saint Louis Art Museum** was built for the 1904 World's Fair, much of the Washington University collection was housed in it. Ties with the Art Museum remain very close. Students in art and in business intern at the Art Museum, working in arts management and gallery organization. St. Louis also features **Laumeier Sculpture Park**, which displays large-scale sculptures by artists of international renown.

St. Louis has two major history museums as well: the **Missouri History Museum** in Forest Park and the **Museum of Westward Expansion** under the Gateway Arch.

Recreation

For recreation, St. Louisans may use any of the numerous parks that dot the metropolitan area. In Forest Park, which lies between the two Washington University campuses, are the Art Museum, The Muny, Missouri History Museum, the **Saint Louis Zoo**, municipal golf courses, tennis and handball courts, a skating rink, and acres of paths, picnic areas, gardens and wooded groves. **Tower Grove Park** is in south St. Louis, and adjacent is the **Missouri Botanical Garden**, world famous for its research, collections and facilities.

Farther afield, St. Louis residents find outdoor adventure in the countryside beyond the city. In the Ozark Mountains, on the rivers of Missouri, on the lakes of neighboring Illinois, variety abounds. Camping, hiking, floating, rock climbing and caving are among the many possibilities within a few hours' drive of St. Louis. For those who like to sail, there is Carlyle Lake in Illinois. And for those with rod and reel, Missouri streams are made to order.

The Washington University Athletic Complex provides outstanding resources to athletes at every level of ability. Open to all members of the University community, it includes an eight-lane, 25-meter pool, two gymnasiums, weight rooms, racquetball courts, outdoor tennis courts and a track complex. Built on the site of the 1904 Olympic Games, this facility offers recreational opportunities year-round for students, faculty and staff.

For the spectator, St. Louis is a great sports town. For more than a century, it has hosted one of the oldest traditions in baseball — **the St. Louis Cardinals**. Dizzy Dean and the Gashouse Gang, Stan Musial, Lou Brock, Ozzie Smith and Mark McGwire are all part of Cardinal history. The current Busch Stadium opened in spring of 2006 and played host to the 2009 All-Star Game.

St. Louis' NFL Rams brought home the Super Bowl trophy in 2000, after being welcomed to the community in the fall of 1995. The St. Louis Blues hockey team moved here in 1967 and enjoys loyal fans.

St. Louis also supports a number of semi-pro sports teams.

Employment and university ties with St. Louis

St. Louis is a great place to work; job opportunities are varied and abundant. Many companies are distinguished for their excellent working conditions, and commuting is easier than in many other large cities.

Many major corporations are located here, as are a variety of retail, transportation and banking organizations. Among the top firms are Ameren, Boeing, Edward Jones, Emerson Electric, Enterprise Rent-a-Car and Express Scripts. Many support services have grown up around these corporations — including law, accounting, data processing, advertising, public relations and design firms, as well as photographic and audio-visual studios.

Employing more than 20,000 people, the Washington University Medical Center (WUMC) is made up of the [School of Medicine](#), the [Alvin J. Siteman Cancer Center](#), [Barnes-Jewish Hospital](#) and [St. Louis Children's Hospital](#). The medical center generates an annual economic impact of nearly \$4.3 billion for the St. Louis area, according to an economic model maintained by the St. Louis Regional Commerce and Growth Association.

[The John M. Olin School of Business](#) at Washington University enjoys a rich and varied partnership with the business community. As a laboratory for internship opportunities, entrepreneurship study, and student practicums offered through Olin's Center for Experiential Learning, St. Louis plays an integral role in the education of business students. In turn, Olin creates value for area businesses by matching top Olin talent with pivotal positions in their firms.

Similarly, the [School of Law](#) has close ties with the St. Louis legal community and, through its clinical program, offers internships in private and local government offices and in state and federal courts.

In addition, the law school is fortunate in the active and interested role of the local bar associations in the development of the school's special programs.

The **George Warren Brown School of Social Work** also is linked in many ways to the St. Louis social work community. Students find practicum assignments throughout the area, and both students and faculty do research and consult with local agencies.

A strong partnership exists between technology-based businesses and industries in St. Louis and the **School of Engineering & Applied Science**. There is a network of more than 80 faculty members associated with Department of Biomedical Engineering, representing numerous divisions of the university, including many from the School of Medicine.

In addition to their ties to local business, both the Danforth Campus and the School of Medicine at Washington University are dedicated to the support of K-12 education. Students from the medical school participate in a variety of outreach programs, including Students Teaching AIDS to Students (STATS), designed to teach awareness and responsible behavior to junior high school students; the **Young Scientist Program**, an interactive learning experience that brings high school students to the medical center; and health and preventive programs on drug and sex education.

In short, Washington University enjoys a special relationship with St. Louis.

Interesting St. Louis-area facts

St. Louis has many nicknames, including the "Gateway City," "Gateway to the West," "The Mound City," "St. Louie," "River City," and "The 'Lou."

There are more free, world-class attractions in St. Louis than any place in the nation outside of Washington, DC.

The **Saint Louis Zoo** was the first municipally supported zoo in the world and a pioneer in the use of open enclosures, placing animals in natural environments without bars.

Some of the world's favorite foods were popularized and introduced to a wide audience at the 1904 World's Fair in St. Louis. The ice cream cone, iced tea and hamburgers all became food favorites there. It is said that the fair was the first place where hot dogs met French's mustard.

The Eads Bridge over the Mississippi River, near the present site of the Gateway Arch, was the first arched steel truss bridge in the world. When it was first proposed, it was scoffed at as impossible to build. Completed in 1874, it is still in use today.

In 1904, the first World Olympics in the United States and the Western Hemisphere was held in St. Louis at Washington University's Francis Field.

The Cathedral Basilica of St. Louis contains the largest collection of mosaic art in the world.

In 1876, St. Louis hosted the first national political convention west of the Mississippi.

In 1927, a group of St. Louis businessmen gave financial backing to the first solo transatlantic flight from New York to Paris. The pilot was Charles Lindbergh and the plane was named "The Spirit of St. Louis."

St. Louis' McDonnell Douglas Corporation, now Boeing, designed and built the space capsule that carried the first men into space in the 1960s.

C.L. Grigg, a soft drink salesman, introduced a drink to St. Louisans in 1929 that would eventually become known as 7-Up.

Departments

Washington University School of Medicine has 20 academic departments, all of which support the School's tripartite mission of conducting outstanding patient care, education and research. The School excels applying a multidisciplinary approach to all its endeavors, allowing faculty to easily cross administrative boundaries to address medicine's biggest challenges.

For more information about the faculty, please visit [Faculty at a Glance](#).

For more information about department research, please visit [Research Activities](#).

For more information about departmental educational activities, please visit the departmental links at left.

Department of Anatomy and Neurobiology

The structure of the human body is presented in two courses: [The Human Body: Anatomy, Embryology and Imaging](#), offered in the first semester, and Microscopic Anatomy, which extends over the first and second semesters. A third course, [Neural Sciences](#), is taught at the end of the second semester.

Human Anatomy and Development is largely a laboratory course, and lectures deal with anatomical principles and human growth and development. Instruction in Microscopic Anatomy focuses on cell and tissue biology, with laboratory sessions paralleling the lectures in these areas. This is a component of the [Cell and Organ Systems Biology](#) course jointly taught with the [Department of Cell Biology and Physiology](#). Neural Sciences is an integrated course that deals with the structure, function and development of the nervous system from molecular, cellular and systems perspectives. Throughout all three courses, attention is paid to the results of recent investigations and to major developments in each field. In addition, the departmental faculty have a lead role in many graduate courses that may be taken as electives by students in any of the four years.

The department is well-equipped for specialized work in several areas, including gross anatomy, tissue culture and all aspects of neurobiology.

Please visit the [Department of Anatomy and Neurobiology website](#) for more information.

MD Courses — Anatomy and Neurobiology

First year

M35 554 NEURAL SCIENCES

Instructors: David C. Van Essen, PhD, 362-7043; Krikor Dikranian, MD, Phd, 362-3548; Timothy E. Holy, PhD, 362-0086; (Co-Coursemasters)
Neural Sciences is an intensive seven-week course that covers the structure, function and development of the nervous system as seen

from molecular, cellular and systems-oriented perspectives. The emphasis is on the organization and function of the nervous system in health, but there is frequent reference to the clinical relevance of material presented. The course includes regular lectures, conference sessions and laboratories, plus a number of clinically oriented presentations. Computer-aided instructional programs, accessible from a variety of locations, provide auxiliary modes of self-paced learning and review. The midterm and final emphasize the core body of important facts and principles presented in lectures and laboratories. (SPRING ONLY).

M05 501B THE HUMAN BODY: ANATOMY, EMBRYOLOGY AND IMAGING

Instructor: Glenn C. Conroy, PhD, 362-3397

The course is based largely on the dissection of the human body. Lectures on functional and topographic anatomy emphasize the principles of organization of the various systems of the body. Lectures on developmental anatomy stress organogenesis as an adjunct to understanding the normal and abnormal anatomy. An extensive museum of labeled dissected specimens is housed in the dissection room for ready reference by students who encounter abnormalities or variations in their dissections. Frequent use of CT, MRI, and X-ray images aid in the synthesis of knowledge gained through dissection. Small group discussions emphasize radiological anatomy and clinical correlations. This course is restricted to first year medical students, but limited space is sometimes available for nonmedical students enrolled in the PhD program with instructor's permission. Cross-listed with L41 (Bio) 501.

M75 503 CELL AND ORGAN SYSTEMS BIOLOGY

Instructor: Paul C. Bridgman, PhD, 362-3449

The structure of cells, tissues and organs is studied with regard to the functional significance of the morphological features. Lectures integrate histology with cell biology and physiology. The laboratories consist of the study of prepared slides, online virtual slides and electron micrographs. A dual-view microscope will be provided for each pair of students. A laboratory guide in the form of an iBook or

eBook (Android) will be provided. Limited space is available for non-medical students with instructor's permission. This course is cross-listed in the Department of Cell Biology and Physiology.

Selectives

M04 552 GENETICS AND MOLECULAR BIOLOGY OF ION CHANNELS

Instructor: Lawrence B. Salkoff, PhD, 362-3644

A functional genomics approach to studying membrane excitability. How the new DNA sequence data from genomic and EST sequencing projects can be exploited to get a comprehensive picture of gene families that contribute to membrane excitability. How DNA sequence data can contribute to understanding questions of physiology, development, regulation and structure-function relationships.

Fourth year

Electives

The department offers a number of graduate-level courses that may be taken as electives by medical students. The department participates in the Division of Biology and Biomedical Sciences, which also offers courses relevant to anatomy and neurobiology.

These course descriptions are presented in the section on Biology and Biomedical Sciences.

L41 (Bio) 5571 CELLULAR NEUROBIOLOGY

L41 (Bio) 5651 NEURAL SYSTEMS

L41 (Bio) 590 RESEARCH OPPORTUNITIES

Note — The number preceding the course title indicates that the course is offered by the Division of Biology and Biomedical Sciences and carries credit in the Graduate School of Arts & Sciences.

M05 810 ADVANCED DISSECTION

Instructor(s): Staff, 362-3397

Enrollment limit per period: 14

Valid start weeks for 4-week blocks are: Weeks 29, 33, 37, and 41.

Different regions of the body will be dissected in detail. A period of four weeks should be allowed for each region: head and neck, thorax and abdomen, and superior and inferior limbs. Surgical approaches, cross-sections, X-rays, and CT scans can be studied.

Student time distribution: A minimum of 40 hours is required

Major teaching responsibility: N/A

Patients seen/weekly: N/A

On call/weekend responsibility: N/A

Location: North Building

Elective Contact: Glenn Conroy, PhD, 362-3397

Other Information: Self Study. High Pass/Fail. Contact Dr. Conroy one week prior to the start of the elective.

M05 820 TEACHING ASSISTANT IN HUMAN ANATOMY

Instructor(s): Glenn Conroy, PhD, 362-3397

Enrollment limit per period: 3

Valid start weeks for 4-week blocks are: Weeks 13 and 21.

Offers the student the opportunity to review human anatomy by assisting the Anatomy faculty in teaching first-year medical students in the Anatomy laboratory.

Student time distribution: N/A

Major teaching responsibility: N/A

Patients seen/weekly: N/A

On call/weekend responsibility: N/A

Location: North Building

Elective Contact: Glenn Conroy, PhD, 362-3397

Other Information: Students should contact Dr. Conroy one week prior to the start of the elective.

Research — Anatomy and Neurobiology

(M05 900)

Cross-listed with L41 (Bio) 590

Nancy L. Baenziger, PhD, 9th Floor McDonnell Science Building, 362-2817. Environmental stress impact on receptor signal transduction and neuronal connectivity in cellular models of Alzheimer's disease.

Paul Bridgman, PhD, 4th Floor McDonnell Science Building, 362-3449. Cell biology of the developing nervous system.

Andreas Burkhalter, PhD, 4th Floor North Building, 362-4068. Organization and function of neuronal circuits in mouse visual cortex.

Harold Burton, PhD, 3rd Floor East McDonnell, 362-3556. Cortical functional reorganization in response to sensory changes due to unilateral deafness or strabismus.

Valeria Cavalli, PhD, 4th Floor McDonnell Science Building, 362-3540. Cellular, molecular and epigenetic mechanisms controlling axon regeneration.

Glenn C. Conroy, PhD, 3rd Floor North Building, 362-3397. Paleoanthropology; Geographical Information Systems (GIS).

Krikor Dikranian, PhD, 3rd Floor North Building, 362-3548. Development and morphology of the amyloid plaques in experimental animals, neuropathological changes after head trauma.

Paul A. Gray, PhD, 9th Floor McDonnell Science Building, 362-9063.
Molecular development of neural circuits underlying simple behavior.

Timothy E. Holy, PhD, 4th Floor North Building, 362-0086.
Mammalian pheromones: neural mechanisms of action.

Arthur D. Loewy, PhD, 9th Floor McDonnell Science Building, 362-3930. Analysis of brain circuits controlling cardiovascular functions.

Michael L. Nonet, PhD, 9th Floor McDonnell Science Building, 747-1176. Molecular genetic analysis of synaptic development and function.

Karen L. O'Malley, PhD, 9th Floor McDonnell Science Building, 362-7087. Molecular mechanisms underlying neurodegenerative processes. Signaling mechanisms associated with intracellular receptors.

Jane Phillips-Conroy, PhD, 3rd Floor North Building, 362-3396.
Behavior, morphology and biology of living primate populations.

Camillo Padoa Schioppa, PhD, 3rd Floor East McDonnell Science Building, 362-3530. Neuronal bases of economic choice and decision making.

Lawrence B. Salkoff, PhD, 9th Floor McDonnell Science Building, 362-3644. The roles of ion channels in neuronal long term excitability changes.

Paul J. Shaw, PhD, 9th Floor McDonnell Science Building, 362-2703.
Molecular genetics of sleep and circadian rhythms.

Lawrence H. Snyder, MD, PhD, 3rd Floor East McDonnell, 747-3530.
Computational and cognitive issues in cortical control of eye and arm movement: electrophysiology and imaging.

Paul H. Taghert, PhD, 9th Floor McDonnell Science Building, 362-

3641. (i) Neurobiology of circadian rhythms. (ii) Neurobiology of peptidergic neurotransmission.

David C. Van Essen, PhD, 2nd Floor East McDonnell, 362-7043.

Organization, function, and development of primate cerebral cortex, especially in humans; generation and utilization of neuroinformatics tools for data mining.

Faculty — Anatomy and Neurobiology: See Appendix

Department of Anesthesiology

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

1. assessment of, consultation for and preparation of patients for anesthesia and surgery;
2. provision of insensibility to pain during surgical, obstetric, therapeutic and diagnostic procedures;
3. monitoring and restoration of physiologic homeostasis during the perioperative period, as well as homeostasis in the critically ill or seriously injured patient;
4. diagnosis and treatment of painful syndromes; and
5. clinical management and teaching of cardiopulmonary

resuscitation (CPR).

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

The **Department of Anesthesiology** presents the student with the opportunity to:

1. acquire and apply pharmacologic knowledge related to anesthetic, narcotic, paralytic and sedative drugs and to drugs affecting the autonomic nervous system;
2. understand and apply the basic principles of airway management and mechanical ventilation;
3. understand and apply the principles of cardiopulmonary resuscitation;
4. understand and apply the technical skills and anatomic and pharmacologic knowledge used in performing regional nerve blocks;
5. learn and apply the fundamental principles of acute and chronic pain management; and
6. learn and apply the basic principles of critical care medicine.

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

This clerkship introduces all of the basic aspects of anesthetic practice, including preoperative assessment, intraoperative anesthetic administration, placement and interpretation of invasive

and noninvasive physiologic monitoring, airway management and regional anesthetic administration. Students taking this clerkship work one-on-one with attending anesthesiologists and are an integral part of the anesthetic care team. By the end of the clerkship, the student should be able to provide (under supervision) anesthesia for an uncomplicated surgical procedure. This rotation offers a unique opportunity for the student to work directly with attending physicians and to acquire fundamental skills (airway management, invasive monitoring, regional anesthesia) applicable to all aspects of acute medicine.

Students who have taken the anesthesia clerkship in the third year may elect to repeat this rotation in the fourth year. These students will be exposed to more complicated cases and techniques, and will be given increased responsibility for perioperative patient management. Students who have taken the clerkship in the third year also may elect to take an elective in the subspecialty areas of Cardiothoracic Anesthesiology, Pediatric Anesthesiology, Obstetric Anesthesiology or Anesthesia for Neurosurgery. Visit [Department of Anesthesiology Courses](#) for more information. Students taking these electives will be exposed to surgical cases of increased complexity requiring specialized invasive monitoring and anesthetic techniques.

Four-week electives are also offered in surgical critical care and cardiothoracic critical care. In these electives, the student is an integral part of the intensive care team. Students learn techniques of mechanical ventilation, hemodynamic monitoring, resuscitation and vasoactive drug treatment while managing all aspects of patients assigned to their care.

The clerkship in pain management offers the student the opportunity to participate in comprehensive, multidisciplinary management of acute, chronic and cancer pain problems. Students will be expected to assist in the care of both inpatients and outpatients. Students will learn fundamental aspects of pain management, which should provide the knowledge with which to manage routine acute and cancer pain in their subsequent practice.

Special electives in basic science research as it applies to anesthesiology can be arranged with the principal investigators in the [Department of Anesthesiology](#), in the Anesthesiology Research Unit and the Washington University Pain Center under the direction of Rob Gereau, PhD or the Division of Clinical and Translational Research under the direction of Evan Kharasch, MD, PhD.

These laboratories focus on various aspects of molecular neurobiology, including ion channel structure and function; G-protein molecular biology; molecular mechanisms of volatile anesthetic action; genetics of anesthetic responsiveness; and the molecular, cellular and genetic basis of acute and chronic pain. Arrangements for these special electives are made through the specific investigators: Walter A. Boyle III, MD; Zhou-Feng Chen, PhD; Alex S. Evers, MD; Narasimhan Gautam, PhD; Richard S. Hotchkiss, MD; Christopher J. Lingle, PhD; Joseph H. Steinbach, PhD; Michael Bruchas, PhD; Yu-Qing Cao, PhD; or Robert W. Gereau, PhD. In addition, opportunities exist for clinical research in the Clinical Research Division, under the direction of Evan Kharasch, MD, PhD.

For more information

Please visit the [Department of Anesthesiology website](#) for more information.

MD Courses - Anesthesiology

Fourth year

Electives

M10 805 ANESTHESIOLOGY

Instructor(s): T.J. Lockhart, MD, 314-454-5286

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This clinical elective is designed to familiarize the student with basic aspects of anesthesiology practice. The primary teaching method is patient care in a clinical setting (one-on-one). The student will learn the basics of preoperative evaluation of surgical patients, the use of intraoperative monitoring in patient management and postoperative care. During the 4 week rotation, the student will learn airway management skills, practical perioperative fluid and electrolyte therapy, along with general and regional anesthetic techniques. As an integral part of the anesthesia care team, the student will participate actively in the anesthetic management of surgical patients. The student's specific requests to be assigned to certain types of cases will be honored as time and availability dictate. The rotation will include 3 clinical simulator sessions using a simulator mannequin for practical management of airway problems, resuscitation and trauma emergencies. By the end of the rotation, the student should be able to independently (under supervision) provide anesthesia for uncomplicated surgical procedures. NOTE: Presence and participation in the three Friday Simulator Sessions and the Presentation on the last day of the rotation are required to receive a grade. If there is a conflict with scheduled interviews, prior arrangements can be made to accommodate the student.

Student time distribution: Inpatient 85%, Conferences/Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Single attending and/or Senior Resident

Patients seen/weekly: 15

On call/weekend responsibility: Medical students are not required to take call during their rotation, but they may volunteer to work in the main operating rooms or in the obstetrical suite any evening or weekend.

Location: Barnes-Jewish Hospital, South Campus; Department of

Anesthesiology, Third Floor

Elective Contact: Maurice Rackley, 362-2446

Other Information: Please contact the department student secretary, Maurice Rackley, 362-2446 prior to the elective for specific instructions. Students should meet in the Clinical Simulation Center, 3rd floor Barnes-Jewish Hospital Service Building, 8:30 a.m. first day of elective.

M10 811 CARDIOTHORACIC ANESTHESIOLOGY

Instructor(s): Rocco Huneke, MD, 362-1196.

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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

Student time distribution: Inpatient 100%; Subspecialty Care 100%

Major teaching responsibility: Rocco Huneke, MD

Patients seen/weekly: 15

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Lydia Swink, 362-1196

Other Information: Students should meet at the offices of the Division of Cardiothoracic Anesthesia, 3rd Floor Barnes-Jewish Service Building, 8:30 a.m. first day of elective.

M10 812 PEDIATRIC ANESTHESIA

Instructor(s): Kelly Chilson, MD; Gary Hirshberg, MD; Tessa King, MD; and David Murray, MD, 454-6215

Enrollment limit per period: 3

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This clinical elective is designed to teach the theory and practice of pediatric anesthesiology and pain management. It features individualized instruction with faculty who specialize in the perioperative care of pediatric patients. The elective consists of four weeks of active participation with pediatric anesthesiologists at St. Louis Children's Hospital and St. Louis Shriners Hospital learning preanesthetic assessment, the performance of routine anesthetics (which includes instruction and practice in pediatric airway skills), learning other technical skills such as intravenous line placement and the management of post-anesthesia care and pain therapies. The final week may be tailored to meet the student's individual interests, needs and career goals. Possibilities include exposure to sedation and anesthesia for procedures outside of the operating rooms, and to subspecialties including cardiovascular anesthesia, neurosurgical anesthesia, and acute and chronic pediatric pain management. Students also will have an opportunity to learn the management of some common medical emergencies in the Clinical Simulation Center.

Student time distribution: Inpatient Surgery 5%, Outpatient Surgery 80%, Conferences/ Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Attending, fellows and senior

anesthesiology residents; students will generally spend most of each day with a single attending or senior anesthesiology trainee (fellow or resident).

Patients seen/weekly: 25

On call/weekend responsibility: None

Location: 5th Floor, St. Louis Children's Hospital

Elective Contact: Kelly Chilson, MD, 454-6215

Other Information: Students should contact Samantha Gurney, 454-4572, one week prior to the start of the elective.

M10 819 CARDIOTHORACIC CRITICAL CARE

Instructor(s): Charl de Wet, MD; Course Master; Heidi Atwell, DO; Michael Avidan, MD; Daniel Emmert, MD; TJ Graetz, MD; Isaac Lynch, MD; and Adnan Sadiq, MD

Enrollment limit per period: 3

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This clinical elective offers practical experience in the postoperative management of cardiothoracic patients. The student will be fully integrated into the intensive care team and have the opportunity to contribute to the management of critically ill patients. Students will be afforded the opportunity to follow specific patients over the course of their stay on the ICU, during which time they will gain insight into holistic management of patients with multi-organ dysfunction. The CTICU environment is both challenging and exciting. Cardiorespiratory physiology and pharmacology will be demonstrated at the patients' bedside, an invaluable and unforgettable learning experience. Students will have numerous opportunities to assist with and learn procedures, such as central lines, chest tubes, bronchoscopy and pulmonary artery catheter insertion. Principles of management and resuscitation of hemodynamically unstable patients following surgery will be emphasized. Students will also see and help manage patients on ventricular assist devices, ECMO and following heart and lung transplantation. At the conclusion of the rotation, the student will have a better understanding of shock, sepsis, multi-organ failure,

organ system support and compassionate withdrawal of life support. In addition to bedside teaching, there will be informal teaching sessions on a wide variety of topics as well as teaching on interpreting cardiac echo exams. Students will be encouraged to present on their patient at morning ward rounds, during which constructive feedback and interactive teaching will occur. Students will present on a topic related to one of their patients at the end of the block.

Student time distribution: Inpatient 100%; Subspecialty Care 100%

Major teaching responsibility: CTICU attendings

Patients seen/weekly: 21

On call/weekend responsibility: During the 4-week rotation, you are asked to take a weekday call (day of your choice). You will come in at 4:00 p.m. and leave the next morning after you have presented your patients on morning rounds. In addition during the 4-weeks rotation, you are asked to take a weekend call (again your choice) Saturday or Sunday shift 6:00 a.m. to 7:00 p.m.

Location: Barnes-Jewish Hospital, Southwest Tower

Elective Contact: Maureen Arends, 747-4155

Other Information: Students should meet in the Cardiothoracic Intensive Care Unit, 5600 ICU, 5th Floor Southwest Tower Physician Workroom, 6:30 a.m. first day of elective.

M10 820 CRITICAL CARE

Instructor(s): Heidi Atwell, D.O., 314-362-1196, Course Master; Watler Boyle, MD; Grant Bochicchio, MD; Stephanie Bonne, MD; Anne Drewry, MD; Stephen Eaton, MD; Daniel Emmert, MD; Alex Evers, MD; Brian Fuller, MD; Thomas J. Graetz, MD; Richard Hotchkiss, MD; Kareem Husain, MD; Jacob Keeperman, MD; Paul Kerby, MD; John Kirby, MD; Isaac Lynch, MD; John Mazuski, MD; Tiffany Osborn, MD; Patricia Penkoske, MD;. Adnan Sadiq, MD; Doug Schuerer, MD; Jessica Smith, MD; Robert Southard, MD; George Tseng, MD; Brian Wessman, MD; and Robert Winfield, MD

Enrollment limit per period: 4

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students on this rotation are integral members of the multidisciplinary intensivist-led critical care team in the Surgical Intensive Care Unit (SICU). Students learn an organ systems-based approach for evaluation and management of critically ill and injured patients, and application of evidence-based principles in delivery of state-of-the-art critical care. Emphasis is placed on critical care knowledge and techniques used at the bedside in the clinical management of serious traumatic and surgical conditions. Students become familiar with resuscitation and cardiopulmonary support, including methods for non-invasive and invasive hemodynamic monitoring, and techniques for airway management and pulmonary support in respiratory failure. Basic knowledge and skills in the management of neurologic injuries, liver and/or renal failure, and life-threatening infections in the surgical patient are also taught, as is the importance of treatments to alleviate anxiety and pain, maintain fluid and electrolyte balance, and provide adequate nutrition. Practical experience is gained in placement of vascular access devices, interpretation of laboratory data, and use of guidelines, protocols and quality assurance tools in the management of critically ill patients.

Student time distribution: Inpatient 80%, Conferences/Lectures 20%;
Subspecialty Care 100%

Major teaching responsibility: ICU Attendings

Patients seen/weekly: 50

On call/weekend responsibility: Variable

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Barbara McKinney, 747-3581

Other Information: Students should meet in the 4400 Surgical Intensive Care Unit, 4th Floor of Barnes-Jewish Hospital, @, 7:30 a.m. on the first day of the elective.

M10 821 PAIN MANAGEMENT

Instructor(s): Robert A. Swarm, MD, 747-0202

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Acute pain is the most common symptom of medical illness and is ubiquitous after major surgery. Chronic pain is the leading cause of worker disability. Severe pain afflicts most people with advanced cancer. Learning the fundamentals of pharmacologic, interventional, and multidisciplinary pain management is important for all areas of clinical medicine. Rotation is based at Barnes-Jewish Hospital with focus adjusted to meet student's interest and career plans.

Student time distribution: Inpatient 30%, Outpatient 60%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 70

On call/weekend responsibility: One weekend per rotation

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Robert A. Swarm, MD, 747-0202

Other Information: Students should report to 14th Floor CAM Building, 8:00 a.m. first day of elective.

M10 822 ANESTHESIA FOR NEUROSURGERY

Instructor(s): René Tempelhoff, MD, 362-2330

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Challenging neurosurgical procedures. Student will become familiar with complex procedures for brain monitoring, cardiovascular support and airway management and will be exposed to all kinds of neurosurgical ailments. Student must be prepared to participate in the complex anesthetic management of patients undergoing surgery in our novel intraoperative MRI rooms.

Student time distribution: Inpatient 80%, Conferences/Lectures 20%;
Subspecialty Care 100%

Major teaching responsibility: Attending, fellow, and senior resident

Patients seen/weekly: 8

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: René Tempelhoff, MD, 362-2330

Other Information: Students should meet on 3rd Floor Barnes-Jewish

Hospital, South Campus, Department of Anesthesiology, 7:00 a.m.
first day of elective.

M10 823 OBSTETRICAL ANESTHESIA

Instructor(s): Swarup Varaday, MD, 362-6252

Enrollment limit per period: 1

Valid start weeks for 2 or 4-week blocks are: Weeks 1, 3, 5, 7, 9, 11,13,
15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

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

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;

Subspecialty Care 100%

Major teaching responsibility: Attending, Senior Resident

Patients seen/weekly: 20

On call/weekend responsibility: None (optional)

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Swarup Varaday, 362-6252 or 362-4449

Other Information: Students should report to 5400 Labor and Delivery, 7:00 a.m. first day of elective.

Faculty — Anesthesiology: See Appendix

Department of Biochemistry and Molecular Biophysics

The faculty of the Department of Biochemistry and Molecular Biophysics perform research in a broad spectrum of biomedically relevant areas, including DNA and RNA structure and enzymology; protein folding, misfolding and aggregation; cellular mechanics, membrane receptor-mediated signaling, and hemostasis, thrombosis and vascular biology. The Department offers training opportunities at the crossroads of biochemistry, biophysics, systems biology, computational science and pharmacological sciences.

The Department's approaches to research often focus on understanding the energetics, structure and mechanisms of biological processes. Investigators employ a variety of experimental methods such as X-ray crystallography, NMR, optical spectroscopy, thermodynamics and rapid kinetics, in combination with computational approaches, to unravel the molecular underpinnings of processes of relevance to health and disease. Novel single-molecule methods are providing new insight into the molecular details of enzyme mechanisms and macromolecule dynamics. High-throughput screening of chemical libraries and synthetic medicinal chemistry to develop small molecule probes of biological systems provide new avenues for translational research and the development of experimental therapeutics.

The faculty in the Department organize and teach basic science courses in the medical school curriculum, including The Molecular Foundations of Medicine and Principles of Pharmacology. In the graduate school curriculum, the faculty teach courses in Molecular Medicine (Bio 5326), Nucleic Acids and Protein Synthesis (Bio 548), Chemistry and Physics of Biological Molecules (Bio 5357), and Macromolecular Interactions (Bio 5312). The overarching theme of these courses is to understand the principles of the molecular interactions that underlie the biological process of health and

disease. Students in the School of Medicine and the Graduate School of Arts & Sciences are eligible for these courses and may elect to pursue biomedical research under the direction of our faculty. A full listing of advanced courses topics can be found at biochem.wustl.edu/studentinfo/courses.

For more information

Please visit the [Department of Biochemistry and Molecular Biophysics website](#) for more information.

MD Courses — Biochemistry and Molecular Biophysics

First year

M15 502 MOLECULAR FOUNDATIONS OF MEDICINE

Instructor: Linda J. Pike, PhD, 362-9502

This course is designed primarily for medical students and will cover fundamental aspects of biochemistry and cell biology. The course begins with a treatment of protein structure and the principles of enzyme kinetics. This leads to a description of the basic pathways for the synthesis and metabolism of carbohydrates and lipids, with a focus on how the body maintains glucose homeostasis and provides energy under various metabolic stresses. This leads into a discussion of membrane structure and the function of cellular organelles in biological processes, culminating in the replication of DNA and the control of cell proliferation. Non-medical students should register under L41 (Bio) 5319. Please note that Molecular Foundations of Medicine runs on the medical school calendar and thus starts on August 19.

Second year

M70 670A PRINCIPLES OF PHARMACOLOGY

Instructor: Tom Ellenberger, DVM, PhD, 362-0261

This introductory course focuses on mechanisms of drug action (pharmacodynamics), drug distribution and metabolism (pharmacokinetics), autonomic nervous system pharmacology, analgesics and anesthetics, anti-inflammatory therapies, toxicology, and clinical trials of drugs. Our emphasis on basic principles of pharmacology creates a foundation for understanding the rational treatment of diseases covered in other courses during the second year of the medical curriculum. Students who have not completed the first year of the medical school curriculum must have permission from the coursemaster to enroll.

Fourth year

Electives

Descriptions of the elective courses are listed under the Division of Biology and Biomedical Sciences. In some instances, these courses are offered in alternate years. The faculty member in charge of the course should be contacted for specific times.

L41 (Bio) 5312 MACROMOLECULAR INTERACTIONS

L41 (Bio) 5318 DNA REPAIR

L41 (Bio) 5357 CHEMISTRY AND PHYSICS OF BIOMOLECULES

L41 (Bio) 548 NUCLEIC ACID AND PROTEIN BIOSYNTHESIS

Note — The number preceding the course title indicates that the course carries credit in the Graduate School of Arts & Sciences.

Research — Biochemistry and

Molecular Biophysics

(M15 900)

Cross-listed with L41 (Bio) 590

Wayne M. Barnes, PhD, 2nd Floor McDonnell Science Building, 362-3351. We are developing a new way to sequence DNA, under the "\$1000 Genome Project". This project involves the addition of experimental fluorescent probes to DNA polymerase, with the goal of watching a single molecule flicker as it copies DNA. Student involvement may be at the level of making mutations and purifying mutant enzymes, testing ways to prepare the templates, or testing observations of working molecules.

T7 RNA polymerase is used to express our proteins, and we have double and triple mutants of it that improve expression of problematic proteins, but we only have theory as to how they work better: we think they are slower, and that slower is better. Student involvement may be in constructing comparative strains that use the enzyme, and measuring the speed somehow, in vivo and in vitro.

Peter M. J. Burgers, PhD, 1st Floor South Building, 362-3872.

Molecular biology of yeast chromosomal DNA replication and DNA repair.

Elliot L. Elson, PhD, 2nd Floor McDonnell Science Building, 362-

3346. Cellular mechanics and cytoskeletal structure and function.

Fluctuation spectroscopy.

Carl Frieden, PhD, 2nd Floor McDonnell Science Building, 362-3344.

Investigation of apolipoproteins E as they relate to Alzheimer's Disease. Mechanisms of protein aggregation. Fibril formation and bacterial infections.

Eric A. Galburt, PhD, 2nd Floor McDonnell Science Building, 362-

5201. Use of single-molecule biophysical techniques such as magnetic and optical trapping to study DNA transcription.

Roberto Galletto, PhD, 2nd Floor McDonnell Science Building, 362-4368. Mechanistic studies of DNA motor proteins and telomere binding proteins; single-molecule approaches.

Kathleen Hall, PhD, 2nd Floor North Building, 362-4196. RNA structure/function. RNA protein interactions. NMR spectroscopy.

Katherine A. Henzler-Widman, PhD, 2nd Floor North Building, 362-1674. Functional dynamics of integral membrane proteins using NMR spectroscopy structure and dynamics of small multidrug resistance transporter proteins.

Timothy M. Lohman, PhD, 2nd Floor North Building, 362-4393. Biophysical chemistry of proteins, nucleic acids and their mechanism of interaction. Mechanisms of DNA unwinding and translocation by helicases and SSB proteins.

Garland R. Marshall, PhD, 2nd Floor Cancer Research Building, Center for Chemical Genomics. 935-7911. Targeting Epigenetic Control in Pathology. A major concern regarding the use of therapeutics targeting the epigenetic control of gene expression is undesirable side effects, particularly those associated with fetal development. Despite the intense interest in targeting histone deacetylases (HDACs, eleven zinc-based enzymes expressed in humans) for multiple therapeutic applications and the fact that two non-specific HDACIs are already FDA-approved in oncology, isoform-specific HDACIs are not available. Professor Marshall and his collaborators in Rome have a comprehensive program to develop isoform-specific inhibitors for applications for reversing HIV latency with Professor Lee Ratner for treatment of HIV, with Dr. Michael D. Onkin for treatment of uveal melanoma, and for potential antiparasitics with Professors Dan Goldberg, Eva Istvan, Makedonka Mitreva and Audrey Odom. Two uniquely specific inhibitors of HDAC6 have already been discovered in the Marshall lab in the past month. The research involves bioinformatics to identify homologs of HDACs in parasites, molecular modeling to generate homology models of target proteins, virtual screening to identify potential inhibitors and

bioassays to quantitate efficacy. Projects can be customized to fit individual preferences.

Linda Pike, PhD, 1st Floor South Building, 362-9502. Mechanism of EGF and ErbB receptor function. We use a combination of radioligand binding and molecular imaging via luciferase fragment complementation to study the interactions of ErbB family receptors. The goal is to gain insight into structure/function relationships within these receptors to better understand how to target them therapeutically.

Faculty — Biochemistry and Molecular Biophysics: See Appendix

Department of Cell Biology and Physiology

Cell biology is one of the primary disciplines in medical research, influencing all areas of basic and clinical investigation. The future holds great opportunities in cell biology research due to inventories of the genes and proteins from which cells are built, new experimental techniques and various model organisms. Further discoveries about the cell biology of human genes will continue to translate into therapeutics. Also on the horizon is a better understanding of how proteins and sets of proteins (e.g.,

macromolecular complexes) are assembled and integrated to produce function.

The [Department of Cell Biology and Physiology](#) is ranked among the top 10 cell biology departments in the country, and the research carried out by its faculty covers a broad range of fields within cellular physiology and molecular cell biology. A unifying theme is the study of fundamental processes and their regulation. These cellular processes include genome maintenance, apoptosis, cell cycle control, dynamic cell motility, angiogenesis, signal transduction and membrane trafficking, presynaptic processes, prion protein misfolding, RNA metabolism, and the structure and function of ion channels. The department's research activities provide a foundation for studies in cancer biology, immunobiology, developmental biology, neurobiology and vascular biology. Its faculty use model organisms as well as human stem cells and a variety of techniques such as deep-etch electron and confocal microscopy to carry out their research. Cellular imaging is a particular strength of the department.

The [Department of Cell Biology and Physiology](#) oversees the [Cell and Organ Systems](#) course, which is designed to provide first-year medical students with a foundation for their further study of clinical and applied physiology. The Molecular Cell Biology course for first-year graduate students conveys an understanding of fundamental cell biology research strategies and principles. In addition, advanced courses open to medical and graduate students provide for more detailed study of specific areas of cell biology, physiology and cellular biophysics.

For more information

Please visit the [Department of Cell Biology and Physiology website](#) for more information.

MD Courses — Cell Biology and Physiology

First year

M75 503 CELL AND ORGAN SYSTEMS BIOLOGY

Instructor: Robert S. Wilkinson, PhD, 362-2300

This course integrates and extends the basic principles of cell biology and physiology to the functions of the major organ systems of the body: muscle, cardiovascular, renal, respiratory, gastrointestinal and endocrine. Limited space is available for nonmedical students with instructor's permission. This course is cross-listed in the Department of Anatomy and Neurobiology.

Selectives

M04 537 CARDIOVASCULAR CONTROL MECHANISMS

Instructors: David Murray, MD, 747-2136; Robert Moore, MD, 747-2136

The purpose of this selective is to demonstrate cardiovascular physiologic principles and control mechanisms using interactive patient simulators (computerized mannequins) to replicate common cardiovascular disease conditions and potential treatment modalities. The course includes four interactive simulation laboratory sessions. During these four laboratory sessions, simulations of clinical scenarios with case histories will be presented using the full-size electromechanical mannequins at the Howard and Joyce Wood Simulation Center. The mannequins are able to be used to demonstrate and manipulate hemodynamic information used in clinical practice including ECG, arterial, venous, ventricular and pulmonary capillary wedge pressures, cardiac output, stroke volume, heart rate, systemic and pulmonary vascular resistance. In small group sessions, students will explore simulated clinical conditions that demonstrate perturbations in chronotropism, preload,

inotropism and afterload. The sessions will be used to provide clinical implications of various reflex responses such as the Frank-Starling and baroreceptor-mediated reflex responses. Scenarios will include hypovolemic shock, congestive heart failure, myocardial infarction and various arrhythmias.

M04 596 ION CHANNELS AND DISEASE

Instructor: Colin G. Nichols, PhD, 362-6630

Ion channels are present in all cells and direct intracellular events by controlling the membrane electrical activity. Many widely used clinical drugs act by altering the behavior of ion channels, including epilepsy, diabetes, cardiac arrhythmias and cystic fibrosis. We will consider the basis of ion channel diseases and ion channel modulation therapies. Students will research a topic of choice in the library over two to three weeks and then present their findings to the whole class. After the initial course meeting, we will not meet formally for three weeks, and will then meet once per week for presentations.

Fourth year

Electives

Descriptions of the following courses may be found under Division of Biology and Biomedical Sciences.

L41 (Bio) 5062 CENTRAL QUESTIONS IN CELL BIOLOGY

L41 (Bio) 5068 FUNDAMENTALS OF MOLECULAR CELL BIOLOGY

L41 (Bio) 5122 CELL-MATRIX INTERACTIONS

L41 (Bio) 5132 CELL MOTILITY AND CYTOSKELETON JOURNAL CLUB

Note — The number preceding the course title indicates that the course carries credit in the Graduate School of Arts & Sciences. See course descriptions in the Graduate Programs section of this catalog.

Research — Cell Biology and Physiology

(M75 900)

Cross-listed with L41 (Bio) 590

Kendall Blumer, PhD, 506 McDonnell Science Building, 362-1668.
Signaling mechanisms in cardiovascular and neurological disorders.

John Cooper, MD, PhD, 416 McDonnell Science Building, 362-3964.
The roles of actin and microtubules in cell motility and the cell cycle.

Phyllis I. Hanson, MD, PhD, 4625 Cancer Research Building, 747-4233. Study of protein-protein and protein-membrane interactions involved in neuronal and synaptic membrane trafficking using biochemical, biophysical, and cell biological techniques.

James Huettner, PhD, 6600 Cancer Research Building, 362-6628.
Excitatory amino acid receptors and synaptic transmission in the central nervous system; neural differentiation of embryonic stem cells.

Vitaly Klyachko, PhD, 9405 BJC Institute of Health, 362-5517. The mechanisms and regulation of neurotransmitter release at individual synapses; the functional roles of presynaptic processes in synaptic plasticity and information processing.

Robert Mecham, PhD, 4606 Cancer Research Building, 362-2254.
Understanding the complex process of extracellular matrix assembly and organization, including studying the intracellular pathways used to transport matrix components to the cell surface and identifying helper or accessory proteins that facilitate trafficking and matrix assembly. Cell-matrix interactions in development and cellular mechanisms associated with connective tissue remodeling in

vascular disease and heritable diseases of connective tissues.

Robert Mercer, PhD, 5518 Cancer Research Building, 362-6924.

Structure and function of cation transport proteins. Molecular biology of the Na, K-ATPase. Polarized sorting of membrane proteins in cultured epithelial cells.

Mike Mueckler, PhD, 6606 Cancer Research Building, 362-4160.

Molecular biology of mammalian glucose transporters. Regulation of glucose transport by insulin and the mechanism of insulin signaling. Subcellular trafficking of the insulin-regulated glucose transporter. Structure and function relationships of glucose transporters. Mechanism of insertion of complex polytopic proteins into the rough endoplasmic reticulum membrane.

Colin Nichols, PhD, 9405 BJC Institute of Health, 362-6630. Ion channel biology. Multiple levels of analysis from the molecular basis of channel function to in vivo physiology and disease.

Paul Schlesinger, MD, PhD, 401 McDonnell Science Building, 362-2223. Molecular mechanism of BCL-2 family protein function, intracellular channels, biophysics of lipids, proteins and their interaction in cells and nanotechnology.

Philip Stahl, PhD, 4929 South Building, 362-6950. The discovery and function of human-specific genes that play a role in cell signaling and transport. Current focus is on TBC1D3, a multi-copied gene in humans that regulates signaling by growth factor receptors such as insulin and epidermal growth factor (EGF). Human-specific genes represent a new frontier in understanding human physiology and pathophysiology—i.e., why humans are human.

Sheila A. Stewart, PhD, 7610 BJC Institute of Health, 362-7437.

Delineation of the molecular mechanisms by which aged stromal cells contribute to tumorigenesis and the molecular mechanisms that ensure high fidelity telomere replication and genomic stability.

Heather L. True-Krob, PhD, 413 McDonnell Science Building, 362-

3934. Biological consequences of yeast prions—in both their capacity to function as a novel epigenetic elements, and in their utility to serve as a tractable model for the analysis of protein misfolding and aggregation that occurs in several neurodegenerative disorders.

Robert S. Wilkinson, PhD, 6615 Cancer Research Building, 362-2300. Cellular physiology of nerve-muscle synapses, especially the regulation of synaptic strength and the role of vesicle processing in determining synaptic properties.

Zhongsheng You, PhD, 514 McDonnell Science Building, 362-9893. Studies of the cellular responses to DNA damage and their cancer relevance, focusing on the functional interplays between the DNA damage checkpoint, DNA repair and chromatin structure.

Peng Yuan, PhD, 9608 BJC Institute of Health, 747-3793. Structure and function of ion channels and transporters. Ion channels and transporters play essential roles in human physiology and disease. How do channels and transporters recognize their specific substrate ions? How do they respond to various stimuli including chemical ligand, temperature, membrane voltage, and mechanical force? How do they interact with the lipid membrane where they reside? To answer these fundamental questions, we use multidisciplinary approaches including X-ray crystallography, biochemistry, biophysics, and electrophysiology. Dysfunction of these membrane proteins could lead to a variety of diseases such as asthma, hypertension, cancer, heart failure, diabetes, chronic pain, and many more. The long-term goal is to provide detailed mechanistic understanding of ion channels and transporters, which will offer novel strategies for drug development and better treatment of diseases.

Faculty — Cell Biology and

Physiology: See Appendix

Department of Developmental Biology

The principal research activities of the Department of Developmental Biology are focused on attaining a mechanistic understanding of animal development, encompassing the earliest cell fate specification and movement processes that shape the early embryo, organogenesis, stem cell biology, tissue homeostasis and repair, and aging. Students and postdoctoral fellows work closely with faculty and staff on research projects and participate in weekly journal clubs and seminars at which recent literature and ongoing research are discussed.

Please visit the [Department of Developmental Biology website](#) for more information.

MD Courses — Developmental Biology

First year

Selective

M04 500C DEVELOPMENTAL BIOLOGY AND DISEASE

Instructor: Kerry Kornfeld, MD, PhD, 747-1480

This course presents discoveries arising from research in the broad field of developmental biology and focuses on how these discoveries are contributing to understanding, diagnosis and the treatment of human disease.

Research — Developmental Biology

Fourth year

(M70 900)

Cross-listed with L41 (Bio) 590

Irving Boime, PhD, 3rd Floor McDonnell Science Building, 362-2556.

Secretion, targeting and structure-function of the human placental and pituitary glycoprotein hormones.

Douglas F. Covey, PhD, 3rd Floor McDonnell Science Building, 362-1726. Medicinal chemistry of steroids.

Aaron DiAntonio, MD, PhD, 333 McDonnell Medical Sciences Building, 362-9925. Neurodevelopment, neurodegeneration, and axon regeneration in *Drosophila* and mouse.

Gregory A. Grant, PhD, 3rd Floor North Building, 362-3367. Mechanism of allosteric regulation in enzymes.

Shin-Ichiro Imai, MD, PhD, Room 362A McDonnell Medical Sciences Building, 362-7228. Molecular mechanisms of aging and longevity in mammals, particularly focusing on the tissue-specific functions of

the mammalian NAD-dependent deacetylase Sirt1 and the physiological significance of systemic NAD biosynthesis mediated by Nampt (nicotinamide phosphoribosyltransferase) in an intimate connection between metabolism and aging.

Kerry Kornfeld, MD, PhD, 3rd Floor Cancer Research Building, 747-1480. Signal transduction during development. Zinc metabolism. Aging.

Kristen Kroll, PhD, Room 320 McDonnell Sciences Building, 362-7045. Transcriptional networks that regulate the formation of neurons in early embryos and embryonic stem cells. Role of chromatin regulatory complexes in controlling pluripotency and differentiation.

Craig Micchelli, PhD, Room 328 McDonnell Sciences Building, 362-7036. Our lab studies the regulation of stem cell biology in development, homeostasis, and disease.

Kelly Monk, PhD, 360 McDonnell Sciences Building, 362-3825. Mechanisms of myelin formation, demyelination, and remyelination in zebrafish and mouse.

Jeanne M. Nerbonne, PhD, 3rd Floor McDonnell Science Building, 362-2564. Structure, function and regulation of voltage-dependent ion channels in the cardiovascular and nervous systems. Regulation of membrane excitability in health and disease.

David M. Ornitz, MD, PhD, 3rd Floor South Building, 362-3908. Fibroblast Growth Factor signaling pathway regulation of development and regeneration. Intracellular FGF regulation of neuronal excitability.

John H. Russell, PhD, 3rd Floor McDonnell Science Building, 362-2558. Mechanisms of lymphocyte-mediated inflammation and pathogenesis in the central nervous system.

Lila Solnica-Krezel, PhD, 3911A South Building, 362-8768. Genetic

Regulation of Vertebrate Embryogenesis. Genetic mechanisms that regulate cell fates and movements during early vertebrate development using forward and reverse genetics in the zebrafish model and human embryonic stem cells.

Andrew Yoo, PhD, Room 3603, Cancer Research Building, 362-1811.

Direct Cell Fate Reprogramming of Human Fibroblasts to Neurons. Our lab studies neurogenic activities of microRNAs, and develop strategies to convert human dermal fibroblasts into specific subtypes of neurons and tissue culture models of neurological diseases.

Zachary Pincus, PhD, 361 McDonnell Science Building, 747-5520.

The lab's fundamental goal is to understand variability in living systems; what are the origins of biological individuality? How are individual differences determined, limited, and exploited by a species? In particular, we examine differences in lifespan and the rate of aging in the nematode *C. elegans* as a case study for these broader questions. Aging is of direct relevance, is intimately related to the maintenance (and loss) of robustness, and is a trait in which there is a large amount of individual differences, making it an excellent study system for understanding metazoan individuality.

Faculty — Developmental Biology: See Appendix

James S. McDonnell Department of Genetics

The **Department of Genetics** is at the forefront of the rapidly developing field known as genomic (or personalized) medicine, in which genetic and epigenetic analysis coupled with clinical information enables treatments to be tailored specifically to the individual patient. The rapid evolution of sequencing technologies, genome engineering, automated cellular imaging and mass spectrometry methods to rapidly perform proteomic and metabolomics studies, coupled with powerful computational tools, is revolutionizing the biological sciences. Investigators in the department are developing new methods of genomic analysis including technology and software, epigenomics and copy number variation as well as studies of disease pathways using model organisms, to identify and study genes responsible for human disease and treatment responses. The department supports a broad program of preclinical and graduate instruction in genetics, with research opportunities ranging from studies of transcriptional networks, population genetics, protein evolution, neurological disorders, developmental genetics, models of human disease, genome architecture, statistical genetics and computational biology, genome technologies, and infertility.

A significant portion of the first-year course in basic medical sciences is devoted to human and clinical genetics, with emphasis on how genomic information will transform the practice of medicine. This includes specialized selective courses in addition to the core genetic curriculum. Advanced training in clinical genetics and in genetic research is available from the faculty in the **Department of Genetics** and from geneticists with principal appointments in many other departments within the **School of Medicine**.

Advanced courses and seminars are offered that focus on the genetics of complex disease, gene expression, genetic mapping, molecular genetics, genetic epidemiology, biostatistics, computational biology, developmental genetics, microbial genetics, immunogenetics, cancer genetics and population and evolutionary genetics. Extraordinary opportunities for research training and experience are available in all of these areas and at all levels. The

programs are tailored to meet the needs of medical students, graduate students and both MD and PhD postdoctoral fellows pursuing advanced training in biomedical research.

For more information

Please visit the [Department of Genetics website](#) for more information.

MD Courses — Genetics

First year

M30 511 MEDICAL GENETICS

Instructor: Sabrina Nunez, PhD, snunez@dom.wustl.edu, 747-0835

The course is divided into halves. The first half focuses on the mechanisms of regulation of gene expression in eukaryotes. This includes discussions of the structure of DNA and its means of replication, the organization and packaging of eukaryotic genomes, chromatin structure and the nucleosome, the organization of polymerase II class genes, the processing of their primary transcripts, and the molecular basis for transcriptional and translational regulation including the use of transgenic mice to study cell-specific gene regulation. The second half focuses on how these concepts can be applied to an understanding of medical genetics. Topics covered include principles of Mendelian genetics, the molecular basis for various inborn errors of metabolism-their diagnosis and prenatal screening, the genetics of cancer, and finally, current strategies for mapping and characterizing the human genome. This course is cross listed with L41 (Bio 550).

Electives

L41 (Bio) 5285 FUNDAMENTALS OF MAMMALIAN GENETICS

L41 (Bio) 5488 GENOMICS

L41 (Bio) 5491 ADVANCED GENETICS

L41 (Bio) 5495 COMPUTATIONAL MOLECULAR BIOLOGY

L41 (Bio) 4342 RESEARCH EXPLORATION IN GENOMICS

L41 (Bio) 5483 HUMAN LINKAGE AND ASSOCIATION ANALYSIS

Special topics courses/journal clubs

For complete descriptions, see Division of Biology and Biomedical Sciences.

L41 (Bio) 5235 GENETICS JOURNAL CLUB

L41 (Bio) 5484 GENOMICS AND DEVELOPMENT OF *C. ELEGANS*
JOURNAL CLUB

L41 (Bio) 5489 HUMAN GENETICS JOURNAL CLUB

L41 (Bio) 5496 SEMINAR IN COMPUTATIONAL MOLECULAR BIOLOGY

Note — The number preceding the course title indicates that the course carries credit in the Graduate School of Arts & Sciences.

Research — Genetics

(M20 900)

Cross-listed with L41 (Bio 590)

James Havranek, PhD, 1914 South Building, 362-2535.

Computational and experimental studies of specificity in protein-DNA interactions. We are using computational and experimental approaches to understand the specificity of protein-DNA binding, using the winged helix-turn-helix family of bacterial transcription

factors as a model system. We aim to construct structure-based models of transcription factors that enable both the prediction of binding preferences and the design of mutants with altered specificities.

Stephen L. Johnson, PhD, 711 McDonnell Science Building, 362-0362. Growth control and morphogenesis in vertebrate development. Focus on genes and mechanisms affecting proportionate fin growth, fin regeneration and pigment stripe patterning in zebrafish.

Elaine Mardis, PhD, Room 4122 Forest Park Building, 286-1805. Technology development for second-generation DNA sequencing with an emphasis on methods and applications development. Non-human primate genomics.

Jeffrey Milbrandt, MD, PhD, 130 Biotechnology Center, 362-4651. Studies of metabolic control of glial/axonal interactions necessary for proper nerve function. The use of high throughput genetic and pharmacologic screens using primary neurons and induced pluripotent stem cells to identify molecular mechanisms of axonal degeneration in neuropathy and neurodegenerative disease.

Rob Mitra, PhD, 6201A, 4444 Forest Park Building, 362-2751. Systems Biology and Technology Development. We are developing tools to make quantitative biological measurements and applying these tools to build mathematical models of biological processes.

Gary J. Patti, PhD, 214 Biotechnology Building, 362-8358. Metabolomics. Our laboratory is focused on extending our understanding of comprehensive cellular metabolism and defining its association with physiology. By using state-of-the-art spectrometry, we are interested in globally quantifying metabolite alterations in biological systems under perturbation (e.g., during disease). Our program applies this approach, called metabolomics, to understand mechanisms associated with neuropathic pain and explore novel therapeutics. Additionally, we are applying metabolomics

to study the contribution of skeletal muscle degeneration to whole-organism aging.

Michael A. Province, PhD, Suite 6318, 4444 Forest Park Building, 362-3616. Development and evaluation of novel statistical genetics methodology, especially as applied to genomic identification and validation of variants for human complex quantitative traits, such as heart disease, cancer, pulmonary function, diabetes, and human longevity.

Nancy L. Saccone, PhD, 308 Biotechnology Building, 747-3263. Statistical genetics and psychiatric genetics. Development and application of analysis methods for studying the genetics of human disease and complex traits.

Tim Schedl, PhD, 870 McDonnell Science Building, 362-6162. Germ cell development in the model organism *Caenorhabditis elegans*. The major focuses are: control of the decision to proliferate or enter the meiotic pathway, control and coordination of meiotic prophase progression and gametogenesis, and control of meiotic maturation and ovulation.

James Skeath, PhD, 2903 South Building, 362-0535. Identification of the genes and the elucidation of the molecular mechanisms that regulate the early events of *Drosophila* central neurogenesis; illumination of the mechanisms that form, pattern and specify the individual identities of the progenitor cells of the *Drosophila* embryonic CNS.

Gary D. Stormo, PhD, Room 5524, 4444 Forest Park Building, 747-5534. Computational biology of protein-DNA interactions, RNA folding, gene and promoter finding. Biochemical analysis of DNA-protein interactions and gene regulation.

Ting Wang, PhD, Room 6203, 4444 Forest Park Building, 314-286-0865. We work in the general field of computational genomics and epigenomics. We study the evolution of human regulatory networks,

with a focus on mobile elements (or transposable elements) and their impact on gene regulation, their genetic and epigenetic control, and their roles in human biology and diseases.

George Weinstock, PhD, Room 4121, 4444 Forest Park Building, 286-1879. Genome and metagenome analysis. Genome sequencing of individual genomes and metagenomes of microbial communities using next generation sequencing platforms; bioinformatic and statistical analysis of data.

Richard K. Wilson, PhD, Room 4122, 4444 Forest Park Building, 286-1804. Genome research. Large-scale DNA sequence analysis of genomes and expressed genes (cDNAs) from humans, non-human primates, mammals, invertebrates, plants and various bacterial species. Targeted genomic analysis of genes and regulatory elements in human cancers and other hereditary diseases. Development of novel technology for large-scale DNA sequence analysis and genetic analysis.

Faculty — Genetics: See Appendix

John Milliken Department of Medicine

The Department of Medicine's general medicine teaching services at Barnes-Jewish Hospital and the Veterans Administration Medical

Center (St. Louis) are under the following directors:

Barnes-Jewish Hospital

Victoria J. Fraser, MD, Chairman, Department of Medicine

Veterans Administration Medical Center

Daniel P. Goodenberger, MD, Chief

In addition, for the purposes of clinical care, teaching and research, the Department of Medicine is divided into specialty divisions and sections at Barnes-Jewish Hospital under the following chiefs:

Allergy and Immunology

H. James Wedner, MD, Chief

Bioorganic Chemistry and Molecular Pharmacology

Richard W. Gross, MD, PhD, Chief

Bone and Mineral Diseases

Robert Civitelli, MD, Chief

Cardiology/Cardiovascular Diseases

Douglas L. Mann, MD, Chief

Dermatology

Lynn A. Cornelius, MD, Chief

Endocrinology/Metabolism/Lipid Research

Clay F. Semenkovich, MD, Chief

Gastroenterology

Nicholas O. Davidson, MD, Chief

General Medical Sciences

Bradley A. Evanoff, MD, MPH, Chief

Geriatrics and Nutritional Science

Samuel Klein, MD, Chief

Hematology

J. Evan Sadler, MD, PhD, Chief

Hospital Medicine

Mark S. Thielke, MD, Chief

Infectious Diseases (Clinical)

William G. Powderly, MD, Co-Chief

Infectious Diseases (Basic Science)

Daniel E. Goldberg, MD, PhD, Co-Chief

Medical Education

Melvin S. Blanchard, MD, Chief

Oncology

John F. DiPersio, MD, PhD, Chief

Pulmonary and Critical Care Medicine

Michael J. Holtzman, MD, Chief

Renal Diseases

Marc R. Hammerman, MD, Chief

Rheumatology

John P. Atkinson, MD, Chief

Instruction in Medicine is provided during all four years of the medical curriculum, beginning with The Practice of Medicine I in the first year. Teaching in the second year has two main objectives: the correlation of the basic sciences with clinical aspects of disease and training in the technical methods of physical examination and laboratory diagnosis. By the beginning of the third year, the student is ready for supervised clinical study of individual patients.

A clinical clerkship of 12 weeks, divided into three four-week periods, is served by third-year students on the medical services of the department. In the final year, students may elect a subinternship in

general medicine and a series of elective courses in the medical specialties.

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For more information

Please visit the [Department of Medicine website](#) for more information.

MD Courses — Medicine

First year

M25 507 THE PRACTICE OF MEDICINE I

Instructor: Gregory M. Polites, MD, 747-5268

POM I is a large course which spans all 3 blocks of the first year. It is composed of three content areas:

1. Clinical Skills

2. Patient, Physician, and Society
3. Scientific Basis of Clinical Medicine

Each of these three content areas has two or more sections, each run by a faculty section leader.

POM I employs a variety of teaching techniques, instructors and venues. This includes lecture, small group discussions, panel sessions, one-on-one hospital interviews, standardized patient sessions, a patient home visit, and visits to both a primary care office and a city clinic.

What are the educational goals of POM I?

Students will learn to:

1. Perform a complete history and physical examination with thoroughness, accuracy, sensitivity and compassion.
2. Communicate effectively, efficiently and compassionately with patients, families and other health professionals.
3. Describe and analyze the statistical methodology of clinical studies and apply the results to individuals and groups of patients.
4. Identify and investigate ethical, cultural, socioeconomic and political factors relevant to medical interactions.
5. Examine and analyze personal and professional competencies, limitations and behaviors.

How do we accomplish these goals?

1. Learning skills and techniques requires a cycle of steps: preparation, background reading, attempts at skill performance, analysis and reflection on performance, discussion of potential improvements, and successive performance of the skill with advancement to a new level of expertise.
2. The focus is on learning skills. You practice each skill, such as interviewing, in a variety of venues and situations of varying

complexity. This course is for learning about how to do things that you will use for taking care of patients and families.

3. You work in multiple learning environments.
 1. Academic environments: Small group sessions for discussion, small group practice sessions, peer learning, small group presentations, individual and group writing assignments, and reflections on experiences are the preferred learning locations.
 2. Clinical environments: Inpatient units with faculty and WUMS IV mentors, standardized patient experiences with videotape review, physicians' offices, patient's homes with and without home care professionals, and a city clinic.

Selectives

M04 5009 MEDICAL SPANISH

Instructor: Marcos Rothstein, MD, 286-0801

This course is designed to provide educational opportunities for people speaking at all levels of Spanish fluency. The classes will consist of basic grammar and the movie/book club/charlas (chats)/roundtables with physicians interspersed throughout the course. Students will learn medically relevant vocabulary, cultural sensitivity and fluency with the goal to improve treatment of the growing U.S. Latino population.

M04 520H ART AND MEDICINE

Instructor: Peter G. Tuteur, MD, 454-7116

This course is designed for students to improve observational skills through viewing works of art. Structured visual analysis will be a primary tool used to refine skills to recognize and scrutinize visual cues. The images viewed will be selected to contain specific components conducive to developing these skills and will be of increasing complexity over time. Students will view multiple works of art and share observations in group discussion. How individuals attach meaning to visual images will be discussed.

Sessions will be held at the Saint Louis Art Museum, Contemporary Art Museum, Pulitzer Foundation, Kemper Museum and other art display venues as appropriate. A private collection may be viewed as well. Each session will begin with a discussion of the relevance of the previous class to recent experiences. An opportunity to interpret a single major art work by individual creative effort will be shared among the group. Students will be able to:

1. Improve observational skills potentially crucial to medical practice.
2. Increase their ability to discuss visual observations.
3. Analyze and contextualize how images may apply to clinical situations.

M04 528H TERMINAL ILLNESS AND DEATH

Instructor: Ellen F. Binder, MD, 314-286-2707, ebinder@wustl.edu

In this seminar we will examine such topics as: 1) psychological, social, and professional responses to terminal illness and death; 2) communicating bad news to patients; 3) grief and bereavement; 4) palliative care and physician-assisted suicide. Teaching sessions will include discussion of readings, interviews with practitioners and/or patients, and will rely heavily on student participation. Students are also required to spend a half-day making rounds with a BJC Hospice nurse.

M04 5302 FRONTIERS IN LEUKEMIA

Instructor: Timothy Graubert 747-4437

Hematopoietic research is rapidly and in some cases dramatically changing the clinical management of patients with leukemia. Most notably, the development of imatinib, a drug specifically designed to inhibit the bcr-abl oncogene, has fundamentally altered the way we treat patients with chronic myelogenous leukemia (CML). The objective of this course is to introduce students to scientific investigation in hematopoiesis with an emphasis on leukemogenesis. We will focus on how research is advancing our understanding of the pathogenesis and treatment of this group of diseases. Specific topics will include CML and the development of imatinib and newer

inhibitors, acute myelogenous leukemia, and the preleukemic syndromes severe congenital neutropenia and myelodysplasia. The faculty is all physician-scientists actively engaged in these areas of research. Students will be able to demonstrate the impact of molecular biology on the understanding of the pathogenesis of leukemia and its clinical management.

M04 538H DOCTORS ON FILM

Instructor: Thomas M. De Fer, MD, 747-4366

This course will explore the relevant social themes of films in which physicians and/or the medical profession are the main focus. There are countless portrayals of physicians in the cinema. There are also many films that deal extensively with various features of health care delivery. For good or for bad, viewers of these films outside our profession are strongly influenced by these portrayals. Common stereotypes are perpetuated. If it's in the movies, there must be some truth to it. Depictions of physicians and major medical themes have evolved with time and under the influence of social and scientific developments. The course will investigate these depictions and themes using a selection of films (from the classic era to more modern films) to provoke thought and discussion. Some discussion of film craft is also included. Emphasis is given to older movies, 1940s to 1970s. Those not interested in film craft or classic films should consider these latter points very carefully. The essence of this selective is the collective group experience of watching the movies and the discussion that follows. Most of the films are not readily available for rental or purchase, and lending of the VHS tapes or DVDs is not practical. For these reasons, attendance at five of the six sessions is required (all students must attend the introductory session). Each session will run from 3:15 p.m. to 4:55 p.m. (1 hour and 40 minutes). Students will be able to:

1. Discuss the common themes in doctor movies
2. Discuss the evolution of these themes over time in the context of social and scientific developments
3. Discuss the various portrayals of physicians frequently seen in doctor movies

4. Discuss the effects of these themes and portrayals on patient expectations
5. Appreciate how an understanding of these portrayals and themes can be used to improve medical care

M04 582H PHILOSOPHY OF MEDICINE

Instructor: Stephen S. Lefrak, MD, 454-7116

Medicine is a complex enterprise that has a major impact on our society. As such it draws increasing attention from those within the health care professions as well as those outside medicine whose expertise may lie in law, social science, philosophy, policy, etc. Physicians, in addition to their clinical and research responsibilities, must become increasingly adept at interdisciplinary activities. It is never too early in a career to begin to examine "medical" concepts that are frequently employed without being clarified, thus hindering communication rather than solving problems. It is this clarification process that philosophy addresses. The very issues that philosophy has dwelled on throughout the centuries are the very ones that are critical for medicine; think of "death" or "personhood", for example. Also, whether medical concepts are "real" or "constructed" is important for both the disciplines of medicine and philosophy. And dare we even mention such issues as the relationship between mind and body, notions of causality, how and what we mean when we know something? and free will? This selective is looking for students who would be interested in beginning such a study with the goals of developing their own understanding as well as introducing it into the medical school curriculum in a formal way. The classical subdivisions of philosophy such as ontology (science of being, existence), epistemology (science of knowing), ethics (moral philosophy) and social philosophy may all serve to clarify important issues in medicine. For example, physicians focus on disease in many ways, yet are diseases descriptive realities or normative (value) concepts? The impact of which answer is accepted is felt throughout society? as what will be reimbursed as health care, what is enacted into policy and law (Americans with Disability Act), and to what the range of medicine is and where are its boundaries. The epistemology

of medicine may also be somewhat unique. What physicians take as evidence and what we mean by causality may be very different than what is meant in other scientific disciplines. The terms used by physicians such as evidence, causality, explanation, hypothesis, theory, etc. should be critically analyzed by physicians. The impact of our understanding of this has great effect on our patients both in clinical care and what research is pursued and accepted. Of course, ethics plays an important role in medicine, but this course is focused on a philosophical analysis of the medical concepts and the constructs of medicine with emphasis on ontology and epistemology. Students will be able to:

1. Expound the “arguments” whether “philosophy of medicine” exists or is needed.
2. Thoughtfully discuss what “medicine” is and some of the legitimate “goals of medicine”.
3. Discuss some of the major domains of philosophy.
4. Become familiar with some of the major philosophical problems and methods.
5. Describe what metaphysics are.
6. Discuss the “concept of disease”.
7. Discuss what kind of activities clinical medicine and reasoning are.
8. Become familiar with the analysis of “scientific method” and how that model compares, fits with clinical medicine.
9. Discuss the method of medicine and compare it to other fields.
10. Think critically about what is required of a mechanistic explanation.
11. Think carefully about the nature of causal relevance.
12. Discuss the virtues and limits of reductive explanations and methods in neuroscience and physiology.
13. Understand the principles of evidence-based medicine.
14. Understand some individuals believe evidence-based medicine is not scientifically sound.
15. Understand the care of individual patients is complex, and rigid adherence to one model may not be sufficient.

16. Discuss the relationship between the metaphysics of medicine, the epistemology of clinical medicine and clinical ethics.
17. Attempt to adopt a unified outlook toward the commonly employed concepts of clinical medicine and their relationship to the patient, physicians and their interaction.
18. Proceed throughout their medical education and careers more aware of the impact of the views that are taken of “disease”, clinical judgment and ethical decision making.
19. Be familiar with the development of disease ontology.

M04 524H MAJOR RELIGIOUS TRADITIONS AND HEALTH CARE

Instructor: Chaplain William V. Trogdon, BCC, Director Spiritual Care Services, 314-609-8238

This course will introduce the students to the tenets of mainline world religions and how their beliefs and practices can best be considered in understanding the whole patient/family for treatment, planning and decision-making. Primary attention will be given to the five major world religions: Christian, Buddhist, Hindu, Jewish and Muslim faith traditions as well as others with particular considerations for health care. Special attention will be paid to end-of-life issues, decision-making and interpersonal dynamics. The students also will be introduced to a clinical model of understanding faith and spirituality within the context of health care. Students will be able to:

1. Be more comfortable considering patient/family religious/faith dynamics.
2. Understand the role of patient/family faith commitments in their healing, well-being and development.
3. Increase basic knowledge of tenets of mainline religions found in the United States and how their beliefs/practices can best be considered in understanding the whole patient/family for treatment planning and decision-making.

M04 588H MUSIC AND MEDICINE

Instructor: Steven Cheng, MD, 454-7719 and David Windus, MD, 362-7122

Music and medicine reflect one another in several fascinating ways. During this selective, we will examine how music depicts illness and disease, as well as how medicine addresses the specific benefits and occupational hazards of music. Ten students will participate in this highly interactive six-session course that will include lively discussions, listening sessions and demonstrations. Students will discuss how music evokes certain characteristics of disease, suffering and illness; discuss how illnesses in musicians/composers and rock stars influences their work; understand the role of music in the healing process; and recognize medical problems that arise in performing artists.

M04 5875 ADVANCED OLIN GRAND ROUNDS

Instructor: Cynthia Wichelman, MD, FACEP, Associate Professor of Medicine, wichelmc@wustl.edu, and Bart Hamilton, PhD, Robert Brookings Distinguished Professor of Entrepreneurship

Grand Rounds at medical schools are forums for presenting new and challenging clinical problems and cases. The goal of Olin Grand Rounds is to focus on the challenges facing the business of medicine and consider possible solutions. The course provides a broad introduction to the current issues facing the health care sector, while integrating management tools and clinical knowledge. This fall semester course was first offered in 2006 and has become a popular course for premed and business undergraduates, as well as students in the MBA program. More medical students should take this class! The information is invaluable for any one pursuing a career in medicine or in the health care sector of business. In addition to several outstanding guest speakers, a number of business case study discussions are complemented with clinical patient presentations. Topics covered include clinical practice compensation distribution, concierge medicine, health care reform and health care system comparison, hospital management, analysis of walk-in clinics (i.e., Walgreens), organ transplantation, research and development and marketing of pharmaceuticals, sickle cell anemia and management of Medicaid and care to the underserved, the business of cosmetic surgery, and biotech startup methods used by local physician-

entrepreneurs, to name a few. The course also includes a tour of Express Scripts.

August 25-December 2, 2014. Monday Nights 6:15 PM – 9:15 PM.

M04 5013 INTRODUCTION TO EMERGENCY MEDICINE I

Instructor: Cynthia Wichelman, MD, FACEP, Associate Professor of Emergency Medicine, wichelmc@wustl.edu

Over six sessions, we will review the physiology and clinical management of common emergencies: cardiovascular emergencies; trauma resuscitation and shock; environmental emergencies, such as high-altitude cerebral edema and snake bites; pediatric emergencies; gynecological and urological emergencies; and toxicological emergencies. Each session will include a lecture followed by case studies that highlight critical aspects of a patient's history, physical examination, laboratory and radiological studies, as well as procedural intervention and pharmacological treatment. Group participation is encouraged. This selective is intended to give students an exposure to emergency medicine. Students will become familiar with the methods used to evaluate and treat patients with medical emergencies in preparation for their clinical training.

October 21- December 2, 2014. Tuesdays, 3:15 PM – 5PM.

M04 5016 INTRODUCTION TO EMERGENCY MEDICINE II

Instructor: Cynthia Wichelman, MD, FACEP, Associate Professor of Emergency Medicine, wichelmc@wustl.edu

This class is a second session on emergency medicine (in response to student requests!) exploring topics not covered in the fall session. Although it would be beneficial to take the Introduction to Emergency Medicine I course offered in the fall, it is not a prerequisite for this class. Six sessions will review the physiology and clinical management of abdominal emergencies, ophthalmic emergencies, endocrine emergencies, environmental emergencies such as lightning and hypothermia, stroke, renal emergencies and obstetric emergencies. Each session will include a lecture followed by case studies that highlight critical aspects of a patient's history, physical examination, laboratory and radiological studies, as well as procedural intervention and pharmacological treatment. Group

participation is encouraged. This selective is intended to give students further exposure to emergency medicine. Students will become familiar with the methods used to evaluate and treat patients with medical and surgical emergencies in preparation for their clinical training and board preparation.

April 7- May 12, 2015. Tuesdays, 3:15 PM – 5PM.

M04 587L INTERNATIONAL HEALTH

Instructor: Cynthia Wichelman, MD, FACEP, Associate Professor of Emergency Medicine, wichelmc@wustl.edu

This course is an excellent opportunity to prepare for a summer abroad through FIHTM or for a fourth year away rotation. Speakers include WUSM faculty who have incorporated international healthcare in their practices — from surgery (e.g., ophthalmology, neurosurgery, ENT, ob/gyn), and anesthesiology, to emergency medicine and pediatrics, as well as give students an opportunity to hear from the Global Health faculty heroes at WUSM. Each lecture is followed by an interview with the speaker. The course will help you explore different avenues for adding an international component to your career and to learn which specialties may more readily lend themselves to this. Other topics include how to protect your health while abroad and the ethics of research in a global setting, and organizations such as Doctors Without Borders and ORBIS. WUSM II and IV students will also share their experiences administering health care and doing research abroad. This course, which consists of six sessions, was first introduced in 2004 and is one of the fastest-growing selectives, filling up quickly.

January 20- February 24, 2015. Tuesdays, 3:15 PM – 5PM.

M04 537 Simulations in Cardiovascular Physiology

Instructor: David Murray, MD, 362-7394

The purpose of this selective is to demonstrate cardiovascular physiologic principles including control mechanisms using interactive patient simulators (computerized mannequins) to replicate common cardiovascular disease conditions and potential treatment modalities. Several clinical scenarios with case histories will be presented to small groups for interpretation and subsequent

treatment, thereby providing the opportunity to explore alterations in preload, afterload, isotropism and chronotropism. During the selective clinical conditions associated with changes in these cardiovascular determinants as well as various cardiovascular control mechanisms will be explored through scenarios. Scenarios include shock, arrhythmias, congestive heart failure, myocardial infarction and some “unknowns”. Variables monitored in the patient simulator include ECG, arterial, venous, ventricular and capillary wedge pressures, cardiac output, stroke volume, heart rate, systemic and pulmonary vascular resistance and ventilation. A class-wide discussion and systematic review will follow the individual small group workshops to allow synthesis of all the material.

M04 586H HEALTH AND HUMAN RIGHTS

Instructor: Kim Carmichael, MD, 454-7116

There is a strong belief among many physicians that our responsibilities extend beyond our individual patients to our communities, countries and even to our entire world. This humanities selective is an excellent forum for interested students to actively learn and discuss the impact of human rights violations on health. Topics include reproductive and pediatric health rights, communication issues and interactions with interpreters. Each meeting will consist of a brief presentation and a discussion on the topic. There will be a different presenter for each topic. Readings will be provided. Students will be able to:

1. Explore human rights issues that are relevant to the health professions from both local and worldwide perspectives.
2. Describe the boundaries and challenges involved in solving human rights issues.
3. Describe strategies for the implementation of programs that address human rights issues.
4. Develop successful initiatives and interventions pertaining to health and human rights.

M04 587A PHYSICIAN AS HEALTH PROTECTOR AND PATIENT ADVOCATE

Instructor: Steven I. Plax, MD, 994-0109

Investigation into clinical topics again will be offered. Last year's students did an educational program teaching our population how to read the nutrition information on products they were purchasing. For further information, students may call Dr. Plax at (314) 994-0109. The Office of Medical Student Education has copies of our medical handbooks and their supplements. This course is a component of the Health Protection and Education Service, which meets on the third Saturday of each month except December and July. Sessions are held in the University City Library, 6701 Delmar from 9 a.m. to 11:30 a.m. Students share the goals of the HPES.

1. To do multiple screening testing ranging from height, weight, body mass index, blood pressure, eye and vision evaluation, hearing tests by audiologist, skin and dental exam, blood sugar, hemoglobin, and cholesterol measurement, and EKGs.
2. Educate people in protecting their health — a trained historian records each individual's medical history — at conclusion of person's tests and recording of history, a one-on-one conference is held with a member of MD staff. Medical students participate in screenings and in history-taking and final conferences in telephone follow-up.

This is an opportunity for Washington University medical students to correlate the basic information gathered from first-year courses with their experience with our patients — and in-the-trenches participation in preventive medicine. Students actively participate in the screening and in history-taking (with trained historian) and in individual conferences between patients and physicians. Students may take part in statistical analysis of data and join in the production of another supplement as in preceding years.

M04 580H THE HEALER'S ART

Instructor: Anna Lijowska, MD, 454-6148

The Healer's Art combines seed talks and experiential exercises in a large group setting along with small group experiential exercises. The course engages students in a discovery model of community of

inquiry focusing on the meaning of physicianhood and the practice of medicine. Faculty participate in the discovery model process on an equal footing with students as well as facilitating the process of the small groups. The course is designed to encourage medical students to trust the power of listening and presence to heal; formulate a personal, comfortable and compassionate response to loss; experience the healing power of grief; recognize that who they are is as important to the healing relationship as what they know; recognize awe and mystery in the daily practice of medicine; explore the concept of calling; write a personal mission statement; and explore the personal meaning of physicianhood. The Healer's Art facilitates students in clarifying, strengthening and making a personal commitment to medicine as their life's work. Students also have the opportunity to explore their personal values and commit to developing and preserving their personal values, such as service, harmlessness, compassion, altruism, self-care, equality, justice, respect and nurturing wholeness. There will be additional instructors for this course.

Students will be able to:

1. Make an active commitment to strengthening and preserving their humanity
2. Experience the effects of listening and being listened to generously and compassionately
3. Experience healing relationships with other students
4. Experience tools of self-remembering
5. Identify effective and ineffective behavioral responses to loss and grief
6. Identify when they first became aware of wanting to serve others
7. Articulate and strengthen a personal commitment to medicine as their life's work
8. Experience practicing physicians sharing their experiences of loss, grief, mystery, and awe in practicing medicine
9. Witness the unity of commitment to service that lies beneath the diversity of expertise and experience

Second year

Teaching by the Department of Medicine is designed to: 1) prepare students for the transition from the preclinical sciences to the study of the sick patient at the bedside, 2) help them analyze the clinical manifestations of disease in terms of the responsible mechanisms and 3) introduce them to the techniques of examination that are used regularly on all clinical services. This instruction is undertaken jointly with members of other clinical departments and is coordinated with subject matter presented by the Department of Pathology and Immunology.

The major areas of clinical medicine are presented in detail to illustrate the application of biochemical, physiological and anatomical information to the understanding of pathological states. Cardiovascular, renal, neurological, gastrointestinal, pulmonary, hematological, metabolic, nutritional and developmental diseases are discussed. Emphasis is placed on the use of fundamental information in approaching clinical problems as a way of thinking that prepares the student for a lifetime of medicine, during which new information will constantly be acquired.

M25 607 THE PRACTICE OF MEDICINE II

Course Master: Megan E. Wren, MD, 286-3480

The goal of The Practice of Medicine (POM) course is to provide students with the knowledge, skills and attitudes essential to patient care regardless of specialty. POM II is a continuation of POM I and will continue to address various interfaces between patients, physicians and society and will also introduce approaches to clinical thinking and decision-making. The sections of POM II include Advanced Physical Examination, Hospital Sessions, Case Development, Communication Skills, Ophthalmology, Radiology, Community and Public Health, Ethics and Health Policy, Perspectives on Illness, and Scientific Methods. The learning objectives for each section of POM II emphasize topics and skills used in all fields of medicine, and the majority of the course work will be taught in small groups or through clinical experiences. 85 clock hours.

M25 605A INFECTIOUS DISEASES AND MEDICAL MICROBIOLOGY

Instructor: Nigar Kirmani, MD, 454-8276

The infectious disease pathophysiology course emphasizes both organism-specific and organ-specific approaches to diseases caused by microbes. The course expands on material presented briefly in the first year concerning bacteria, viruses, fungi and parasites and their involvement in human disease. Mechanisms of disease production, clinical manifestations and therapy are discussed, along with public health implications. In addition to lectures, small group case discussions enable students to apply the information they learn to clinical situations.

M25 606A RHEUMATOLOGY

Instructor: Richard D. Brasington, Jr., MD, 454-7255

The rheumatology pathophysiology course begins with an overview of the structure, function and physiology of the normal joint and the approach to the patient with arthritis and related disorders.

Diagnoses covered include rheumatoid arthritis, systemic lupus erythematosus, vasculitis syndromes, osteoarthritis, infectious arthritis, and crystalline arthritis. Clinical features and treatment will be emphasized. In small group sessions, students interview and examine patients to gain a fuller understanding of the typical history and physical findings of these disorders. Students are strongly encouraged to attend the small group sessions with patients, who make a major contribution to teaching students about these conditions.

M25 611B CARDIOVASCULAR DISEASE

Instructor: Dana R. Abendschein, PhD, 362-8901

The purpose of this course is to consider the mechanisms and manifestations of acquired and congenital cardiovascular disorders as well as their pharmacologic treatment. Lectures and small group discussions that emphasize the major areas of cardiac pathophysiology and pharmacology are provided.

M25 612B PULMONARY DISEASE

Instructor: Michael B. Lippmann, MD, 289-6306, Adrian Shifren, MD,

362-5378

The objectives of the pulmonary pathophysiology course include review of normal pulmonary physiology as related to specific pulmonary disease states. The focus of the course will largely be upon presentations in lectures concerning pathophysiologic principles of abnormal lung structure and function. In addition, case study problems will be discussed.

M25 613B RENAL AND GENITOURINARY DISEASES

Instructors: Steven Cheng, MD, 362-7211

This course uses basic principles of renal physiology and ion homeostasis to understand commonly encountered fluid and electrolyte disorders (especially hyper-/hypo- natremias, acidoses/alkaloses) and the action of diuretic drugs. The pathophysiology of diabetic kidney disease, glomerular and tubulointerstitial diseases, hereditary kidney diseases, and the relationship between hypertension and the kidney are discussed. It also applies basic principles of urinary system anatomy and physiology to the understanding of kidney stones, disorders of the bladder and prostate, and of micturition. The course also introduces basic principles of dialysis and kidney transplant. Lectures, small group problem-solving and team-based learning sessions focus special attention on: 1) how a working knowledge of fundamentals, diagnostic testing and arithmetic manipulation can have important predictive value; and 2) how the courses of acute and chronic renal failure are both adaptive and maladaptive for the organism.

M25 614 DERMATOLOGY

Instructor: David M. Sheinbein, MD, 996-8005

The dermatology second-year course is designed to teach medical students how to describe skin lesions and the pathophysiologic basis and clinical characteristics of major dermatologic diseases. Major categories of clinical skin diseases and their most prominent constituents will be discussed, including papulosquamous diseases, blistering diseases, infectious diseases, and benign and malignant neoplasms.

M25 615A ENDOCRINOLOGY AND METABOLISM

Instructor: William E. Clutter, MD, 362-8094

This course aims to develop understanding of the pathophysiology, clinical manifestations and diagnosis of common endocrine disorders. History, physical examination and interpretation of diagnostic laboratory tests are emphasized. Principles of treatment of endocrine disorders and pharmacology of relevant drugs also are discussed. Students are expected to apply their knowledge in clinical case discussions.

M25 620A GASTROINTESTINAL AND LIVER DISEASES/NUTRITION

Instructor: Deborah C. Rubin, MD, 362-8935

This course discusses the pathophysiologic mechanisms related to the diseases of the gastrointestinal tract including esophagus, stomach, small and large intestines, liver, gallbladder and pancreas. The emphasis is on changes that occur in normal physiology, biochemistry, anatomy, immunology and cell biology that result in human gastroenterologic diseases. Included also are lectures on the pharmacology of gastrointestinal drugs and basics of human nutrition in clinical practice. Lectures are supplemented by group seminars that focus on clinical case presentations.

M25 625A HEMATOLOGY AND ONCOLOGY

Instructor: Scot G. Hickman, MD, 289-6308

The hematology and oncology pathophysiology course exposes students to common hematologic disorders and hematologic malignancies. The course uses lectures, clinical case discussions and practical sessions involving microscopy.

Third year

M25 710 MEDICINE CLERKSHIP

Instructor: Thomas M. De Fer, MD, 362-8050

The medicine clerkship provides supervised study of patients in both inpatient and ambulatory settings. The 12-week clerkship is divided into three four-week rotations: two inpatient and one outpatient. For the inpatient rotations, students are assigned as clinical clerks to

patients admitted to the cardiology and general medical teaching services of Barnes-Jewish Hospital and the St. Louis VA Medical Center — John Cochran Division. For the outpatient rotations, students are placed with community-based internal medicine or family practice physicians and will almost always require a car for transportation. Teaching is provided by the chief of service, attending physicians, house staff, consultants, chief residents, community-based preceptors and regularly scheduled conferences. Formal instruction is given regarding core internal medicine topics during the clerkship. Teaching activities include Chief Resident Rounds, Core Lecture Series, Physical Diagnosis Rounds, Radiology Rounds, Professor's Rounds and other departmentally based conferences.

Clinical Pathological Conference

The clinical course, laboratory and radiologic studies, and pathological findings of a patient are discussed using a problem-solving format at a weekly conference by members of the Departments of Medicine, Pathology and Immunology, and Radiology; Melvin Blanchard, MD, internal medicine; chief residents and medical staff; Louis P. Dehner, MD; and pathology staff.

M25 707 PRACTICE OF MEDICINE III

Course Master: Gregory M. Polites, MD, 747-5268

Clerkship Coordinator: Melody Cox, 362-3480

Objectives:

1. To review challenges and dilemmas relevant to the practice of clinical medicine.
2. To examine clinical experiences from a variety of perspectives.

In this course, themes and topics relevant students in their clinical stage of training are discussed. Session formats include lecture, panel discussion and/or small group. As students exchange problematic scenarios and questions, the group develops potential solutions and management schemes.

Topics covered:

- Session 1: Complimentary and Alternative Medicine
- Session 2: Safety and Quality Care at Barnes-Jewish Hospital
- Session 3: Communicating Serious Adverse Events to Patients and Families
- Session 4: Intimate Partner Violence
- Session 5 Evaluation of the Patient with Disabilities
- Session 6: The Patient Protection and Affordable Care Act
- Session 7: Health Care Financing
- Session 8: Medical Malpractice & Tort Reform
- Session 9: Physician Practice Models
- Session 10: Recognizing Personal Biases

Attendance at 8 out of 10 POM III sessions is required to pass this course. Students may use 2 absences for any reason (if needed).

Completion of a pre- and post-session assessment is required for each session. Completion of a post-session assessment is required even for excused sessions.

Sessions will run from 12:00 pm – 2:00 pm on the 3rd Tuesday of every month except for November, and December.

The dates for 2014-15 are: 6/17/14, 7/15/14, 8/19/14, 9/16/14, 10/21/14, 1/20/15, 2/17/15, 3/17/15, 4/21/15, 5/19/14.

Students are excused from clinical activities to attend.

Location: Connor Auditorium, Farrell Learning and Teaching Center

* Order of sessions subject to change

M25 714 EMERGENCY MEDICINE

Instructors: Mark Levine, MD, 362-6743

The WUMS III Ambulatory Care Rotation takes place in the main emergency department of Barnes-Jewish Hospital. Up to six students at a time are assigned to this four-week rotation. Students will spend

their first day in an orientation session that will include an ED introduction, a suture lab, an airway lab, and an ultrasound lab. A course “text” will be provided for the students on orientation day and is theirs to keep. Students will be evaluating and treating non-emergent patients in the emergency department (EM 2) and Urgent Care Area/EM3 area and report directly to an attending or senior resident. There are five hours of mandatory lecture per week. Students can expect to gain a wide range of skills in evaluating a variety of complicated and non-complicated patients. At the end of the rotation, students will be familiar with the approach to complex medical conditions like chest pain, undifferentiated abdominal pain and complications of pregnancy as well as the “bread and butter” of complaints of ambulatory medicine such as lacerations, simple respiratory tract infections and minor trauma.

WUMS III will be graded on their clinical skills, their ability to make a formal patient presentations during a shift, professionalism, and their conference attendance. There will be a written test on the last Friday of the rotation based entirely on the material provided to the students at the start of the rotation.

M26 713 AMBULATORY: FAMILY MEDICINE

Instructor: Sharon George, MD, 362-8050

The Family Medicine clerkship offered in the third and fourth years allows medical students to work one-on-one with board-certified family physicians in outlying areas of Missouri and Illinois and in other states. Students may review preceptor profiles and comments that previous students made about preceptors. The clerkship makes every effort to accommodate student preferences for working with specific preceptors. Most students will work with a single preceptor for the duration of the four-week rotation. Students may work with small groups, potentially including family medicine residents. The student will work closely with preceptors on a daily basis in the physician’s office. Students often accompany their preceptor on nursing home visits, hospital rounds, medical conferences and other educational activities. Housing will be provided to students working outside the immediate St. Louis vicinity. Weekend call schedules are

arranged with the preceptor: students can often return to St. Louis on the weekends. Each student will receive a description of the goals and objectives for the four-week rotation. Students receive short e-mail assignments during this rotation. Grades are calculated primarily from preceptors' subjective evaluations.

M25 740 DERMATOLOGY CLERKSHIP

Instructor: Lynn Cornelius, MD, 454-8622

The goal of the dermatology clerkship is to provide a guide for the student to appreciate dermatology within the broader perspectives of medicine and biology. The student will develop familiarity with dermatologic vocabulary, learn to recognize and initiate therapy of common dermatologic disorders and become cognizant of uncommon or complicated dermatologic problems that require specialty care. Emphasis will be placed on careful history taking and physical examination. Students will always work under the direction of the resident physician and the attending physicians in the clinic setting.

The student will participate in outpatient care at the following hospitals and affiliated clinics: Barnes-Jewish Hospital, St. Louis Children's Hospital, Barnes-Jewish West County Hospital, and the Veterans Administration Medical Center. These hospital settings will provide the student with ample exposure to a diverse patient population. Students will attend all clinical teaching rounds and conferences in addition to the basic science and cutaneous histopathology conferences. Normal workday hours are 8 a.m. to 5 p.m. with no night or weekend on-call responsibilities. Each student is provided with copies of the two recommended textbooks, Principles of Dermatology by B. Lookingbill and The Color Atlas and Synopsis of Clinical Dermatology by T.B. Fitzpatrick for use during the clerkship; the textbooks are returned to the clerkship coordinator at the end of the clerkship for use by other students rotating in the dermatology division.

The rotation attending physician and the resident physician will submit an evaluation based on the student's clinical skills,

presentation, attitudes, overall performance and the end-of-rotation written exam score. Students are not eligible to take the fourth-year rotation if they complete this clerkship.

M25 750 GERIATRIC MEDICINE CLERKSHIP

Instructor: Ellen F. Binder, MD, 286-2707, Coordinator Phone number: 286-2909

The primary goal of the four-week clerkship in Geriatric Medicine is for students to gain proficiency in the principles of geriatric evaluation and interdisciplinary team management, including medical, psychological, social, and functional assessments of older adults. Students are expected to participate in the evaluation of at three to five patients per week, in a variety of settings including the outpatient Geriatric Assessment Clinic, in-patient Geriatric consults, nursing home visits at Parc Provence, home visits with the VA Home-Based Primary Care Program, and at the Rehabilitation Institute of St. Louis (TRISL). Students will also have the opportunity to participate in hospice and home care visits, and observe an assessment at the WU Alzheimer's Disease Research Center. Students are expected to attend weekly conferences and didactic sessions while on the rotation, and give an oral presentation on a topic of their choice.

The day usually begins at 8:30 a.m. and ends by 5:30 p.m. There is no night or weekend call. Time is provided to read the syllabus/bibliography and complete web-based learning modules.

Location: Wohl Clinic Building, 3rd Floor

Time: 9:00am the first day of the rotation

Pre-requisite: Students must have completed both the Internal Medicine and Neurology clerkships before taking this elective.

M25 730 PHYSICAL MEDICINE AND REHABILITATION

Coursemaster: Neringa Juknis, MD, 454-7757

Clerkship in PM&R for third-year medical students provides an

opportunity to gain basic knowledge and clinical skills in evaluation and management of a wide range of neurological and musculoskeletal diseases and conditions that require specialized rehabilitative medical and therapeutic care. Students spend two weeks on the Spinal Cord Injury Unit (SCI) and two weeks on the Brain Injury (BI) and Stroke Unit at The Rehabilitation Institute of St. Louis. Students are expected to be a part of the rehabilitation team, follow three to five patients, participate in daily morning rounds, participate in performing consults and attend team meetings and family conferences.

Students are required to attend several outpatient clinics such as SCI, BI, Amputee and Stroke. During the entire rotation, students work with PM&R residents and fellows, and under direct guidance of the NeuroRehabilitation faculty. The usual duty hours are 7:30 a.m. to 5 p.m. weekdays and 8 a.m. to noon on Saturdays. There is no night call.

Students are required to attend all PM&R curriculum lectures and conferences. On the first day of rotation, students meet with the PM&R program director to go over goals, objectives and schedules. Upon completion of the rotation, students are required to fill out the evaluation form to provide feedback regarding rotation experience.

Fourth year

Electives

M25 801 HONORS MEDICINE – GENERAL MEDICINE

Instructor(s): Thomas De Fer, MD, 362-8050

Enrollment limit per period: Limit 8/period for Weeks 1, 5, 9; 4/period for Weeks 13, 17, 21, 25, 29, 33, 37, and 41.

The purpose of the “Honors Medicine” elective (subinternship) is the development of expertise in the care of hospitalized patients in a well-supervised teaching environment. Subinterns act as their patients’ interns under the supervision of residents and attending

physicians. Subinterns have the same on-call and admitting schedules as the interns on their teams and are assigned up to two new patients on each admitting day. Subinterns are not required to spend call nights in the hospital. Except in emergencies, subinterns are the first individuals to evaluate patients admitted to medical service teams. A diagnostic and therapeutic approach to the patient is planned in consultation with the resident. Subinterns assume primary responsibility for the daily care of their patients, under the supervision of resident and attending physicians. This includes evaluation on daily rounds, scheduling and obtaining results of diagnostic studies, planning therapy, making arrangements for care after discharge and communicating with patients and their families. Subinterns attend the same conferences as the house staff.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;
Primary Care 50%, Subspecialty Care 50%

Major teaching responsibility: Attending, chief resident, and resident
Patients seen/weekly: 8-12

On call/weekend responsibility: Yes

Location: Barnes-Jewish Hospital

Elective Contact: Amber Specter, 362-8050

Other Information: Students will receive e-mail communication regarding where to report on the first day prior to the beginning of the period.

M25 805 RHEUMATOLOGY

Instructor(s): Richard Brasington, MD; Prabha Ranganathan, MD, John Atkinson, MD; and Deborah Parks, MD, 454-7279

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will be involved in the diagnostic work-up and management of patients with rheumatic illnesses including systemic lupus erythematosus, rheumatoid arthritis, vasculitis (polyarteritis, Wegener's, temporal arteritis), spondyloarthropathies (ankylosing spondylitis, reactive arthritis), osteoarthritis, gout and regional musculoskeletal problems. By working closely with a faculty

member, fellows and medical residents, students become integral and active members of the rheumatology service for inpatient consultations and outpatient clinics at Barnes-Jewish Hospital. An emphasis is placed on the physical examination of joints and the musculoskeletal system, synovial fluid analysis, and interpretation of diagnostic tests and radiographs. Students attend two rheumatology conferences held weekly. A rotation limited to outpatient rheumatology is possible by prior arrangement with Dr. Brasington.

Student time distribution: Inpatient 40%, Outpatient 50%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: ~25 per student

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital,

5C Center for Advanced Medicine

Elective Contact: Department secretary, 454-7279

Other Information: Students should contact the Rheumatology office,

454-7279 prior to first day for assignment.

M25 807 HONORS MEDICINE – VA MEDICAL CENTER

Instructor(s): Amy Joseph, MD, 289-6308

Enrollment limit per period: Limit 3/period for Weeks 1, 5, 9; 1/period for Weeks 13, 17, 21, 25, 29, 33, 37, and 41.

The purpose of the “Honors Medicine” elective (subinternship) at the VA Medical Center is to develop practical experience and expertise in the care of hospitalized patients on an internal medicine ward. With appropriate supervision by the attending and resident physicians, subinterns will have similar responsibilities as interns. They have the same on-call/admitting schedules as the interns and participate in the same teaching conferences, but they do not take overnight call. Subinterns should admit at least two patients per call day, and they should be the first to evaluate the patients admitted to the medical service, except in emergencies. A diagnostic and therapeutic approach to evaluating each patient is planned in consultation with the resident. While being supervised as listed above, subinterns

assume primary responsibility for the daily care of their patients, including evaluation on daily rounds, scheduling and obtaining results of diagnostic studies, calling consults, planning therapy, making arrangements for care after discharge. and communicating with patients and their families.

Student time distribution: Inpatient 80%, Conferences/Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Attending, Chief Resident and Resident
Patients seen/weekly: 6-8 on average

On call/weekend responsibility: On-call every fourth day

Location: St. Louis Veterans Affairs Medical Center

Elective Contact: Amy Joseph, MD, 289-6308

Other Information: Students will receive e-mail communication regarding where to report on the first day prior to the beginning of the period.

M25 809 HYPERBARIC MEDICINE AND PROBLEM WOUND MANAGEMENT

Instructor(s): John D. Davidson, MD, and staff, 205-6818

Enrollment limit per period: 1

Valid start weeks for 2 and 4-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

The specialty of hyperbaric medicine centers on the use of oxygen under increased atmospheric pressure as a drug for the treatment of many disparate diseases and clinical problems. This elective allows a student to have an acquaintance with this technology, which has a definite role in a wide range of differing specialties including emergency medicine, otolaryngology, plastic and reconstructive surgery, military medicine, rheumatology, dermatology, oral surgery, radiation oncology, internal medicine, neurology and psychiatry, to name a few.

Since students going into these specialties do not need to learn about hyperbaric medicine in depth, but nevertheless would benefit by some exposure to it, we can arrange a mini-elective of one to two weeks duration. This "exposure elective" can be tailored to a student's special field of interest just as we attempt to do in the

usual four-week program. Please call Dr. John D. Davidson for more information.

Student time distribution: Inpatient 3%, Outpatient 92%,
Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: John A. Davidson, MD, and Jane Kelly,
RRT, CHT, Supervisor

Patients seen/weekly: 20

On call/weekend responsibility: Attending physician will call student
regarding select cases
Location: St. Luke's Hospital, Barnes- Jewish
Hospital

Elective Contact: John D. Davidson, MD, 205-6818 or pager 424-2626

Other Information: Interested students should contact Dr. John D.
Davidson to discuss in what way this elective can be tailored to their
particular interests and goals. Mini-electives of one to two weeks
duration can be arranged. (PLEASE contact Dr. Davidson at 205-6818
three weeks prior to the first date of elective to try to tailor the
elective as much as possible to your primary interests.)

M25 810 GERIATRIC MEDICINE

Instructor(s): Ellen Binder, MD, 286-2700, press option 1

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 5, 13, 17, 21, 25, 29,
33, 37, and 41.

The primary goal of this rotation is for students to gain proficiency in
the principles of geriatric evaluation and management, including the
medical, psychological, social, and functional assessments of older
adults. Students are expected to participate in the evaluation of
three to five patients per week, in a variety of settings including the
outpatient Geriatric Assessment Clinic, in-patient Geriatric Consult
service, Parc Provence nursing home, and the Rehabilitation Institute
of St. Louis (TRISL). Students will also have the opportunity to
participate in hospice and home care visits, interdisciplinary team
meetings, and observe an assessment at the WU Alzheimer's Disease
Research Center. Students are expected to attend weekly
conferences while on the rotation.

The day normally begins at 8:30 a.m. and is usually finished by 5:30

p.m. There is no night or weekend call. Time is provided to read the detailed syllabus/bibliography. Students will be expected to give an oral presentation on a topic of their choice once during the rotation
Student time distribution: Inpatient 20%, Outpatient 80%; Primary Care 20%, Subspecialty Care 80%

Major teaching responsibility: Attendings

Patients seen/weekly: 10-15

On call/weekend responsibility: None

Location: WUSM Health Key Building, Third floor, Room 374

Elective Contact: Sheila Barry, Program Coordinator: 286-2909.

Other Information: Meet at the Department of Geriatrics office, Health Key Building, 4488 Forest Park Ave., 3rd Floor Conf Room 318, 8:30 a.m. first day of elective.

M25 811 CLINICAL INTERNAL MEDICINE – HOSPITALIST

Instructor(s): Caroline Kahle, MD, 362-1700

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This course allows the student to work one-on-one with hospitalist physicians on a patient care team. The student acts as the intern under the direct supervision of the attending physician. Daily responsibilities include admission history and physicals, daily notes and discharge summaries on assigned patients. S/he also will have the opportunity to perform indicated procedures on patients on this service. Students are encouraged to participate in Department of Medicine conferences.

Student time distribution: Inpatient 95%, Conferences/Lectures 5%; Primary Care 100%

Major teaching responsibility: Hospitalist attendings

Patients seen/weekly: 10

On call/weekend responsibility: None

Location: Barnes Jewish Hospital, West Pavilion Corridor main level

Elective Contact: Mary Russell,
362-1707, mrussell@wustl.edu

Other Information: Students should contact Mary Russell one to two

weeks prior to first day of elective for information on where to meet.

M25 814 CLINICAL EMERGENCY MEDICINE, BARNES-JEWISH
HOSPITAL

Instructor(s): Mark Levine, MD, 362-6743

Enrollment limit per period: 6

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This rotation offers practical experience in the evaluation and management of acutely sick and injured patients. Students will function as subinterns, initially evaluating their assigned patients and developing a plan for further diagnostic studies and therapy. They will report to a senior level resident or an attending physician. The student can expect to get an opportunity to perform a wide variety of procedural skills such as suturing, splinting, peripheral and central venous access, and cardiopulmonary resuscitation. Shifts will be eight hours and students will rotate between day, evening and night shifts, including weekend shifts, in order to gain maximum exposure to all types of emergencies. A core content of lectures will be provided. Students will gain an understanding of prehospital care by doing a ridealong shift with the St. Louis Fire Department EMS. Students will also have a shift with the toxicology attendings and residents and will gain knowledge of the basics of ultrasound during their time in the department. Students interested in EM will be doing 1:1 shifts with a single attending during their last two weeks of the rotation. Students desiring a letter of recommendation from Dr. Michael Mullins, Director of Research, or any other EM attending should take this WUMS IV Emergency Medicine rotation. Students will be scheduled for required weekend and overnight shifts and changes will not be allowed to the schedule unless approved prior to the start of the rotation by the course coordinator. Please be advised that there is a limit of days off while on this rotation during interview season; otherwise, students should arrange to take the elective at a different time during the year. Days off during the rest of the year will conform to university policy. Days off should be requested from Mary Hummert at least two weeks prior to the beginning of the

rotation for scheduling purposes.

Student time distribution: Outpatient 80%, Conferences/Lectures 20%; Primary Care 40%, Subspecialty Care 60%

Major teaching responsibility: Attendings and senior residents (PGY 3 & 4)

Patients seen/weekly: ~5 per shift

On call/weekend responsibility: Evenings and weekends; no on call

Location: Barnard and/or Wohl Hospital

Elective Contact: Mary Hummert, 747-4156

Other Information: Contact Emergency Medicine Division office at 747-4156, for scheduling one week prior to the rotation. If a student is needing any time off, approval will be needed by the Course Coordinator before the start of the rotation. Students are required to work at least 12 to 14 shifts.

M25 821 INPATIENT CARDIOLOGY

Instructor(s): Anita Bhandiwad, MD, 314-362-1291

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will participate as members of the Barnes-Jewish Cardiology at Washington University Consultative Team. They will be part of a team composed of faculty members, fellows, residents, and nurse specialists that sees a large population of cardiac patients and follows them through all aspects of their in-hospital care. Emphasis will be placed on physical examination and the interpretation of modern cardiac diagnostic tests including electrocardiograms, echocardiograms and coronary angiograms and their role in clinical decision making.

Student time distribution: Inpatient 90%, Outpatient 0%, Conferences/ Lectures 10%; Primary Care 5%, Subspecialty Care 95%

Major teaching responsibility: Attending and fellow

Patients seen/weekly: 10-15

On call/weekend responsibility: None

Location: 13th Floor, Northwest Tower

Elective Contact: Anita Johnson 314-747-3606

Other Information: Students meet on the 13th Floor, Northwest Tower, 9:00 a.m. first day of elective.

M25 822 HONORS MEDICINE – CARDIOLOGY

Instructor(s): Thomas De Fer, MD, 362-8050

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The structure and functioning of the “Honors Medicine-Cardiology” elective (subinternship) is very similar to the general medicine subinternship (M25 801). The basic purpose is to develop expertise in the care of hospitalized patients in a well-supervised teaching environment. The majority of patients admitted to the service will have a cardiology diagnosis as the main reason for admission. Some general medical problems will also be seen. All attendings on the service are cardiology subspecialists. Cardiology fellows act as the chief resident for the service on a monthly basis. Subinterns act as their patients’ interns under the supervision of residents and attending physicians. Subinterns have the same on-call and admitting schedules as the interns on their teams and are assigned up to two new patients on each admitting day. Subinterns are not required to spend call nights in the hospital. Except in emergencies, subinterns are the first individuals to evaluate patients admitted to medical service teams. A diagnostic and therapeutic approach to the patient is planned in consultation with the resident. Subinterns assume primary responsibility for the daily care of their patients, under the supervision of resident and attending physicians. This includes evaluation on daily rounds, scheduling and obtaining results of diagnostic studies, planning therapy, making arrangements for care after discharge and communicating with patients and their families. Subinterns attend the same conferences as the internal medicine house staff. There are also several conferences specific to the cardiology service.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;

Primary Care 25%, Subspecialty Care 75%

Major teaching responsibility: Attending, chief resident, and resident

Patients seen/weekly: 8-12

On call/weekend responsibility: Yes

Location: Barnes-Jewish Hospital

Elective Contact: Amber Specter, 362-8050

Other Information: Students will receive e-mail communication regarding when/where to report on the first day prior to the beginning of the period.

M25 823 CLINICAL CARDIOLOGY – VA HOSPITAL

Instructor(s): Wade Martin, MD, 289-6329

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The major purpose of this elective in clinical cardiology at the John Cochran VA Hospital is to improve evaluation and management skills for diagnosis and treatment of important cardiovascular conditions such as coronary artery disease including acute myocardial infarction, congestive heart failure, hypertension, and valvular heart disease. The rotation is designed to be flexible enough to accommodate a wide variety of course objectives but includes the opportunity to participate in 1-3 outpatient clinics per week; 1-4 weeks of inpatient intensive care, telemetry, or cardiology consultation rounds; and ECG, stress testing, nuclear imaging, or echocardiographic reading sessions, cardiac catheterization and electrophysiologic procedures. The emphasis will be on improvement of the ability to diagnose and treat cardiovascular disease on the basis of information obtained from a thorough history and physical examination that is integrated with data from appropriate highly targeted laboratory studies in a manner that optimizes patient outcome and minimizes risk and costs.

Student time distribution: Inpatient 45%, Outpatient 55%, Conferences/ Lectures 5-10%; Primary Care 25%, Subspecialty Care 75%

Major teaching responsibility: Attendings and fellows

Patients seen/weekly: 20

On call/weekend responsibility: Varies

Location: John Cochran VA Hospital

Elective Contact: Wade Martin, MD, 289-6329

Other Information: Students should meet in Room B206, 2nd Floor, VA Hospital.

M25 825 CARDIAC ARRHYTHMIAS AND ELECTROPHYSIOLOGY

Instructor(s): Timothy Smith, PhD, MD, 454-7877

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective provides the student with exposure and teaching in the diagnosis and treatment of complex cardiac rhythm disturbances. Specifically, the student is expected to evaluate patients referred for evaluation and treatment of complex or life-threatening rhythm disturbances, unexplained syncope or sudden cardiac death. Rounds are made daily on hospitalized patients, and students are welcome to observe electrophysiology studies or implantation of pacemakers and defibrillators. This elective also provides an intensive opportunity to learn clinical electrocardiography and the systematic use of anti-arrhythmic drugs. Finally, since patients with chronic, complex rhythm disturbances frequently have organic heart disease, a broad-based exposure to general cardiology is also part of this elective.

Student time distribution: Inpatient 80%, Outpatient 10% (optional), Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attending physician

Patients seen/weekly: 2 new consults/day

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital

Elective Contact: Timothy Smith, PhD, MD, or Gina Gentilini, 747-4166

Other Information: Students meet in the Cardiology Division, 13th Floor Northwest Tower, 8:00 a.m. first day of elective or page the EP Fellow at 424-4680.

M25 827 HEART FAILURE/CARDIAC TRANSPLANTATION

Instructor(s): Gregory Ewald, MD, 454-7009

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This rotation is intended to provide trainees with a comprehensive experience managing patients with advanced heart failure. In addition to daily rounds, trainees are invited to attend both heart failure and transplant clinics. Further, the curriculum is supplemented by a comprehensive syllabus that contains the critical literature pertinent to this patient population. The trainees will also have experience with the evaluation of patients for operative heart failure therapies and will have the opportunity to observe these surgical procedures.

Student time distribution: Inpatient 70%, Outpatient 20%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 30

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, North Campus, Suite 4455

Elective Contact: Gregory Ewald, M.D., 454-7009

Other Information: Students should page the attending physician,
8:00 a.m. first day of elective.

M25 830 DERMATOLOGY

Instructor(s): Dermatology staff, 454-8622

Enrollment limit per period: 4

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 29, 33, 37, and 41. THIS COURSE HAS A STRICT ATTENDANCE POLICY!

The aim of this elective is to provide a guide for the student so that s/he is able to appreciate dermatology within the broader perspectives of medicine and biology. Emphasis will be placed on the dermatologic variations encountered in a normal physical examination of the skin, the identification of common skin diseases, dermatologic clues to systemic disease, as well as those dermatologic conditions that are life threatening. The student will participate in outpatient care in the Barnes-Jewish Hospital and affiliated clinics. Students will attend all clinical teaching rounds and conferences in addition to the basic science and cutaneous

histopathology conferences. M25 830 is essentially the same as the 3rd Year Dermatology Clerkship. Students are limited to taking either one or the other – NOT BOTH.

Student time distribution: Inpatient 25%, Outpatient 50%,
Conferences/ Lectures 25%; Specialty Care 100%

Major teaching responsibility: Course Master for rotation and senior resident

Patients seen/weekly: 25-50

On call/weekend responsibility: None

Location: 7705 Wohl Hospital

Elective Contact: Rosemarie Brannan, 454-8622

Other Information: First Monday of rotation students will attend both the 7:30 a.m. lecture in the Dermatology Library, 7706 Wohl Hospital and the 9:00 a.m. orientation, Room 7714 Wohl Hospital.

M25 834 CLINICAL MENTORING

Instructor(s): Gregory Polites, MD, 747-5268

Enrollment limit per period: 62

This elective is designed to develop the teaching and mentoring skills of our 4th year medical students through structured hospital sessions with 1st year medical students and supervised sessions with clinical faculty. The primary format of the elective is observation of the 1st year students during hospital sessions where the first years perform the H&P and the 4th year mentors offer constructive feedback. Each H&P write-up is also thoroughly reviewed and critiqued by the mentor. Supervisory sessions also occur with clinical faculty who give feedback on both the performance of the 1st year students as well as the mentoring skills of the 4th year.

Student time distribution: TBD

Major teaching responsibility: TBD (assigned)

Patients seen/weekly:

On call/weekend responsibility: None

Location: Office of Medical Student Education (OMSE) | 5th Floor
Becker Medical Library

Elective Contact: Laurie Eisenhauer, 286-2546

Other Information: To be determined

M25 836 CLINICAL GASTROENTEROLOGY AND HEPATOLOGY

Instructor(s): Gregory S. Sayuk, MD, MPH, 454-8201

Enrollment limit per period: 4

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The GI Hepatology elective is integrated into a very active inpatient/outpatient and endoscopy service at Barnes-Jewish Hospital. Students will participate in the evaluation of inpatients and outpatients with a spectrum of gut and liver disorders, will make patient rounds with the faculty and fellows, and have responsibility for patients on whom consultations have been requested. In addition, they will observe biopsy, endoscopic, and intubation techniques and participate in outpatient clinic and GI conferences.

Student time distribution: Inpatient 65%, Outpatient 25%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attending and fellows

Patients seen/weekly: 12 new

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, East Pavilion

Elective Contact: Delli Beyers, 454-8201

Other Information: Students meet in the Digestive Disease Clinical Center, street level East Pavilion, Barnes-Jewish Hospital, 8:00 a.m. first day of elective.

M25 838 MEDICINE CONSULT SERVICE

Instructor(s): Caroline Kahle, MD, and Gina LaRossa, MD, 362-1700

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41. Two week rotations are also available.

The focus of the Medicine Consult Service elective is the evaluation and management of medically complex patients admitted to the hospital on non-medicine services. The issues involved with perioperative management are particularly stressed. The student will function as a member of the consult service team. Duties will include performing initial consultations and follow-up care under the supervision of a Hospital Medicine attending and a senior medical

resident. Attendance at Department of Medicine and division conferences is encouraged.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;

Primary Care 100%

Major teaching responsibility: Consult Service attending (from the Division of Hospital Medicine)

Patients seen/weekly: 10-15

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, West Pavilion Corridor main level

Elective Contact: Mary Russell, 362-1707, mrussell@wustl.edu

Other Information: Students should contact Mary Russell, 362-1707, one to two weeks prior to first day of elective for information on where to meet.

M25 843 MEDICAL TOXICOLOGY

Instructor(s): Evan S. Schwarz, M, 747-3690

Enrollment limit per period: 5

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This rotation offers practical experience in the evaluation and management of the acutely ill poisoned patient. Students will function as subinterns and either report to the senior resident or directly to the toxicology attending. Students will gain familiarity and experience evaluating and treating patients who have intentionally and unintentionally overdosed on medications or illicit drugs, been envenomated (such as by spiders, snakes, or other reptiles), or been exposed to toxic substances or chemicals. Students will also gain experience in administering antidotes and learning to properly decontaminate someone after an ingestion or exposure. There are no overnight or weekend shifts or call. Daily activities start in the morning and are generally concluded by the early afternoon. A core content of lectures will be provided. The students will also be assigned small projects during their rotation that will enhance their experience particularly in environmental and occupational toxicology. Opportunities to increase their experience with occupational toxicology also exist during this rotation; those with this

interest can ask for further information during their rotation. Students desiring a letter of recommendation from one of the toxicology attendings (who are also Emergency Medicine and Internal Medicine attendings) or interested in Emergency Medicine or Medical Toxicology should take this elective. Also, students considering other specialties such as Pediatrics or Internal Medicine should consider this rotation as they will be responsible for evaluating these patients as part of their inpatient or outpatient practice. Please be advised that there is a limit of days off while on this rotation during interview season; otherwise, students should arrange to take the elective at a different time during the year. Days off should be requested from Mary Hummert at least two weeks prior to the beginning of the rotation for scheduling purposes.

Student time distribution: Inpatient 70%, Outpatient 10%,
Conferences/ Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Toxicology Faculty

Patients seen/weekly: 12

On call/weekend responsibility: None

Location: Emergency Medicine office, 8th Floor of Barnard, Suite 8813

Elective Contact: Mary Hummert, 747-4156

Other Information: Students meet in 8th floor Emergency Medicine Conference Room, 8th Floor, Barnard, 8:00 a.m. first day of elective

M25 844 HEMATOLOGY AND HEMOSTASIS

Instructor(s): Morey Blinder, MD, and Evan Sadler, MD, 362-8857

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Activities planned include work-up of patients at Barnes-Jewish Hospital under the supervision of the hematology fellow and his staff consultant; attendance at clinical rounds three to five hours weekly; participation in out-patient clinics; experience in various procedures, especially blood and bone marrow morphology and in interpretation of coagulation tests. Daily student rounds with a senior staff person.

Student time distribution: Inpatient 80%, Outpatient 10%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attending and fellow

Patients seen/weekly: 3-5

On call/weekend responsibility: None

Location: 8801 Clinical Sciences Research Building

Elective Contact: Morey Blinder, M.D., 362-8814

Other Information: Students will meet in Barnes-Jewish Hospital

South. Contact Kim French at 454-8532 for time and location.

M25 847 BONE AND MINERAL DISEASES

Instructor(s): Michael Whyte, MD; Kathryn Diemer, MD; Roberto

Civitelli, MD; and Carolyn Jachna, MD

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 17, 21, 25, 29, 33, 37, and 41.

The course is designed to acquaint the student with the clinical, radiological and pathological manifestations and treatment of disorders of bone and mineral metabolism, including osteoporosis, Paget's disease of bone, hyperparathyroidism, osteomalacia, and more rare disorders of bone development and homeostasis. The student will rotate through clinics of the Division of Bone and Mineral Diseases, and see patients at Barnes-Jewish Hospital, Barnes-Jewish West County Hospital and Shriners Hospital for Children.

Acquired and heritable bone diseases will be studied in the context of derangements of mineral homeostasis with emphasis on vitamin D and peptide hormone metabolism and skeletal formation and remodeling. The role of non-invasive methods for measuring bone mass in the diagnosis and management of skeletal diseases also will be stressed. Faculty and medical students will be present interesting cases for discussion or the students can present a pertinent topic related to bone metabolism they have researched during their rotation.

Responsibilities: Shriners Hospital Wednesday a.m. (Dr. Whyte); CAM, 2nd and 3rd Monday (a.m.), and 4th Thursday (p.m.) of each month; Barnes-Jewish West County Prof. Building 2; Tuesdays or

Wednesdays, p.m. Metabolic Bone Disease Case Conference, Fridays 8:00 a.m., BJC Institute of Health Building, 11th Floor, Conference Room AB; Avioli Musculoskeletal Research Seminars, Fridays 9:00 a.m., BJC Institute of Health Building, 11th Floor, Conference Room AB.

Student time distribution: Outpatient 85%, Conferences/ Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: ~20

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital; Barnes-Jewish Hospital West County; Shriners' Hospital for Children

Elective Contact: Michael Whyte, MD, 314-872-8305

Other Information: Please contact Dr. Whyte a week before elective for instruction and meeting location.

M25 853 BONE AND JOINT INFECTIOUS DISEASE CONSULT

Instructor(s): Hilary Babcock, MD, 454-8225,

hbabcock@dom.wustl.edu

Enrollment limit per period: 8

Valid start weeks for 2-week blocks are: Weeks 3, 7, 11, 15, 19, 23, 27, 31, 35, 39, and 43. Must be done in conjunction with 2 weeks of General Infectious Disease

Study of infectious diseases of the bones and joints, including infections in both native and prosthetic joints. The elective is designed to teach students the fundamentals of evaluating clinical orthopedic infections and formulating plans for workup and therapy. Students see consultations in infectious diseases in every part of Barnes-Jewish Hospital under the supervision of a faculty member who rounds with them every day. They work closely with the infectious diseases attending and nurse practitioner, follow their own patients and play an important role in their management. They are expected to read the literature about their patients and participate in clinical conferences. They attend teaching rounds and conferences and lectures in infectious diseases. They also learn appropriate use of antibiotics and antifungal agents. The role of

surgical and medical management is discussed, and the students will interact with surgical staff in understanding the risks and outcomes of these common infections. Two weeks of General Infectious Disease are a prerequisite to this course.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%, Subspecialty Care 100%

Major teaching responsibility: Single Attendings

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: 15th Floor, Northwest Tower

Elective Contact: : Dawn-Michele Cannon, 454-8225

Other Information: Students should page the Bone and Joint attending at 510-3805 at 8:00 a.m. on the first day of the elective.

M25 854 TRANSPLANT INFECTIOUS DISEASE

Instructor(s): Steve Lawrence, MD, 454-8214,
slawrenc@dom.wustl.edu

Enrollment limit per period: 2

Valid start weeks for 2-week blocks are: Weeks 3, 7, 11, 15, 19, 23, 27, 31, 35, 39, and 43. Must be done in conjunction with 2 weeks of General Infectious Disease

Study of infectious diseases in patients who have had bone marrow or solid organ transplants, or who have a hematologic malignancy.

The elective is designed to teach students the fundamentals of evaluating clinical infections in these complex and interesting patients and formulating plans for workup and therapy. Students see consultations in every part of Barnes-Jewish Hospital under the supervision of a faculty member who rounds with them every day. They work closely with infectious disease fellows, follow their own patients and play an important role in their management. They are expected to read the literature about their patients and participate in clinical conferences. They attend teaching rounds and conferences and lectures in infectious diseases. They also learn appropriate use of antibiotics, antifungal and antiviral agents in this highly immune suppressed population. A wide distribution of infectious diseases is covered including management of neutropenic fever, invasive fungal

infections in the transplant population, acute and chronic infections, infection prophylaxis and monitoring and interactions between immunosuppressive agents and antibiotics.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%, Subspecialty Care 100%

Major teaching responsibility: Single Attending and Fellow

Patients seen/weekly: 6

On call/weekend responsibility: None

Location: 15th Floor Northwest Tower

Elective Contact: Dawn-Michele Cannon, 454-8225

Other Information: Students should page the Transplant fellow at (314) 536-5253 at 8:00 a.m. on the first day of the elective.

M25 856 INFECTIOUS DISEASE: CARE OF HIV-INFECTED PATIENTS

Instructor(s): Rachel Presti, MD, PhD, 454-8225

Enrollment limit per period: 4

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective is designed to introduce students to the care of HIV-infected individuals (adults, adolescents, and children) and of HIV-exposed infants. Care of the HIV-infected patient encompasses not only the medical aspects, but also the psychosocial aspects of care. The elective will involve rotation through several clinics including the pediatric and adolescent HIV clinics, and several adult HIV clinics, along with exposure to the AIDS Clinical Trials unit. In addition, the student will spend part of his/her time rotating in the general ambulatory infectious diseases clinics (pediatric and adult ID).

Student time distribution: Outpatient 80%, Conferences/Lectures 15%, Other 5%; Subspecialty Care 100%

Major teaching responsibility: Attendings listed above as course instructors

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: St. Louis Children's Hospital, Barnes-Jewish Hospital, plus other ambulatory sites.

Elective Contact: Dawn-Michele Cannon, 454-8225

Other Information: Students should contact Dr. Presti one week prior to the start of rotation. Students report to the ID Clinic/ACTU, Storz Building, 4570 Children's Place, 9:00 a.m. first day of elective.

M25 858 AMBULATORY INFECTIOUS DISEASE

Instructor(s): Nigar Kirmani, MD, 747-1214

Enrollment limit per period: 8

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The elective is designed to teach students the fundamentals of evaluating clinical infections in the outpatient setting. Students see patients under the supervision of a faculty member. Students will participate in the care of HIV infected or otherwise immunosuppressed patients as well as general infectious disease and travel patients. The clinic is the primary provider for HIV infected patients, and students will learn the pathogenesis of HIV, become familiar with most antiretroviral medications, and have the opportunity to learn about opportunistic infections and their prophylaxis. They will also have the opportunity to see patients with bone and joint infections, endovascular infections, endemic and opportunistic mycoses, sexually transmitted diseases and travel plans. Patients seen will have a wide range of acute and chronic infections with a heavy emphasis on HIV/AIDS, including indigent and insured patients, of both sexes and a wide range of ages. The students will play an important role in the management of these patients. They are expected to read the literature about their patients and participate in clinical conferences.

Student time distribution: Outpatient 90%, Conferences/Lectures 10%,

Primary Care 20%; Subspecialty Care 80%

Major teaching responsibility: Clinic Attendings

Patients seen/weekly: 15

On call/weekend responsibility: None

Location: 15th Floor Northwest Tower and Storz Building

Elective Contact: Lori Watkins, 747-1214

Other Information: Students should report to the ID Clinic in the

Storz Building, 8:00 a.m. first day of elective.

M25 859 GENERAL INPATIENT INFECTIOUS DISEASE

Instructor(s): Rachel Presti, MD, 454-8214

Enrollment limit per period: 8

Valid start weeks for 2- or 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41. Two week blocks must be done in conjunction with Transplant Infectious Disease or Bone and Joint Infectious Disease.

Study of patients with infectious diseases, including inpatient care of HIV infected patients and general infectious disease consults. The elective is designed to teach students the fundamentals of evaluating clinical problems in infection and formulating plans for workup and therapy. Students see consultations in infectious diseases in every part of Barnes-Jewish Hospital under the supervision of a faculty member who rounds with them every day. They work closely with medical residents and infectious disease fellows, follow their own patients and play an important role in their management. They are expected to read the literature about their patients and participate in clinical conferences. They attend teaching rounds and conferences and lectures in infectious diseases. They also learn appropriate use of antibiotics, antifungal and antiviral agents. A wide distribution of infectious diseases is covered including community acquired acute and chronic infections, opportunistic infections in HIV infected patients, hospital acquired infections, and basic infection control practices. This is a 4 week rotation. Two week rotations are allowed, but must be done in conjunction with 2 weeks of Transplant Infectious Disease or Bone and Joint Infectious Disease.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%; Subspecialty Care 100%. Students must be present at 75% of the elective to receive a passing grade.

Major teaching responsibility: Single attending and fellow

Patients seen/weekly: 7 new consults, 15 total

On call/weekend responsibility: None

Location: 15th Floor, Northwest Tower

Elective Contact: Dawn-Michele Cannon or Alicia Cicerelli, 454-8214

Other Information: Students should page Infectious Disease Fellows at either 424-2718 or 424-2720 on the first morning of the elective.

M25 861 ONCOLOGY-INPATIENT

Instructor(s): Anna Roshal, MD, 454-8306

Enrollment limit per period: 6 students per block, on average one per attending

Valid start weeks for 4-weeks blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Medical Oncology is a complex subspecialty that is undergoing a rapid evolution as a result of new systemic treatment approaches that stem from biological insights into the nature of cancer. During the course of the elective medical students will be able to interact with attending physicians and patients for bed side teaching and attend tumor boards and lectures focused on the care of patients with solid tumors. At the end of the rotation the students will appreciate the principles of our approach to cancer patients and should have gained insights into the pharmacological basis for systemic cancer treatment. The ethical and medical challenges of caring for patients with advanced incurable malignancies will also be an important theme, as well as the conduct of clinical research in this patient population. Students will learn to care for hospitalized patients suffering from complications from their cancer or from toxicities due to treatments. Oncologic emergencies will be covered. Issues such as palliative care treatment options and end-of-life decision making will be explored as well.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: All Medical Oncology Attendings

Patients seen/weekly: 50

On call/weekend responsibility: None

Location: Division 7900, 7th Floor CAM

Elective Contact: Janet Weier, 747-7509

Other Information: Students meet on the 7th Floor CAM, POD B, Medical Oncology Outpatient Area, 8:00 a.m. first day of elective.

M25 862 INPATIENT INTERNAL MEDICINE/ONCOLOGY-FIRM

Instructor(s): Anna Roshal, MD, 454-8306

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will function as sub-interns on the resident and intern team, supervised by attending Medical Oncologist. They will see patients who have a cancer diagnosis and are admitted for either treatment, or complications of their disease, including complicated symptom control issues. Most common cancers that are seen are lymphoma, lung cancer, GI malignancies, sarcomas, and breast cancer. Students will also be exposed to complex psychosocial issues surrounding end-of-life discussions with patients and their families, and learn about managing complex symptomatology frequently encountered in this population. There are scheduled twice weekly formal teaching lectures on oncologic emergencies, and other topics such as neutropenic fever, pain management and management of specific cancer types.

Major learning goals:

- (1) Become familiar with frequent complications of cancer treatment such as neutropenic fever, nausea/vomiting, diarrhea, infectious complications and their management.
- (2) Become familiar with oncologic emergencies (spinal cord compression, hypercalcemia, neutropenic sepsis) and their management.
- (3) Become more comfortable handling patients and families requiring difficult psychosocial and end-of-life discussions.

Student time distribution: Inpatient 100%; Subspecialty Care 100%

Major teaching responsibility: Dr. Roshal

Patients seen/weekly: 50

On call/weekend responsibility: One-in-four call

Location: North Campus, 7900 Inpatient Floor

Elective Contact: Janet Weier, 747-7509

Other Information: Students meet in North Campus, 7900 Inpatient Floor, 7:30 a.m. first day of elective.

M25 863 EMERGENCY ULTRASOUND

Instructor(s): Deborah Kane, MD, and staff, 747-4156

Enrollment limit per period: 1 unless otherwise approved by coursemaster

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This rotation will focus on ultrasound and all of its many applications and uses in the Emergency Department. Students will participate in the performance of bedside ultrasound of patients in the Emergency Department. Common applications of Emergency Ultrasound include the FAST exam, pelvic ultrasound, Abdominal Aortic Aneurysm (AAA), vascular access, renal, gallbladder, and DVT. In general, the student will be in the Emergency Department during weekdays to perform these exams. Students will not be involved in direct patient care during this rotation. Students will have access to a lecture bank of the common applications. In addition, the student will meet with the Ultrasound Director 1-2 times/wk to review images and have direct hands-on instruction. At the end of the rotation the student should have gained the knowledge of basic Emergency Ultrasound including its indications and applications; as well as becoming more adept at the performance of ultrasound.

Student time distribution: Outpatient 80%, Conferences/Lectures 20%; Primary Care 40%, Subspecialty Care 60%

Major teaching responsibility: Attendings

Patients seen/weekly: 25

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, North Campus

Elective Contact: Mary Hummert, 747-4156

Other Information: Students meet at the Emergency Department at Barnes Jewish Hospital at 10:00 a.m. on the first day of the elective.

M25 865 INTENSIVE CARE MEDICINE – BARNES-JEWISH NORTH

Instructor(s): Warren Isakow, MD, and staff, 454-8762

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective in intensive care is offered in the Intensive Care Unit at Barnes-Jewish Hospital, North Campus. This unit has 10 intensive care beds providing intensive nursing care and life-support technology. The patients represent a mixture of patients with primarily medical problems. Patient care responsibility includes night call. In addition to patient responsibility, there are regularly scheduled conferences and attending rounds.

Student time distribution: Inpatient 100%; Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 8

On call/weekend responsibility: Every third night

Location: Barnes-Jewish Hospital, North Campus

Elective Contact: Lisa Wetzel, 454-8762

Other Information: Students meet at the MICU (8th Floor Barnes-Jewish Hospital, North Campus), 8:00 a.m. first day of elective.

M25 867 MEDICAL INTENSIVE CARE

Instructor(s): Warren Isakow, MD, 454-8762

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective is offered as an opportunity to gain additional experience in acute, primary care medicine. The elective is an advanced course in patient care involving complex medical problems. Responsibilities involve working up new patients with the MICU team, case presentations and attendance at conferences.

Conferences consist of attending rounds Monday through Saturday, radiology rounds Monday through Saturday, pulmonary conference and medical grand rounds on Thursday, and critical care conference once each month. Call schedule is every third night.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;

Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 3

On call/weekend responsibility: Yes

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Lisa Wetzel,

454-8762

Other Information: Students report to the Medical Intensive Care Unit, 8300 Barnes-Jewish Hospital, South Campus, 7:30 a.m. first day of elective.

M25 869 PALLIATIVE MEDICINE

Instructor(s): Maria Dans, MD, Coursemaster, 362-5800,
mdans@dom.wustl.edu, BJH Palliative Care Service members

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The Palliative Medicine elective will focus on the care of patients with life-threatening or debilitating illness throughout the course of their care. Skills in symptom management, communication, and interdisciplinary team-based care will be the focus. Students will spend the majority of their time on the BJH Palliative Care Service. Based on the individual student's interest, there may also be opportunities to work with the BJC Hospice Team and the St. Louis Children's Hospital Palliative Care Service.

While in the hospital, students will be responsible for seeing patients upon initial assessment as well as delivering follow-up care with the team. Patients will be seen for both end-of-life care as well as symptom management. Students will learn to assess and treat refractory symptoms and participate in complicated advanced care planning. Students will attend interdisciplinary team meetings, and may participate in conversations about goals of care and coping with bad news. They may also make home visits with hospice care providers, if desired. Emphasis will be placed on observing and understanding the psychosocial and spiritual needs of the patients, as well as the impact of the burden on caregivers. In addition, students will be expected to create weekly performance analysis notes in order to further their development as independent learners. Student time distribution: Inpatient 85%, Conferences/Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: BJH Palliative Care Attendings (Maria

Dans, M.D., and Kathleen Garcia, M.D.); BJH Palliative Care Team Members; BJC Hospice Medical Director (Bernard Shore, M.D.); SLCH Palliative Care Service Medical Director (Joan Rosenbaum, M.D.)

Patients seen/weekly: 10

On call/weekend responsibility: None

Location: 4105 Suite, Queeny Tower, Barnes-Jewish Hospital South Campus

Elective Contact: Nicole Williams, 747-5361, nsw2227@bjc.org

Other Information: Please email the Coursemaster and Administrative Contact at least one week before start of elective.

Reporting time is 8:45 a.m. first day of elective

M25 870 ENDOCRINOLOGY, DIABETES AND METABOLISM

Instructor(s): Clay F. Semenkovich, MD, and staff, 362-7617

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

In general, the 4-week rotation will be divided into 2 weeks general endocrinology and 2 weeks diabetes. Students taking this elective see patients with endocrine and metabolic diseases in the Outpatient Consultation offices and inpatients at Barnes-Jewish Hospital. They will present these cases at formal rounds. They will also participate in informal rounds with the division and at divisional seminars. Extensive interaction with patients with diabetes and a diabetes education program are included, as is involvement with patients with thyroid, pituitary, adrenal, gonad, metabolic bone disease, and lipid disorders. Ample opportunities will be provided for discussions of patient problems with the members of the division.

Student time distribution: Inpatient 60%, Outpatient 30%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Faculty consultant for inpatients, individual faculty one-on-one for outpatients and division chief for both

Patients seen/weekly: 8-10

On call/weekend responsibility: Elective for students

Location: 8th Floor Southwest Tower, Barnes-Jewish South Campus

Elective Contact: Karen Muehlhauser, 362-7617

Other Information: Students meet on 8th Floor Southwest Tower, Barnes-Jewish South Campus, 8:15 a.m. first day of elective.

M25 871 ONCOLOGY-OUTPATIENT

Instructor(s): Steven Sorscher, MD, 362-9319

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will gain experience in the initial treatment of newly diagnosed malignancies and the outpatient management of oncology patients. Participation in multidisciplinary tumor conferences will stress a combined-modality approach to management, incorporating chemotherapy, radiotherapy and surgery. Students will see patients with a variety of malignancies, including lymphoma, myeloma, and tumors of the lung, breast, and colon. Management of hypercalcemia and other paraneoplastic syndromes, as well as cancer pain management will be covered. Students will have the opportunity to see how most oncologists spend 90% of their workday. They will observe different styles that oncologists have in presenting news about prognosis, treatment options and other information to patients while they also learn about the molecular basis for cancer, the mechanisms of action for our therapies (particularly the newer agents which target specific molecular abnormalities) and the key studies that justify the use of therapies (eg randomized studies showing that after surgery, chemotherapy will reduce the risk of recurrence from a particular cancer with a particular regimen). By spending time with clinicians, students will learn how to identify hereditary syndromes, use drugs for symptom relief and also learn how radiographic and laboratory tests allow oncologists to care for patients.

Student time distribution: Outpatient 85%, Conferences/Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Oncology attendings and occasionally fellows

Patients seen/weekly: 30-50

On call/weekend responsibility: None

Location: Siteman Cancer Center, CAM Building

Elective Contact: Joanna Duke, 747-8475

Other Information: Students meet on the 7th Floor, Siteman Cancer Center, CAM Building, 4921 Parkview Place, 8:30 a.m. first day of elective.

M25 871 ONCOLOGY-OUTPATIENT

Instructor(s): Steven Sorscher, MD, 362-9319

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will gain experience in the initial treatment of newly diagnosed malignancies and the outpatient management of oncology patients. Participation in multidisciplinary tumor conferences will stress a combined-modality approach to management, incorporating chemotherapy, radiotherapy and surgery. Students will see patients with a variety of malignancies, including lymphoma, myeloma, and tumors of the lung, breast, and colon. Management of hypercalcemia and other paraneoplastic syndromes, as well as cancer pain management will be covered. Students will have the opportunity to see how most oncologists spend 90% of their workday. They will observe different styles that oncologists have in presenting news about prognosis, treatment options and other information to patients while they also learn about the molecular basis for cancer, the mechanisms of action for our therapies (particularly the newer agents which target specific molecular abnormalities) and the key studies that justify the use of therapies (eg randomized studies showing that after surgery, chemotherapy will reduce the risk of recurrence from a particular cancer with a particular regimen). By spending time with clinicians, students will learn how to identify hereditary syndromes, use drugs for symptom relief and also learn how radiographic and laboratory tests allow oncologists to care for patients.

Student time distribution: Outpatient 85%, Conferences/Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Oncology attendings and occasionally fellows

Patients seen/weekly: 30-50

On call/weekend responsibility: None

Location: Siteman Cancer Center, CAM Building

Elective Contact: Julie Ellebracht, 362-4471

Other Information: Students meet on the 7th Floor, Siteman Cancer Center, CAM Building, 4921 Parkview Place, 8:30 a.m. first day of elective.

M25 877 INTENSIVE ECG INTERPRETATION

Instructor(s): Robert E. Kleiger, MD; 454-8146

Enrollment limit per period: 2

Valid start weeks for 2-week blocks are: Weeks 1, 5, 11, 17, 19, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

The student, during the 2 week elective, will read 20-25 ECGs obtained from the Barnes-Jewish Heart Station and then over read by an experienced electrocardiographer. There will also be didactic sessions covering infarction, ventricular hypertrophy, heart block, arrhythmias, and aberrant conduction.

Student time distribution: Inpatient 0%, Outpatient 0%, Conferences/Lectures 100%; Subspecialty Care 100%

Major teaching responsibility: Attending

Patients seen/weekly: n/a

On call/weekend responsibility: None

Location: 13th Floor Northwest Tower

Elective Contact: Marge Leaders; 454-8146;
mleaders@dom.wustl.edu

Other Information: Contact Marge Leaders, 13th Floor Northwest Tower, on the first day of elective at 9:30 a.m.

M25 878 PALLIATIVE CARE FOR THE NEW PHYSICIAN

Instructor(s): Gary A. Ratkin, MD, 314-996-5425

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 33

The Palliative Care program at Missouri Baptist Medical Center utilizes a model that encourages primary care physicians and

hospitalists to direct and provide palliative care to their patients with a wide range of chronic illness. We stress training and practice of empathetic communication and facilitated decision-making for patients and their family members, who are inpatients often facing end-of-life circumstances. Our intention is to expose the student to a range of patient scenarios both on an inpatient and outpatient basis, with time spent in the critical care environment, inpatient medical-surgical services, our palliative care service rooms, outpatient palliative care offices, home visits and time with the BJC Hospice program. The student will have the opportunity to interact with patients and family members, where possible, participate in decision-making regarding goal setting, symptom management and discharge planning. Cases that are seen by the student will be presented at case conferences. The "new physician" will have the opportunity to lead topic oriented discussions and participate in clinical investigations that are currently underway.

Student time distribution: Inpatient 75%, Outpatient 25%,

Conferences/ Lectures 10%; Primary Care 100%

Major teaching responsibility: Gary A. Ratkin, MD

Patients seen/weekly: Estimated 5/week

On call/weekend responsibility: None

Location: Missouri Baptist Medical Center, 3015 N Ballas Rd, St.

Louis, MO 63131

Elective Contact: Gary A. Ratkin, MD, 314-996-5425, gar0347@bjc.org

Other Information: Contact Dr Ratkin at least six weeks in advance of first day of rotation.

M25 880 PULMONARY MEDICINE – BARNES-JEWISH HOSPITAL

Instructor(s): Daniel Rosenbluth, MD, and staff, 454-8762

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will acquire skills in the evaluation and management of patients with pulmonary diseases and in the interpretation of pulmonary function tests. They will gain experience in outpatient Lung Center and attend regular pulmonary and critical care medicine

conferences.

Student time distribution: Inpatient 60%, Outpatient 20%,

Conferences/ Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Multiple attendings, fellows and residents

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: 15th Floor, Northwest Tower

Elective Contact: Lisa Wetzel, 454-8762

Other Information: Students should page Pulmonary Consult Fellow, 7:30 a.m. first day of elective.

M25 882 PULMONARY MEDICINE – VA HOSPITAL

Instructor(s): Michael Lippmann, MD, 289-6306

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will participate in several ambulatory care activities of the Pulmonary Section, including outpatient consultations of common respiratory disorders such as COPD, obstructive sleep apnea, lung cancer and tuberculosis, and follow-up of primary care patients with pulmonary disease. In addition, students will round in medical intensive care units, interpret pulmonary function tests, participate in bronchoscopy and attend scheduled teaching conferences of the Pulmonary Division.

Student time distribution: Inpatient 30%, Outpatient 50%,

Conferences/ Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Several attendings

Patients seen/weekly: 6-10 (by student)

On call/weekend responsibility: None

Location: John Cochran VA Hospital

Elective Contact: Michael Lippmann, MD, 289-6306

Other Information: Students meet in 6C-MICU John Cochran VA Hospital, 7:30 a.m. first day of elective.

M25 884 BONE MARROW TRANSPLANTATION AND STEM CELL BIOLOGY

Instructor(s): John F. DiPersio, MD, PhD, 362-9339

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Intense four-week clinical rotation exposing interested fourth-year medical students to the clinical world of bone marrow transplantation and to the basic science of hematopoiesis, leukemia, and stem cell biology. Students will be primarily responsible for the care of autologous and allogeneic BMT recipients and those patients being treated for a variety of hematologic malignancies such as AML, ALL, multiple myeloma and Non-Hodgkin's Lymphoma. In addition they will be exposed to methods of stem cell harvest, cryopreservation, and immunophenotyping. This rotation plans to provide motivated students with an ideal mix of clinical medicine and basic science.

Student time distribution: Inpatient 60%, Outpatient 20%,

Conferences/ Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Attending on service as well as all BMT physicians

Patients seen/weekly: 10-20

On call/weekend responsibility: None

Location: Bone Marrow Transplant Unit 13-100

Elective Contact: John F. DiPersio, MD, PhD, or Carol Wiggins, 454-8491

Other Information: Students meet in the Bone Marrow Transplant Unit, 8:30 a.m. first day of elective.

M25 885 OCCUPATIONAL/ENVIRONMENTAL MEDICINE

Instructor(s): Bradley Evanoff, MD, MPH, 454-8638

Enrollment limit per period: 1 (2, by special arrangement)

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41. (Students may take this elective for up to 12 weeks.)

This elective is designed to introduce students to research and practice in the prevention of work-related injuries and illnesses, and prevention of health effects related to environmental exposures.

Preventive activities will include work site visits and intervention projects, as well as involvement with work site health promotion and policy making. Research projects involve epidemiology and intervention projects in work-related injury and musculoskeletal disorders. Specific activities are flexible depending on the students' interests.

Students may elect to participate in the Interdisciplinary Environmental Clinic at Washington University. Based in the law school, the clinic involves interdisciplinary teams of students (law, engineering, environmental science) taking principal responsibility, under faculty supervision, for cases and projects on behalf of environmental and community organizations. The medical student(s) assist clinic students by evaluating the human health impacts involved in one or more of the clinic's cases, and presenting such information to the client organization(s) and others. Among the cases on which medical students might participate are: (1) air pollution associated with factories in the St Louis metropolitan area; (2) lead poisoning of children and adults in St. Louis and surrounding towns; (3) air and water pollution caused by concentrated animal feeding operations (factory farms) in Missouri. Students choosing this option will work with the Environmental Clinic staff and with Dr. Evanoff to evaluate and present evaluations of human health impacts of environmental exposures.

Student time distribution: Conferences/Lectures 10%, Policy activities/Research 90%; Subspecialty Care 100%

Major teaching responsibility: Attending

Patients seen/weekly: 10

On call/weekend responsibility: None

Location: 1st Floor, Wohl Hospital

Elective Contact: Bradley Evanoff, MD, MPH, 454-8638

Other Information: Students should meet at 1st Floor, Wohl Hospital, 9:00 a.m. first day of elective.

M25 887 CLINICAL CARDIOVASCULAR MEDICINE

Instructor(s): Thomas F. Martin, MD, FACC; and Timothy J. Martin, MD, FACC, CCDS, 573-308-1301

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 25, 29, 33, and 37.

Clinical cardiology with some internal medicine in a rural setting. Inpatient and Out-patient care. Diagnostic Testing. Device Implants and follow up care. Cardiac Catheterization. Peripheral Vascular angiography and intervention. Room and board provided.

Student time distribution: Inpatient 50%, Outpatient 50%;

Subspecialty Care 100%

Major teaching responsibility: Attending

Patients seen/weekly: 100

On call/weekend responsibility: None

Location: Phelps County Regional Medical Center, Rolla, MO

Elective Contact: Annette Wells, 573-308-1301,
awells@dom.wustl.edu

Other Information: Students should arrive at Washington University Heart Care Institute in Rolla, 1050 W. 10th Street, Suite 500 at 8:00 a.m. the first day of elective, and will be escorted to the unit where Dr. Martin is rounding.

M25 890 CLINICAL NEPHROLOGY

Instructor: Steven Cheng, MD, 362-3204

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students assist in both the inpatient and outpatient areas to diagnose patients with acute and chronic renal failure, glomerulonephritis, and electrolyte disorders. The student is a full member of the inpatient renal consult service, diagnosing and treating patients with acute and chronic renal disease and electrolyte disorders. Students will learn electrolyte management, drug dosing, dialysis procedures and complications, kidney biopsy reading, and the management of acute and chronic renal failure. Students are also encouraged to spend two or three half-days in the outpatient center rotating to the General Renal Clinics and the Transplant Clinic. Throughout the rotation, students work closely with an attending

and a renal fellow.

Student time distribution: Inpatient 80%, Outpatient 10%,
Conferences/Lectures 10%; Primary Care 20%, Subspecialty Care 80%
Major teaching responsibility: Three attendings and three renal
fellows

Patients seen/weekly: Four consults per week

On call/weekend responsibility: Saturday a.m. rounds desirable but
not required

Location: Chromalloy American Kidney Center, Barnes-Jewish
Hospital

Elective Contact: Kim Knolhoff, 362-7211

Other Information: Students meet in the Acute Dialysis Center,
Division 14300, Barnes-Jewish Hospital, 8:00 a.m. first day of elective.
Ask for the Renal Fellow on the Consult Service.

M25 893 ADULT ALLERGY AND CLINICAL IMMUNOLOGY

Instructor(s): H. James Wedner, MD, 454-7376

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25,
29, 33, 37, and 41.

Students will participate in the allergy consult service at Barnes-
Jewish Hospital, North and South Campus. The student will serve as
the primary allergy consult for inpatient and Emergency Room
consultation and present each patient to the allergy fellows on call
and the attending physician. Students will attend The Adult Allergy
Clinic, Pediatric Allergy Clinic, and the outpatient clinics at The
Asthma & Allergy Center at Barnes-Jewish West County Hospital.
Conferences on selected topics in allergy and clinical immunology
will be held with the attending staff two to three afternoons a week.

Student time distribution: Inpatient 10%, Outpatient 75%,
Conferences/ Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Attending and staff

Patients seen/weekly: 12

On call/weekend responsibility: Optional

Location: 15th Floor, Northwest Tower

Elective Contact: Jill Munoz, 454-7376

Other Information: Students meet Jessica Champlin in the Allergy and Immunology division office, 15th Floor, Northwest Tower, 8:00 a.m. first day of elective.

M80 809 AMBULATORY CARE – JACQUELINE MARITZ LUNG CTR

Instructor(s): Daniel Rosenbluth, MD, 454-8762

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 17, 21, 25, 29, 33, 37, and 41.

The Jacqueline Maritz Lung Center houses the ambulatory care activities of the Divisions of Pulmonary Medicine, Thoracic Surgery, and Allergy/Immunology, as well as the pulmonary function laboratory. The student will rotate through (1) both general pulmonary and subspecialty clinics in Pulmonary Medicine (cystic fibrosis, transplantation, emphysema, etc.), (2) Thoracic Surgery clinic, (3) Allergy/ Immunology clinic, and (4) interpretation of pulmonary function tests. Chest imaging is also emphasized in the evaluation process. The rotation can be streamlined to meet areas of emphasis desired by individual students.

Student time distribution: Outpatient 100%, Conferences/Lectures 3-5 week; Primary Care 15%, Subspecialty Care: 85%

Major teaching responsibility: Multiple attendings

Patients seen/weekly: >20

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, North Campus, Lung Center, 8th Floor CAM

Elective Contact: Lisa Wetzel, 454-8762

Other Information: Students meet in the Lung Center, 8th Floor CAM, Barnes-Jewish Hospital, North Campus, 8:00 a.m. first day of elective.

Research — Medicine

(M25 900)

Dana R. Abendschein, PhD, 9924 Clinical Sciences Research Building, 362-8925. Research in this translational physiology laboratory is focused on development of novel antithrombotic approaches for use during acute myocardial infarction, stroke, and surgery where vascular injury is an underlying mechanism. Current studies are designed to define the efficacy of targeting antithrombotics to the surface of injured vascular cells and activated platelets on thrombus progression. One approach uses nanoparticles covered with epitopes to bind exposed receptors on thrombus and containing inhibitors of coagulation or platelet activation. Students will be expected to participate in experiments using animal models and will develop skills in experiment design, vascular physiology, clinical antithrombotic therapy, coagulation, histopathology, and statistics.

John P. Atkinson, MD, 10th Floor Clinical Sciences Research Building, 362-8391. A clinical research elective is offered in the evaluation of patients with complement deficiency or overactivity states and with undiagnosed rheumatic disease syndromes.

Roberto Civitelli, MD, BJCIH 11th Floor, Musculoskeletal Research Center, 454-8408. The biology of cell-cell interactions and communication in bone via gap junctions and cell adhesion molecules. Function of connexins and cadherins in transcriptional control of osteoblast differentiation, osteoclastogenesis, and mechanotransduction. Modulation of mesenchymal lineage allocation and osteogenic differentiation by cadherins and beta-catenin signaling.

Philip E. Cryer, MD, 6609 Wohl Clinic, 362-7635. Studies of the physiology of glucose counterregulation and its pathophysiology, and relation to clinical hypoglycemia, in people with diabetes.

Nicholas O. Davidson, MD, 910 CSRB North Tower, 362-2027. Genetic pathways for nonalcoholic fatty liver disease (NAFLD) and

colorectal cancer development. We have two major areas of research interest. Our laboratory is interested, first, in the molecular mechanisms of hepatic steatosis, and the pathogenesis of NAFLD. This is the most prevalent liver disease in the US, likely affecting a quarter of the population. We have generated genetically manipulated mouse strains that offer insights into the mechanisms of hepatic steatosis. The student would work as part of a team, designing and conducting experiments that will test hypotheses concerning the mechanisms and consequences of hepatic steatosis. These studies will primarily involve mouse genetics, examining the expression of candidate genes under a variety of nutritional and pharmacologic settings that modulate hepatic lipid metabolism. In addition we are using microarrays to study the spectrum of genetic changes that may predict the extent of hepatic lipid accumulation in patients with steatohepatitis. Our goal is to test hypotheses using mouse genetics and to extend these studies to examine the same pathways in humans with NAFLD. Our second area of interest concerns the genetic pathways involved in colorectal cancer, the second leading cause of cancer-related deaths. We have developed a novel strain of mice in which the dominant effects of mutations in the APC tumor suppressor gene have been abrogated through deletion of an RNA binding protein, apobec-1. This deletion has a major effect on the expression of cox-2, abrogating the increase in expression seen in human colonic adenomas and wild type mouse intestinal adenomas. These findings suggest that apobec-1 is a genetic modifier of colon cancer development. We will study the importance of apobec-1 expression in human colon cancer specimens and continue our murine genetic studies of this novel pathway for modulating colon cancer development and progression.

Thomas M. DeFer, MD, tdefer@dom.wustl.edu, 6604 Wohl Hospital, 362-8050, Special Projects in Medical Education. Through special arrangement with and approval by the Course Master, 4th year students will participate in special projects in medical education. Typical projects will require approximately four weeks to complete. These four weeks can occur consecutively (preferred) or be spread

out somewhat as needed. Medical education projects should be aimed at improving the curriculum, student experience, and/or administration of the Internal Medicine Clerkship or the Subinternship. Interested students should contact the Course Master via phone or e-mail to discuss the proposed project. Those who are interested but would like guidance in designing a project should also contact the Course Master. This is open only to Washington University School of Medicine students.

Matthew Ellis, MB, BChir, PhD, Room 724, Southwest Tower, 747-3613. Genomics of Breast Cancer. The demonstration that the HER2 gene was amplified in breast cancer heralded the “genomic era” for this disease which ultimately led to major clinical advances for HER2-positive disease. The HER2 discovery was based on a search for cancer specific anomalies in the cellular homologs of the acutely transforming retroviral oncogenes described in birds and mammals. However HER2 gene amplification is now recognized to be only one of a large number of somatic mutations that occur in breast cancer. In the last ten years, my clinical and laboratory efforts have focused on the development of a luminal (hormone receptor positive) breast cancer genome atlas to elucidate the complexity of the somatic changes in the breast cancer genome responsible for tumors resistant to current therapies. During these efforts we established a body of work on the practice of treating postmenopausal women with large palpable hormone receptor rich tumors with four months of an aromatase inhibitor. The ultimate scientific goal of these efforts is to create specimen banks and biomarker data from thousands of patients to create sufficient statistical power to robustly link genomic screens to clinical outcomes so we can eventually focus our basic science efforts on the most lethal genetic events. Over the last year, we have undertaken a comprehensive analysis of the tumor samples accrued, including “whole genome” gene expression chips, high resolution array comparative hybridization analysis and candidate gene sequencing. The gene lists we are currently generating, particularly those from the marriage of expression profiling and array comparative hybridization, suggest a

host of new therapeutic targets are ready to be exploited. Functional characterization of these genes has begun, and this effort is a major focus in the laboratory. Elective students will focus on projects that relate to individual oncogene candidates. The scope of the project will be commensurate with elective time commitment but participation may include interpretation of genomic data, confirmatory studies on gene over-expression in cell lines and tissues and functional studies using gene transfer, gene knock-down and pharmacological targeting to verify the identity of bone fide therapeutic targets for further investigation. Attendance at weekly lab meetings is expected.

Bradley Evanoff, MD, MPH, 454-8638. Occupational medicine epidemiology research. My research involves the use of epidemiology methods to characterize associations between diseases and work-related exposures. I am also doing studies that evaluate the detection and treatment of work-related musculoskeletal diseases. During an elective in occupational medicine epidemiology research, students will learn how to use epidemiologic methods to investigate disease processes by working on a mutually agreed-on topic of interest related to occupational diseases. Other activities can include work site visits and intervention projects, as well as involvement with work site health promotion and policy making. Elective length is variable depending on individual circumstances. Please contact Dr. Evanoff to discuss this research.

Gregory I. Goldberg, PhD, 7740 Barnard, 362-8172. Role of secreted extracellular matrix metalloproteases in tissue remodeling. Structure and function of the metalloproteases.

Richard W. Gross, MD, PhD, 4525 Scott Avenue, East Building, 362-2690. Lipid mediators of signal transduction in the cardiovascular system. Characterization of regulatory mechanisms responsible for the liberation of lipid second messengers during cellular activation. The roles of phospholipases in mediating the metabolic syndrome and end-organ tissue damage.

Marc R. Hammerman, MD, 7704 Wohl Clinic, 362-8233. Studies characterizing the transplantation of kidney and pancreatic anlage as a means to “grow new organs” in the settings of end-stage chronic renal failure and diabetes mellitus.

Keith A. Hruska, MD, 5th Floor McDonnell Pediatric Research Building, 286-2772. Our laboratory's focus is on two aspects of kidney diseases: the progression of chronic kidney disease (CKD), and the syndrome of the CKD-mineral bone disorder (CKD-MBD). The latter is an important cause of mortality associated with CKD. We have discovered the pathogenesis of the CKD-MBD in early stage 2 CKD. We have ongoing studies of CKD stimulated vascular calcification in which we have discovered the mechanism of atherosclerotic plaque calcification stimulated by phosphorus. We are analyzing phosphorus as a cardiovascular risk factor, and new therapies for chronic kidney disease, the CKD-MBD, and vascular calcification.

Stuart A. Kornfeld, MD, 8th Floor Clinical Sciences Research Building, 362-8803. Synthesis, processing and sorting of glycoproteins, including lysosomal enzymes. Intracellular protein trafficking.

Sandor J. Kovacs, PhD, MD, 9965 Clinical Sciences Research Building, 362-8901. For students with math, physics and engineering background. Cardiovascular biophysics research elective concentrates on physiologic modeling and comparison of model predictions to in vivo human data. Minimum of eight weeks of elective time.

Jack Ladenson, PhD, 454-8436. Development of monoclonal and single-chain antibodies for use in research and in diagnostic testing.

Marc S. Levin, MD, and Deborah C. Rubin, MD, 922/924 Clinical Sciences Research Building, 362-8933, 362-8935. Students will be members of a collaborative research team headed by Drs. Levin and Rubin (Department of Medicine) investigating the mechanisms

underlying the intestinal adaptive response that occurs to compensate for loss of functional small intestine. A second project focuses on epithelial-mesenchymal interactions and their role in regulating gut epithelial proliferation carcinogenesis and the normal and cancer stem cell niche. Specific mechanisms under investigation include the function of an immediate early gene Tis7 on gut adaptation following resection or injury. The role of myofibroblast protein epimorphin in regulating cell proliferation and colon carcinogenesis is being explored. The student will have the opportunity to learn basic molecular biology and physiology as it relates to small intestinal growth, and function. Examples of techniques that are used in these studies include small animal surgery and colitis and cancer models (mice and rats), molecular biological techniques including PCR, Northern blotting, vector construction for production of transgenic and knockout mouse models, in situ hybridization and immunohistochemistry.

Philip W. Majerus, MD, 8th Floor Clinical Sciences Research Building, 362-8801. Biochemistry of platelets, regulation of lipid metabolism in tissue culture; mechanism of platelet thrombus formation.

Jeffrey D. Milbrandt, MD, PhD, 101 Biotechnology Center, 362-4650. We have several ongoing projects in our laboratory that focus on peripheral neuropathy and neurodegenerative diseases. (1) Using high throughput screening methods to dissect the molecular program responsible for dismantling injured and/or unhealthy axons with the goal of identifying drugs to treat neurological disorders. (2) Using genetics and metabolomics to understand how metabolic deficits in glia lead to neuropathy and axon breakdown. (3) Developing new genetic tools for in vivo and in vitro assays aimed at characterizing the role of non-myelinating Schwann cells in acquired peripheral neuropathies such as diabetic neuropathy. (4) Implementing novel, high-throughput genome engineering technologies in induced pluripotent stem cell-derived neurons to perform functional genomic screens for pathways involved in axon regeneration.

Jason C. Mills, MD, PhD, Room 1030 CSRB North Tower, 362-4213.

We investigate the differentiation of epithelial stem cells in the upper GI tract. We study how genes regulate differentiation in mouse models and in vitro in tissue culture, and we correlate our findings with human tissue specimens. Specific projects include: (1) understanding how inflammation leads to aberrant differentiation (metaplasia), which is a precursor for cancer; (2) elucidating how master regulatory transcription factors like Xbp1 and Mist1 coordinate the massive cytoskeletal and organellar expansion of specialized secretory cells as they differentiate from stem cells; and (3) understanding mechanisms regulating how differentiated cells can be reprogrammed into stem cells in GI organs like stomach and pancreas.

Stanley Mislser, MD, PhD, 815 Yalem Building, Barnes-Jewish Hospital, 454-7719. Stimulus-secretion coupling in endocrine cells (B-islet cells and adrenal chromaffin cells) examined using single-cell assays of secretion (capacitance measurements, amperometry).

Michael Mullins, MD, and Lawrence M. Lewis, MD, mullinsm@wusm.wustl.edu, 747-5585 or Lisa Hayes, hayesli@wusm.wustl.edu, 362-4362. Emergency Medicine Clinical Research. Emergency medicine clinical research involves the gamut of research designs ranging from retrospective cohort studies (The Use of B Hydroxy Butyrate Point-of-Care Testing in Diabetic Ketoacidosis), to prospective clinical trials (Biomarkers in Traumatic Brain Injury), to the evaluation of healthcare systems and Emergency Department processes (Effects of a Triage Process Conversion on the Triage of High Risk Presentations.), to analyzing health policy issues (Rate of Follow-up to a Primary Care Clinic and Subsequent Emergency Department Utilization among an Urban ED Population). Students will learn the basic clinical research designs and will be able to articulate the benefits and drawbacks of each. They will be involved in hypothesis generation and study design for projects that are at that stage. For ongoing projects, they will learn about the informed consent process and be involved in screening for study subjects and subject selection and enrollment. They will be allowed

to consent for studies judged to be minimal risk. Students will be taught important rules regarding data acquisition and entry, particularly as it relates to standards that have been set forth in the medical literature. They will learn about bias and inter-rater reliability. Students will participate in data entry, data analysis, and subsequent abstract/manuscript preparation based on their level of interest and ability for time commitment. Students will meet weekly with one of the course masters to discuss study progress and to identify any roadblocks to study completion. These meetings will also serve as a forum for one on one education of the student regarding study methodology, ethical issues in research, and various resources available to the clinical researcher at Washington University.

Ginger E. Nicol, MD, 4412 Renard Building, 362-5939. Clinical research concerning substrate (glucose and lipid) metabolism and the regulation of weight and body composition in persons with mental illness, particularly concerning the effect of psychotropic medications. This elective offers the student a broad exposure to clinical research protocols, including protocols in adults and children. Students will have an opportunity to focus on a particular project of interest.

Richard E. Ostlund, MD, 8804 Wohl Hospital, 362-8286. Our laboratory focuses on the prevention and treatment of coronary heart disease by studying cholesterol absorption, detoxification and elimination from the body. Direct patient studies that use new stable isotopic cholesterol tracers and mass spectrometry techniques complement in vitro work on the biochemistry of cholesterol transport in cultured cells.

Katherine Ponder, MD, 8818 Cancer Science Research Building, 362-5188, kponder@wustl.edu. Gene Therapy for Lysosomal Storage Diseases. Our laboratory is interested in using gene therapy to treat lysosomal storage diseases such as mucopolysaccharidosis (MPS). We have developed a retroviral vector that can be efficiently delivered to the liver of mice and dogs, and results in expression that

is sufficient to reduce many of the clinical manifestations of these genetic diseases. Current studies focus upon assessing the therapeutic effect of gene therapy on sites that are affected in MPS such as the heart, aorta, bones, and joints, and developing vectors that might be translated into human patients. In addition, we are evaluating the pathogenesis of disease in MPS, which appears to involve the upregulation of destructive proteases in the aorta and possibly other sites. A better understanding of the pathogenesis of disease might result in additional therapies for MPS.

Clay F. Semenkovich, MD, 8th floor, Southwest Tower, 362-4454.

Fatty acid metabolism and its role in atherosclerosis, diabetes, hypertension, and obesity. The modulation of respiratory uncoupling for the treatment of aging, obesity, and vascular disease.

Phyllis K. Stein, PhD, Room 13116 Northwest Tower, 286-1350.

Clinical Significance of Heart Rate Variability and ECG-Derived Waveform Parameters Obtained from Continuous Ambulatory Monitoring. This elective affords the opportunity to perform research in heart rate variability or in other measurements, like QT variability or T-wave alternans that can be derived from continuous ECG monitoring from Holter recordings or polysomnography recordings in the sleep lab. One area of active research is the identification of heart rate patterns associated with obstructive and central sleep apneas and hypopneas and the relationship of previously unappreciated cycling heart rate patterns and outcomes. Data are also available from mice. Many possible projects are available using our many large existing datasets, using the thousands of stored studies in the sleep lab or involving de novo data collection in a clinical or animal population and in infants. Also, many possible directions for this research are available from applying traditional and non-linear HRV to different populations, developing methods to quantify ultradian heart rate variability patterns, to developing novel ECG analysis techniques, etc. Also, we are involved with the Cardiovascular Health Study (CHS), a large population-based longitudinal study of risk factors for heart disease and stroke among community-dwelling people >65 years old. There is a subset of this

population who had Holter recordings (~1400 at baseline, ~800 of the same people 5 years later, and ~370 minority subjects recorded at the same time as the second CHS recording). These recordings have already been analyzed by us so there is a large amount of heart rate variability and heart rate pattern data available. There is also a subsets of the CHS and of another study (EPHESUS) who are known to have died suddenly, and we have developed a matched control group in order to examine ECG-based differences in those who died suddenly. We also have electronic sleep studies at two time points for about 300 of the CHS Holter participants who also participated in the Sleep Heart Health Study. We have analyzed an additional ~1500 sleep studies from CHS participants who did not have Holter recordings. Thus, there is also an opportunity in the CHS dataset for studies on the relationship of heart rate variability and changes in heart rate variability over time and a huge number of clinical and demographic factors among the elderly. We also have data on the relationship of Holter-based HRV and sleep apnea patterns to the development of atrial fibrillation post-cardiac surgery and data from a study of treatment of depression in treatment-resistant depressed post-MI patients, a study of sickle cell patients and one of heart rate variability and echo parameters in elderly African Americans. Currently we are also analyzing HRV in both premature infants as they mature and also HRV as a predictor of response to treatment in babies in the NICU and PICU, using stored 24-hour bedside ECGs.

John Turk, MD, PhD, 8th Floor South West Tower, 362-8190.

Phospholipid signaling mechanisms in pancreatic islets. Experience in mass spectrometric analysis of complex lipids is available.

H. J. Wedner, M.D., 5002 Steinberg Pavilion, Barnes-Jewish Hospital, North Campus, 454-7937 or 454-7377. Asthma Care in the Inner City. Students will participate in ongoing studies of the delivery of asthma care to inner-city children and adults. The emphasis will be on direct contact between the asthmatic patients and the student, along with an asthma counselor.

H. J. Wedner, MD, 5002 Steinberg Pavilion, Barnes-Jewish Hospital, North Campus, 454-7937 or 454-7377. Biology of pollen and fungal

allergens. Our laboratory has been characterizing the important allergenic proteins from molds and pollen. The allergens are identified using skin test sensitive individuals, and the proteins are isolated and characterized by a combination of physiochemical and molecular biological techniques. These studies should lead to better forms of allergy immunotherapy. Students will participate in the isolation, characterization and modification of major allergens from a number of molds including *Stachybotrys atra*, *Epicoecum nigrum* and several pollens including those from white oak and *Parthenium hysterophoros*, a newly recognized allergen.

Faculty — Medicine: See Appendix

Department of Molecular Microbiology

The [Department of Molecular Microbiology](#) teaches introductory courses in microbiology and pathogenic microorganisms for first-year medical students and graduate students. In conjunction with the [DBBS](#) program in [Molecular Microbiology and Microbial Pathogenesis](#), the department also offers a number of advanced courses, primarily designed for graduate students, but open to medical students. Advanced elective research activities are offered by faculty in the department.

Please visit the [Department of Molecular Microbiology website](#) for

more information.

MD Courses — Molecular Microbiology

First year

M30 526 MICROBES AND PATHOGENESIS

Instructors: Henry V. Huang, PhD, 362-2755; Scott Hultgren, PhD, 362-6772

The challenge of this course is to emphasize the importance of understanding molecular and cellular paradigms of how pathogenic microbes interact with their hosts and cause disease. Selected pathogenic microbes, including bacteria, viruses, parasites and fungi, will be utilized as models to explain general principles of host-pathogen interactions and their consequences. Mechanisms by which microbes evade host defenses to cause acute and chronic infections will be highlighted. Problems facing the medical community in the 21st century such as rising antibiotic resistance and tropical diseases will be addressed. The main objective of this course is to teach students how to think about microbial pathogenesis in a way that will provide them a conceptual framework that relates mechanisms of pathogenesis to symptomology and pathophysiology.

L41 (Bio) 5392 MOLECULAR MICROBIOLOGY AND PATHOGENESIS

Instructor: Joseph P. Vogel, PhD, 747-1029

Emphasis is placed on the organization and function of living systems at the molecular level. The course combines formal lectures with a discussion section.

At present, the primary enrollees in the course are students working for a PhD degree in one of the basic sciences. However, this course is recommended for interested medical students, especially those who may be considering a career in medical research, such as MSTP students. MSTP students can take Bio 5392 in place of the Medical Microbiology course (M30 526) and obtain dual credit for both medical school and graduate school.

Fourth year

Electives

L41 (Bio) 5217 SPECIAL TOPICS IN MICROBIAL PATHOGENESIS
Detailed course description is presented under Division of Biology and Biomedical Sciences.

Note — The number preceding the course title indicates that the course carries credit in the Graduate School of Arts & Sciences.

Research — Molecular Microbiology

(M30 900)

Cross-listed with L41 (Bio) 590

John P. Atkinson, MD, 10th Floor Clinical Sciences Research Building, 362-8391. Basic and clinical investigations of complement receptors and regulatory proteins including their roles in protecting self-tissue from damage, serving as a receptor for pathogens and inducing T regulatory cells. Poxviruses and flaviviruses that produce virulence factors which mimic the host's complement regulators are a recent

focus.

Douglas E. Berg, PhD, 8th Floor McDonnell Pediatric Research Building, 362-2772. *Helicobacter pylori*: mechanisms of gastric colonization and disease; drug resistance; molecular epidemiology and evolution.

Stephen M. Beverley, PhD, 9th Floor McDonnell Pediatric Research Building, 747-2630. Molecular genetics of protozoan parasites and tropical diseases; biosynthesis of the parasite surface, genomics, virulence and drug action or resistance.

Michael Caparon, PhD, 10th Floor McDonnell Pediatric Research Building, 362-1485. Molecular genetics and pathogenicity of the streptococci and other pathogenic gram positive bacteria.

Michael S. Diamond, MD, PhD, 7th Floor McDonnell Pediatric Research Building, 362-2842. The research in our laboratory focuses on the interface between viral pathogenesis and the host immune response. Four globally important positive strand RNA viruses are studied, including West Nile, Dengue, Chikungunya, and hepatitis C virus. Studies are focused on identifying the host and viral factors that modulate the severity of an infection, the structural and molecular basis of antibody mediated protection, and mechanisms of viral immune evasion. Our laboratory utilizes an array of approaches including those used in molecular virology, cell biology, structural biology, systems biology, cellular immunology, and in vivo models of pathogenesis.

Tamara L. Doering, MD, PhD, 10th Floor McDonnell Pediatric Research Building, 747-5597. The Doering lab studies the opportunistic fungal pathogen, *Cryptococcus neoformans*, with the dual motivations of elucidating basic biology and identifying potential drug targets. Projects include studies of the synthesis and regulation of the main cryptococcal virulence factor, its polysaccharide capsule, and investigation of host fungal interactions. Current approaches include those of biochemistry, cell and

molecular biology, and genetics; studies also include high-throughput analysis of host-pathogen interactions and computational approaches to reconstructing the capsule regulatory network.

Daniel Goldberg, MD, PhD, 9th Floor McDonnell Pediatric Research Building, 362-1514. Biochemistry of malaria.

Jeffrey P. Henderson, MD, PhD, 10th Floor, BJH Institute of Health Building, 747-0240. Basic and translational investigation of Gram negative bacterial pathophysiology. We make extensive use of mass spectrometry to understand how bacteria use small molecules and proteins for nutrient theft and defense from the host immune system. Where possible, we use these methods to better understand the host-pathogen interface in patients. We have used this information to identify and design agents that specifically target pathogenic strains.

Henry Huang, PhD, 8th Floor McDonnell Pediatric Research Building, 362-2755. RNA virus evolution. Molecular biology of alphaviruses. Alphavirus gene expression vectors. Antiviral drug design.

Scott J. Hultgren, PhD, 10th Floor McDonnell Pediatric Research Building, 362-6772. Pathogenic mechanisms and disease outcomes in the urinary tract. Work in the Hultgren lab blends multiple scientific disciplines to elucidate bacterial and host mechanisms that determine the onset, course and outcome of interactions between a host mucosal surface and bacterial pathogens. Using genetics, genomics, biochemistry, structural biology, high-resolution imaging, animal models, clinical studies and combinatorial chemistry, we have illuminated new ways in which intracellular lifestyles and community behavior play critical roles in the pathogenesis of urinary tract infection. We have uncovered new principles of adhesive pili biogenesis in Gram Negative bacteria by the chaperone/usher pathway; delineating the fine molecular details of a donor strand complementation and exchange mechanism by which the energy of

final subunit folding is used to complete assembly and extrusion of pili across the outer membrane. We revealed how UPEC use type 1 pili to invade and establish biofilm-like intracellular bacterial communities within bladder cells as part of a mechanism that subverts host defenses and how quiescent intracellular reservoirs can seed recurrent infections. We have uncovered complex networks that govern mucosal epithelial response to infection, which we have shown determines disease outcome. Further, we have made seminal contributions to our understanding of the pathogenesis and response to other uropathogens, polymicrobial infections and catheter-associated UTIs and to the mechanisms by which bacteria form a directed amyloid fiber, curli, which is important in biofilm formation. Together, this work is changing the way UTIs are evaluated, re-shaping models of bacterial infections in general and spawning new technologies to design novel vaccines and anti-microbial therapeutics to diagnose, treat and/or prevent UTIs and their sequelae.

David A. Hunstad, MD, Room 6106 McDonnell Pediatric Research Building, 286-2710. Work in our lab focuses on the interactions of pathogenic bacteria with their hosts. We aim to elucidate the modulation of host immune responses by pathogens and to determine the mechanisms by which these bacteria present specific virulence factors on their surfaces. We employ cultured bladder epithelial cell models and the murine model of cystitis to investigate the ability of uropathogenic *Escherichia coli* and *Klebsiella* to modulate host innate and adaptive immune responses. In addition, we are studying the molecular mechanisms by which selected outer membrane proteins contribute to the virulence of uropathogenic *E. coli*. On the translational side, we are enrolling subjects in a translational study of immune response to UTI in male and female infants. Our primary goal is to discover novel targets for interventions that will prevent and treat these and related bacterial infections of the urinary tract and other epithelial surfaces. Along these lines, we are leveraging recent discoveries in UTI pathogenesis to design nanoparticle-based therapies for prevention of acute and

recurrent UTI, and studying novel biomarkers for diagnosis of UTI and prediction of recurrence risk.

Amanda Lewis, PhD, 10th Floor, BJC-IH, 286-0016. Polymicrobial Infection and Women's Health. Our lab is using biochemical, cellular and animal models to study infectious processes of the female urogenital tract that involve multiple bacterial species. For example, Bacterial vaginosis (BV) is a polymicrobial imbalance of the vaginal flora characterized by reductions in beneficial lactobacilli and an overgrowth of mostly Gram negative bacteria. BV is the most common of all vaginal infections and is associated with increased risks of adverse pregnancy outcomes and greater susceptibility to sexually transmitted infections. We are collaborating with clinical investigators to define molecular and biochemical processes of BV and identify patient groups most at risk for adverse events. Another active area of study in the lab involves polymicrobial urinary tract infection (UTI). We have developed a mouse model of polymicrobial UTI and are currently defining novel processes, bacterial factors and the impact of host that contribute to susceptibility.

Lee Ratner, MD, PhD, 562 McDonnell Science Building, 362-8836. Human Retrovirus Research. Studies of human retrovirus replication and pathogenesis. These include studies of the 1) human T-cell leukemia virus receptor, regulation by interferon, and transformation of T-cells, 2) HIV interaction with co-receptors and regulation by the innate immune system.

Robert Schreiber, PhD, Room 7749, 7th Floor Clinical Sciences Research Building, 362-8747. Tumor immunology focusing on mouse models of cancer and cancer immunoediting. Biochemistry and biology of cytokines, their receptors and cytokine receptor signaling with particular emphasis on IFN α /b and IFN γ .

L. David Sibley, PhD, 9th Floor McDonnell Pediatric Research Building, 362-8873. We study the intracellular survival mechanisms of protozoan parasites, focusing on the model parasite *Toxoplasma gondii*. Current approaches include high-resolution microscopy,

genetic mapping of virulence traits, comparative genomic analyses and development of animal models for studying pathogenesis and resistance.

Christina L. Stallings, PhD, 8th Floor, McDonnell Pediatrics Research Building, 286-0276. Molecular Pathogenesis of Mycobacteria. Our laboratory integrates in vivo disease modeling, molecular biology, and biochemistry to provide answers to the fundamental biological questions regarding molecular pathogenesis and yield therapeutic strategies for treatment of mycobacterial infections.

Gregory Storch, MD, 2N52 St. Louis Children's Hospital, 454-6079. In this elective, the student will participate in a research project involving the application of techniques of molecular biology, especially the polymerase chain reaction and nucleotide sequencing, to the diagnosis of the infectious diseases. Infectious agents currently under investigation include human cytomegalovirus, Epstein-Barr virus, BK polyoma virus, Ehrlichia, and respiratory viruses. Studies are also directed at molecular detection and analysis of resistance to antimicrobial agents.

Patrick M. Stuart, PhD, 1217B McMillan, 362-9336. Virology. Investigate the role viral-induced immune responses play in corneal pathology seen in both primary and recurrent herpes infections of the eye. Characterize the role that apoptotic pathways play in herpetic diseases of the eye. To develop and characterize anti-herpetic vaccines as well as immunologically-based tolerance procedures that are effective in preventing recurrent herpetic keratitis.

Phillip I. Tarr, MD, 6th Floor, McDonnell Pediatric Research Building, 286-2848. Opportunities in Enteric Human Microbiology. We have a variety of relevant research opportunities available to us in our laboratory. Most efforts center around the intense genetic studies of already isolated bacteria, including pathogens and commensal organisms. The specimen archive is obtained from children with

diagnosed enteric infections or other inflammatory disorders of the gut, including inflammatory bowel disease as well as ulcerative colitis and necrotizing enterocolitis. Additionally, we have a very large biomass archive, consisting of stool from patients during or before events, most particularly necrotizing enterocolitis. In our efforts, we study the bioactivity and genetics of the microbial populations, and we also interrogate the human enteric response to these populations. We use a variety of techniques, including classic monomicrobial sequencing and sequence and phylogenetic analyses, polymicrobial censusing (usually 16 rRNA analysis) and shotgun DNA sequencing (using massively parallel technology), transcriptional sequencing, and proteomics. All projects attempt to amalgamate data from the fields of microbial evolution, microbial pathogenesis, microbial ecology, and host response, to dissect the relation between the enteric biomass and human health and disease. Rotating (elective) students will be assigned a feasible project that attempts to answer a well-circumscribed question, or develop a broadly useful reagent or technique, within the constraints of a time-limited rotation.

Niraj H. Tolia, PhD, 8th Floor, McDonnell Pediatric Research Building, 286-0134. Structural and Mechanistic Studies of Malaria Pathogenesis. Our lab is interested in the molecular events that occur during erythrocyte invasion by Plasmodium parasites. We use the tools of structural biology, biochemistry and biophysics to examine proteins and protein complexes associated with these events.

Herbert Virgin, MD, PhD, 1754 West Building, 362-9223. We work on issues at the interface of virology and immunology by analyzing aspects of immunity that control infection and aspects of viral structure/genetics that contribute to virulence, disease and oncogenesis. We study the pathogenesis and latency of the dsDNA enveloped murine gammaherpesvirus 68 as well as RNA viruses MNV-1 and Sindbis virus.

Joseph P. Vogel, PhD, 10th Floor McDonnell Pediatric Research

Building, 747-1029. *Legionella pneumophila*, the causative agent of Legionnaires' pneumonia, replicates inside alveolar macrophages by preventing phagosome-lysosome fusion.

David Wang, PhD, 8th Floor McDonnell Pediatric Research Building, 286-1123. Discovery and characterization of novel viruses. We use functional genomic technologies to identify novel viruses from a variety of clinical samples from diseases of unexplained etiology. We then use epidemiologic and molecular/cellular strategies to define the relevance of newly identified viruses to human disease. A range of new viruses, including polyomaviruses, astroviruses and picornaviruses are under investigation.

Faculty — Molecular Microbiology: See Appendix

Department of Neurology

Neurology concerns itself with the diseases of brain, spinal cord, peripheral nerves and muscles. An introduction to the anatomy and physiology of the nervous system is presented in the first-year neuroscience course by faculty from the [Department of Anatomy and Neurobiology](#), with participation of faculty from the [Department of Neurology](#). A first-year selective titled [Clinical Correlations in Neuroscience](#) is available, which is an opportunity for interested students to shadow physicians in neuro-related fields and attend

basic science or clinical conferences. Another first-year selective titled [Alzheimer's Disease \(AD\) in the Clinic and the Lab](#) is also available, which is an opportunity for interested students to get an overview of the most exciting areas of AD clinical and science research. In the second year, the Department of Neurology presents the course [Diseases of the Nervous System](#) in conjunction with the Departments of [Pathology and Immunology](#), [Neurological Surgery](#) and [Ophthalmology](#). The course emphasizes the pathophysiology, pathology, clinical manifestations and treatment of the major neurological and neurosurgical diseases. The department also participates in the Practice of Medicine course, providing lectures, demonstrations and teaching exercises with patients in neurological physical diagnosis.

In the third year, a four-week clerkship in Neurology introduces students to the clinical care of patients with diseases of the nervous system. Questions pertaining to neurosurgical treatment, neurorehabilitation and ethical issues in management also are addressed. In the fourth year, opportunities exist for many varieties of advanced clinical or research experience. A four-year residency program prepares medical graduates for specialization in neurology. Subspecialty fellowship programs routinely provide additional training in dementia, epilepsy, electrophysiology, electromyography, sleep medicine, cerebrovascular disease and stroke, neuroimmunology, neurological critical care, neuromuscular disease, neuropsychology and movement disorders.

Thirteen divisions and sections are in the department including the Division of Adult Neurology, the Division of Pediatric and Developmental Neurology and the Division of Neurorehabilitation. See www.neuro.wustl.edu for details.

Division of Neuropsychology: Steven Petersen, PhD (division director); Francis Miezin, BS, MS; Bradley Schlaggar, MD, PhD; Gordon Shulman, PhD

Division of Neurorehabilitation: Maurizio Corbetta, MD (division

director); David Brody, MD, PhD; Alex Carter, MD, PhD; Robert Fucetola, PhD; Thy Huskey, MD; Sindhu Jacob, MD; Neringa Juknis, MD; Rimma Ruvinskaya, MD; Nicole Werner, PhD; Oksana Volshteyn, MD; Martin Wice, MD

Division of Pediatric and Developmental Neurology: Bradley Schlaggar, MD, PhD (division director); Michael Noetzel, MD (division associate director); Mary Bertrand, MD; Janice Brunstrom, MD; Anne Connolly, MD; Edwin Dodson, MD; Nico Dosenbach, MD, PhD; Rafael Galindo, MD, PhD; Paul Golumbek, MD, PhD; Christina Gurnett, MD, PhD; Kristin Guilliams, MD; David Gutmann, MD; Siddharth Jain, MD; Douglas Larsen, MD; Amy Licis, MD; Soe Mar, MD; Bryan McGill, MD, PhD; Arthur Prensky, MD; Robin Ryther, MD, PhD; Christopher Smyser, MD; Liu Lin Thio, MD, PhD; Jean Thurston, MD; Amy Viehoever, MD, PhD; Judy Weisenberg, MD; Michael Wong, MD, PhD; Kelvin Yamada, MD; John Zempel, MD, PhD; Craig Zaidman, MD

Aging and Dementia Section: John Morris, MD (section head); Randall Bateman, MD; Virginia Buckles, PhD; Nigel J. Cairns, PhD, FRC Path; David Carr, MD; John Cirrito, PhD; Anne Fagan, PhD; Nupur Ghoshal, MD, PhD; Jason Hassenstab, PhD; David Holtzman, MD (department chair); Terri Hosto, MSW; Eugene Johnson, Jr., PhD; Pamela Millsap, MSN; Krista Moulder, PhD; Erik Musiek, MD, PhD; Catherine Roe, PhD; Davis Ryman, MD, PhD; Suzanne Schindler, MD, PhD; B. Joy Snider, MD, PhD

Hope Center for Neurological Disorders (specifically those faculty in the Department of Neurology): Alison Goate, D.Phil (director); Beau Ances, MD, PhD; Randall Bateman, MD; David Brody, MD, PhD; Janice Brunstrom, MD; Nigel Cairns, PhD; FRCPath, John Cirrito, PhD; Anne Cross, M; yMarc Diamond, MD; Anne Fagan Niven, PhD; Christina Gurnett, MD, PhD; Matthew Harms, MD; David Holtzman, MD (department chairman); Mark Jacquin, PhD; Eugene Johnson Jr., PhD; Paul Kotzbauer, MD, PhD; Terrance Kummer, MD, PhD; Jin-Moo Lee, MD, PhD; Mingjie Li, PhD; Timothy Miller, MD, PhD; John Morris, MD; Erik Musiek, MD, PhD; Joel Perlmutter, MD; Alan Pestronk, MD; Steve Petersen, PhD; Laura Piccio, MD, PhD;

Anneliese Schaefer, PhD (executive director); Bradley Schlaggar, MD; B. Joy Snider, MD, PhD; Liu-Lin Thio, MD, PhD; Conrad Chris Wehl, MD, PhD; Michael Wong, MD, PhD; Gregory Wu, MD, PhD; Kelvin Yamada, MD

Cerebrovascular Disease Section: Jin-Moo Lee, MD, PhD (section head); David Carpenter, MD; Amar Dhand, MD; Andria Ford, MD; Kristin Williams, MD; Salah Keyrouz, MD; Christopher Leon-Guerrero, MD; Renee Van Stavern, MD; Allyson Zazulia, MD

Clinical Neurophysiology Section: Muhammad Al-Lozi, MD, Edward Hogan, MD (section heads); Mary Bertrand, MD; Anne Connolly, MD; Keith Day, MD, PhD; Lawrence Eisenman, MD, PhD; Christina Gurnett, MD, PhD; Amy Licis, MD; Glenn Lopate, MD; Luigi Maccotta, MD, PhD; Samiya Rashid, DO; Liu Lin Thio, MD, PhD; Judy Weisenberg, MD; Michael Wong, MD, PhD; Kelvin Yamada, MD; John Zempel, MD, PhD

Pediatric Epilepsy and Sleep Section: Liu Lin Thio, MD, PhD (section co-head); Kelvin Yamada, MD (section co-head); Mary Bertrand, MD; Christina Gurnett, MD, PhD; Jean Holowach-Thurston, MD; Siddharth Jain, MD; Amy Licis, MD; Robin Ryther, MD, PhD; Judy Weisenberg, MD; Michael Wong, MD, PhD; John Zempel, MD, PhD

Adult Epilepsy Section: Edward Hogan, MD (section head); Keith Day, MD, PhD; Laurence Eisenman, MD, PhD; Yuan Fan, MD, PhD; Luigi Maccotta, MD, PhD

Neuroimaging Section: Beau Ances, MD; Kevin Black, MD; Maurizio Corbetta, MD; Colin Derdeyn, MD; Morvarid Karimi, MD; Francis Miezin, MS; Scott Norris, MD; Joel Perlmutter, MD; Steven Petersen, PhD; Bradley Schlaggar, MD, PhD; Gordon Shulman, PhD; Mwiza Ushe, MD; Allyson Zazulia, MD

Neuroinfectious Disease Section: David Clifford, MD (section head); Beau Ances, MD
Neurofibromatosis and Neuro-Oncology: David Gutmann, MD, PhD

Movement Disorders Section: Joel Perlmutter, MD (section head);

Kevin Black, MD; Meghan Campbell, PhD; Susan Criswell, MD; Marc Diamond, MD; Gammon Earhart, PhD; Erin Foster, OTD; Johanna Hartlein, APRN; Tamara Hershey, PhD; Morvarid Karimi, MD; Paul Kotzbauer, MD, PhD; Scott Norris, MD; Brad Racette, MD; Bradley Schlaggar, MD, PhD; LinLin Tian, MD, PhD; Mwiza Ushe, MD; Amy Viehoever, MD, PhD; Brenton Wright, MD

Neuroimmunology Section: Anne Cross, MD (section head); Becky Parks, MD; Robert Naismith, MD; Laura Piccio, MD, PhD; Gregory Wu, MD

Neurological Critical Care Section: Michael Diringer, MD (section head-NNICU); Salah Keyrouz, MD (Medical Director, NNICU); Rajat Dhar, MD; Terrance Kummer, MD; Michael Rubin, MD

Neuromuscular Diseases Section: Alan Pestronk, MD (section head); Muhammad Al-Lozi, MD; Robert Bucelli, MD, PhD; Anne Connolly, MD; Julaine Florence, PT, DPT; Paul Golumbek, MD, PhD; Matthew Harms, MD, Glenn Lopate, MD; Timothy Miller, MD, PhD; Brian Sommerville, MD; Arun Varadhachary, MD, PhD; Chris Weihl, MD, PhD; Craig Zaidman, MD

Sleep Section: Kelvin Yamada, MD (section head); Gabriela de Bruin, MD; Yo-El Ju, MD; Amy Licis, MD; Rachel Darken, MD, PhD; Brendan Lucey, MD; Terri Riutcel, MD; Luqi Chi, MD

General Neurology Section: General Neurology Section: Sylvia Awadalla, MD (section head); William Landau, MD (Emeritus); Robert Bucelli, MD, PhD; Rachel Darken, MD, PhD; Gabriela de Bruin, MD; Esther Hsiao, MD; Christopher Leon-Guerrero, MD Arun Varadhachary, MD, PhD

For more information

Please visit the [Department of Neurology website](#) for more information.

MD Courses — Neurology

First year

Selectives

M04 5017 01 CLINICAL CORRELATIONS IN NEUROSCIENCE

Instructor: Allyson Zazulia, MD, 362-2560

Clinical faculty for this selective are members of the following departments or divisions: Neurology, Pediatric Neurology, Neurological Surgery, Neuro ICU, Radiology, Pathology and Immunology, and Psychiatry. Students will shadow physicians, attend rounds and meet for seminars and demonstrations to discuss particular patient cases and research studies. Teaching Objective: to gain exposure to medical career options involving neuroscience.

M04 582 01 ALZHEIMER'S DISEASE IN THE CLINIC AND THE LAB

Instructors: John C. Morris, MD, and other faculty affiliated with the Knight Alzheimer's Disease Research Center, Department of Neurology. For information, contact Jennifer Phillips at 286-2882 or phillipsj@abraxas.wustl.edu

Alzheimer's disease (AD) affects more than 5 million Americans, and will increase substantially as our population ages. Of the top 10 causes of death in the United States, AD is the only disease without any way to prevent, cure or slow the progression. The cost of caring for AD patients has been estimated at over \$172 billion annually, and the human toll on patients and family members can be devastating. Patients and families turn to primary care and specialist physicians (e.g., neurologists, psychiatrists, geriatricians) for answers to their plight. The good news for physicians is that research on AD is moving at a rapid pace. Exciting advances in our understanding of AD etiology, early diagnosis and treatment are changing the landscape

of dementia care.

Students in this course are offered a dynamic and interactive overview of the most exciting areas of AD clinical and science research from one of the top Alzheimer's disease research centers in the world. Find out how amyloid plaques and other AD-related abnormalities form in the brain and new discoveries about their possible reversal! The course includes lecture and student presentation components, plus opportunities to observe patients and families in an active neurology memory disorder clinic, participate in neuropathology evaluations of demented individuals, experience and administer psychometric evaluation tools and interact with investigators from the fields of molecular genetics, cell biology and neuropathology.

Second year

M35 632 DISEASES OF THE NERVOUS SYSTEM

Instructor: Allyson Zazulia, MD, 362-2560

The goal of this course is to provide an introduction to diseases of the central and peripheral nervous systems, including their clinical manifestations, pathology, pathophysiology and pharmacotherapy. The course includes reading assignments, lectures, laboratories, conferences and clinical presentations.

Third year

M35 720 NEUROLOGY CLERKSHIP

Instructor: Robert Naismith, MD, 362-3998

A full-time, four-week clerkship is provided on the inpatient neurology services at Barnes-Jewish Hospital south. Patients are assigned to students, who evaluate and follow them with the resident staff and discuss them regularly in conferences with the senior neurological staff. Students also work in the neurology clinic under staff supervision and attend a series of lectures on neurosurgical problems. The goal of this rotation is to gain expertise in the evaluation and treatment of patients with neurologic diseases.

Up to two students may elect to obtain their clerkship experience on the neurosurgery service. Up to two students may elect to obtain their clerkship experience on the inpatient pediatric neurology service. Students participate in the neurology specialty clinics at St. Louis Children's Hospital, working under the supervision of pediatric neurology fellows and senior staff.

M25 730 PHYSICAL MEDICINE AND REHABILITATION CLERKSHIP

Coursemaster: Neringa Juknis MD, 454-7757

The clerkship in PM&R for third-year medical students provides an opportunity to gain basic knowledge and clinical skills in evaluation and management of a wide range of neurological and musculoskeletal diseases and conditions that require specialized rehabilitative medical and therapeutic care. Students spend two weeks on the Spinal Cord Injury Unit (SCI) and two weeks on the Brain Injury (BI) and Stroke Unit at The Rehabilitation Institute of St. Louis. Students are expected to be a part of the rehabilitation team, follow two to three patients, participate in daily morning rounds, participate in performing consults and attend team meetings and family conferences.

Students are required to attend several outpatient clinics such as SCI, BI, Amputee and Stroke. During the entire rotation, students work together with PM&R residents and fellows, and under direct guidance of the neurorehabilitation faculty. The usual duty hours are 7-7:30 a.m. to 5 p.m. on weekdays and 8 a.m. to noon on Saturdays. There is no night call.

Students are required to attend all PM&R curriculum lectures and conferences. On the first day of rotation, students meet briefly with the PM&R program coordinator. Students will meet with the coursemaster at The Rehab Institute during their first week to go over goals, objectives. Upon completion of the rotation, students are required to provide written email feedback regarding the rotation experience.

Fourth year

Electives

M35 827 NEUROLOGY SUBINTERNSHIP FOR WASHINGTON UNIVERSITY SCHOOL OF MEDICINE STUDENTS

Instructor(s): Director, Robert Naismith, MD, 362-3998

Location: Barnes-Jewish Hospital or St. Louis Children's Hospital

Elective Contact: Lorraine Edrington, 362-3998

Other Information: Completion of the WU neurology clerkship is a prerequisite for this elective. WU medical students will not repeat clerkship orientation and student-specific neurology conferences. Students will present to their team at the beginning of day 1, and will attend resident-oriented conferences (i.e. Morning Report, Journal Club, Clinical Neuroscience).

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This 4-week elective will be customized to include inpatient and outpatient experiences desired by WU students who have completed the WU Neurology Clerkship. Students may choose this elective to further improve their Neurology Knowledge and Skills. Students considering Neurology as a career may also desire additional exposure to supplement their prior clerkship experience.

The elective is split into two 2-week rotations which may include:

1. Adult Inpatient General Service (with 1 clinic/week)
2. Adult Inpatient Stroke Service (with 1 clinic/week)
3. Adult Inpatient Consult Service (with 1 clinic/week)
4. Pediatric Neurology Consult Service (with 1 clinic/week)
5. Adult Neurology ICU (with 1 clinic/week)
6. Outpatient Clinics (with 8-10 clinics/week)

Student time distribution:

Consult Service: Inpatient 90%, Outpatient 10%;

Inpatient Service: Inpatient 90%, Outpatient 10%

Major teaching responsibility:

Consult Service: Single attending and resident

Inpatient Service: Single attending, chief resident, junior resident

Patients seen/weekly:

Consult Service: 10-12

Inpatient Service: 8-12

On call/weekend responsibility:

Consult Service: No call. Work one day per weekend

Inpatient Service: Every 4th night

M35 828 NEUROLOGY SUBINTERNSHIP FOR VISITING U.S. MEDICAL STUDENTS

Instructor(s): Robert Naismith, MD, 362-3998

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This 4-week elective for 4th year visiting students from a U.S. medical school provides the option (space permitting) of four weeks of Adult Inpatient Service (Stroke for 2 weeks, General Neurology for 2 weeks) or two weeks on an Adult Inpatient Service and two weeks on the Adult Consult Service.

Students on the inpatient service will function as a Sub-Intern under the supervision of their junior resident, chief resident, and attending physician. The student will also attend weekly clinical conferences and a weekly outpatient clinic experience. This elective is suitable for visiting 4th year students interested in Neurology who wish to improve their Neurology Knowledge and Skills.

Student time distribution:

Consult Service: Inpatient 90%, Outpatient 10%;

Inpatient Service: Inpatient 90%, Outpatient 10%

Major teaching responsibility:

Consult Service: Single attending and resident

Inpatient Service: Single attending, chief resident, junior resident

Patients seen/weekly:

Consult Service: 10-12

Inpatient Service: 8-12

On call/weekend responsibility:

Consult Service: No call. Work one day per weekend

Inpatient Service: Every 4th night

Location: Barnes-Jewish Hospital

Elective Contact: Lorraine Edrington, 362-3998

Other Information: Visiting students will attend Orientation on the first day of the elective in addition to Neurology Clerkship student conferences.

M35 830 NEURO-ONCOLOGY

Instructor(s): David H. Gutmann, MD, PhD, 362-7379

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Provide an outpatient-oriented combined pediatric and adult neuro-oncology experience for 4th year medical students. (1) Attend multidisciplinary adult and pediatric neuro-oncology clinics and case conferences (tumor boards); (2) Attend adult and pediatric radiation oncology clinics; (3) Attend neuropathology brain tumor review; (4) Participate in subspecialty brain tumor clinics; (5) Attend monthly brain tumor research conferences.

Student time distribution: Outpatient 90%, Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Team teaching in clinic

Patients seen/weekly: 50 patients

On call/weekend responsibility: None

Location: Suite C, 6th Floor CAM Building

Elective Contact: David H. Gutmann, MD, PhD, 362-7379,
gutmann@neuro.wustl.edu

Other Information: Students should email Dr. Gutmann at least one week prior to the start date of elective.

M35 851 CLINICAL ASPECTS OF AGING AND DEMENTIA

Instructor(s): Joy Snider, MD, PhD, and John C. Morris, MD

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 21, 33, 37 and 41.

This elective focuses on the characterization of the clinical and cognitive features of healthy brain aging and the distinction of dementia from healthy aging. Experienced clinicians will review the differential diagnosis of dementia with the students, including Alzheimer's disease, dementia with Lewy bodies, frontotemporal dementias, cerebrovascular disorders and affective disorders. The student will gain proficiency in interviewing techniques and in the neurologic examination of the geriatric patient, be introduced to neuropsychology, neuropathology, biomarkers, neuroimaging, genetics and other biomedical procedures important in the diagnostic evaluation of older adults. Experience in community assessment and long-term care is provided. Demonstration of clinical trials of experimental agents used in memory disorders and practical aspects of the management of the demented patient and his or her family is provided. An interdisciplinary approach is emphasized and students will have opportunity to interact with physicians, nurse clinicians, psychologists and social workers. Students have the option of becoming certified in the Clinical Dementia Rating, the gold standard in dementia staging.

Student time distribution: Research and Clinical Patient Evaluation 80%, Conferences/Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Attending neurologists, psychiatrists and geriatricians involved in the evaluation of memory and aging

Patients seen/weekly: 6-12

On call/weekend responsibility: None

Location: Knight Alzheimer's Disease Research Center (ADRC) 4488 Forest Park Ave. (two-story brick building at intersection with Taylor)

Elective Contact: Jennifer Phillips, MPA (coordinator), 286-2882, phillipsj@wustl.edu

Other Information: Please contact

Jennifer Phillips at least one week prior to first day of elective to set up orientation.

M35 859 NEONATAL NEUROLOGY

Instructor(s): Chris Smyser, MD, 454-6120, smyserc@neuro.wustl.edu

Enrollment limit per period: 1

Valid start weeks for 2-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

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

Student time distribution: Inpatient 60%, Outpatient 30%,
Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Pediatric Neurology faculty attending on consult service and in outpatient clinics

Patients seen/weekly: 25-30

On call/weekend responsibility: None

Location: 1260 Northwest Tower

Elective Contact: Chris Smyser, MD, 454-6120,
smyserc@neuro.wustl.edu

Other Information: Meet at St. Louis Children's Hospital NICU West Library 8:30 a.m. first day of the elective.

M35 860 PEDIATRIC NEUROLOGY

Instructor(s): Douglas Larsen, MD, MEd, 454-6042

Enrollment limit per period: 1 (Inpatient); 1 (Consultation Office Service)

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25,

29, 33, 37, and 41.

The senior elective experience in child neurology is designed to adapt to the individual goals and objectives of students. The elective takes place in two two-week blocks that occur among five possible venues as chosen by the student: (1) Outpatient clinics, (2) In-patient ward service, (3) In-patient general consult service, (4) NICU consult service, and (5) video EEG (VEEG) monitoring service. The combination of services and experiences will be arranged directly between the student and the coursemaster prior to beginning the rotation. In the outpatient clinics, students will rotate between a variety of subspecialty clinics and work with a variety of attendings in order to experience the breadth of outpatient pediatric neurology. Students rotating on the inpatient ward service will have a different role than the 3rd-year student on pediatrics. The 4th-year student will focus solely on neurology patients and work closely with the pediatric neurology resident to develop neurology-specific care plans. No call or weekend duties will be expected on this rotation. On the general consult services, students will work with the consult attending and pediatric neurology residents on that team to see consults in the PICU, CICU, ER, and other hospital floors. The NICU consult team focuses on infants in the NICU. Student rotating on the VEEG monitoring service will focus on learning the indications and uses of VEEG and basic EEG reading skills. All students choosing a pediatric neurology elective will arrange their specific schedule with the coursemaster beforehand.

Student time distribution: Inpatient rotation 80%, Outpatient rotation 80%, Conferences/Lectures 20%; Subspecialty Care 100%
Major teaching responsibility: Inpatient: Single attending and senior resident, Outpatient: Multiple attendings

Patients seen/weekly: Inpatient: 5-9, Outpatient: 20-25

On call/weekend responsibility: None

Location: 12th Floor, Suite 1260 Northwest Tower

Elective Contact: Lori Nichols, nicholsl@neuro.wustl.edu

Other Information: Students report to

Dr. Larsen on the 12th floor, Suite 1260 Northwest Tower, 8:00 a.m. first day of elective for orientation.

M35 861 NEUROLOGY/NEUROSURGERY ICU

Instructor(s): Michael Diringer, MD, 362-2999

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The student will be integrated into the Critical Care Team that provides care in the Neurology/Neurosurgery ICU. Diseases frequently encountered include intracerebral hemorrhage, head trauma, subarachnoid hemorrhage, and stroke. The student will follow patients, participate in rounds and perform some procedures under supervision. Didactic sessions will be provided as conferences or lectures from the ICU attending.

Student time distribution: Inpatient 80%, Conferences/Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Fellows and residents

Patients seen/weekly: 25

On call/weekend responsibility: Variable

Location: 10400B Barnes-Jewish Hospital

Elective Contact: Liz Vansickle, 362-2999

Other Information: Students report to 10400 ICU, 7:30 a.m. first day of elective.

M35 865 ADULT AND PEDIATRIC EPILEPSY

Instructor(s): Edward Hogan, MD, 362-3944

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will learn how epileptologists diagnose and manage epilepsy in adults and children. They will learn how to use the history and physical exam and laboratory studies such as EEG, MRI, PET, and SPECT to diagnose and manage patients with new onset epilepsy, established epilepsy, and medically intractable epilepsy. They will become familiar with the medical management of epilepsy as well as the treatment options for medically intractable epilepsy including surgery, the vagus nerve stimulator, and the ketogenic diet. They will also learn how to manage the co-morbid conditions that accompany

epilepsy such as depression, behavioral problems, cognitive impairment, sleep disturbance, and non-epileptic events. Students will accomplish these goals by attending epilepsy clinics and rounding on the inpatient epilepsy service with the epilepsy team at Barnes-Jewish Hospital and St. Louis Children's Hospital. They will attend the Adult Epilepsy Conference, the Pediatric Epilepsy Conference, and Neurology Grand Rounds. Students will also have the opportunity to observe epilepsy surgery if they wish. They will have the option to present one 15-30 minute talk on a topic relevant to epilepsy.

Student time distribution: Inpatient 70%, Outpatient 10%, Conferences/Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Attending faculty, fellows

Patients seen/weekly: 40

On call/weekend responsibility: None

Location: 11400 EMU Barnes Jewish Hospital

Elective Contact: Donna Theiss, 362-7845, theissd@neuro.wustl.edu

Other Information: Students should meet on 11400 EMU 9:00 a.m. first day of elective.

M35 871 CLINICAL NEUROIMMUNOLOGY & MULTIPLE SCLEROSIS

Instructor(s): Becky Parks, MD, parksb@neuro.wustl.edu

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 5, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will have the opportunity to interview and examine patients with multiple sclerosis or related neuroimmunological disorders. They will become familiar with the differential diagnosis of MS, appropriate laboratory evaluation and common MRI findings in MS. This elective will also familiarize students with the disease-modifying therapies used to treat MS. They will gain practical knowledge about evaluation and treatment of spasticity, neurogenic bladder, fatigue and other common symptoms.

3rd year medical students rotating as part of a core rotation will attend the required conferences for 3rd year students. Students choosing this elective to gain additional experience in the field of

Neurology will attend Neurology Grand Rounds on Friday morning. Students may also attend our MS Journal Club and the MS Patient Care conference held on the 1st and 3rd Thursdays of every month, respectively.

Student time distribution: Inpatient 0%, Outpatient 90%,
Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Becky Parks, MD

Patients seen/weekly: 30+

On call/weekend responsibility: None

Location: Various clinic locations

Elective Contact: Nanette Bladdick, 362-3307

Other Information: Contact Dr. Parks by email to arrange time and location to report on first day of elective.

M35 872 MS CENTER/OUTPATIENT – MISSOURI BAPTIST

Instructor(s): Barry Singer, MD, 314-996-7966

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 5 and 9.

Students will develop their skills in taking histories and performing neurological examinations on patients with multiple sclerosis under direct supervision of multiple sclerosis specialists. Localization of neurological findings and symptoms to the neuro-axis will be emphasized. A major goal for the students will to increase the understanding of comprehensive patient management including disease treatment, symptom management, adjunctive therapy services, and psychosocial issues.

The outpatient rotation will be two weeks at The MS Center for Innovations in Care at Missouri Baptist Medical Center with Dr. Barry Singer and Dr. Mark Tullman and two weeks at the West Count MS Center affiliated with Mercy with Dr. Barbara Green and Dr. Amy Rauchway. An additional goal for students will be to understand process of clinical research and translation into approved therapies. Both centers have developed medications that have or will be soon FDA-approved as new therapies for multiple sclerosis.

Student time distribution: Outpatient 100%; Subspecialty Care 100%

Major teaching responsibility: Barry Singer, MD, Barbara Green, MD

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: Missouri Baptist Medical Center, 3009 N. Ballas Rd.,
Building B, Ste. 207B, St. Louis, MO 63131

Elective Contact: Barry Singer M.D., 314-996-7966

Other Information: Students meet at 8:00 a.m., Missouri Baptist
Medical Center, 3009 N. Ballas Rd, Building B, Ste. 207B, St. Louis,
MO 63131, first day of elective.

M80 807 PHYSICAL MEDICINE AND REHABILITATION

Instructor(s): Neringa Juknis, MD, 454-7757, juknisn@neuro.wustl.edu

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25,
29, 33, 37, and 41.

The elective is designed to provide the student with a broad
introduction to the field of Physical Medicine and Rehabilitation.

Major objective of this clinical elective is to achieve greater
knowledge of the neurological and musculoskeletal diseases and
their treatment, and gain understanding of basic principles of
rehabilitation. The student will learn the clinical and rehabilitative
care of patients with strokes, traumatic brain injury, spinal cord
trauma and diseases, and limb amputations. Student will gain clinical
skills in evaluating in management of functional impairments.

Students will be expected to participate in daily rounds on inpatient
rehabilitation units with the clinical care team, follow 3-5 patients,
attend multidisciplinary team conferences and family meetings,
attend outpatient rehabilitation clinics in spinal cord, stroke,
traumatic brain injury, and amputee. Teaching and supervision is
provided by the physiatry and neurology faculty of the Division of
Rehabilitation. Rehabilitation and neurology residents are involved in
student teaching as well. Students are required to participate in
didactic teaching conferences within the PM&R residency.

This rotation is particularly useful for students considering careers in
rehabilitation, neurology, geriatrics, primary care, neurosurgery, or
any other field that will require experience in the evaluation and
management of patients with physical impairment and disabilities.

Student time distribution: Inpatient 80%, Outpatient 10%,
Conferences/Lectures 10%; Subspecialty Care 100%
Major teaching responsibility: Attending faculty and residents
Patients seen/weekly: 20
On call/weekend responsibility: None
Location: Suite 2304, Rehabilitation Division, Neurology Department,
4444 Forest Park
Elective Contact: Donna Barbier, 454-7757,
barbierd@neuro.wustl.edu
Other Information: Students report to
Suite 2304, Rehabilitation Division, Neurology Department, 4444
Forest Park Ave., 9:00 a.m. first day of elective.
Rotation location–The Rehabilitation Institute of St. Louis, 4455
Duncan Ave.

Research – Neurology

(M35 900)

Beau Ances, MD, 2nd Floor Storz, 747-8423. Neuroimaging of Neurodegenerative Disorders. Students can work in a neuroimaging laboratory that is focused on translational discovery of neuroimaging biomarkers for neurodegenerative diseases. The laboratory focuses on the pathogenesis of HIV dementia and Alzheimer's disease. We are investigating the effects of neurodegenerative diseases on brain networks using blood oxygen level dependent imaging and arterial spin labeling. Multiple projects that involve bioengineering, neuroimaging, and infectious disease are available depending on the interest of the student.

Randall Bateman, MD, 304 Biotechnology Center, 747-7066.

Central Nervous System protein metabolism in aging and dementia. This research elective will expose the student to translational research in the study of Alzheimers disease. The student will participate in multiple areas of the research including participant consent, enrollment, and admission to a research hospital unit. Lumbar catheter placement and CSF sample collection will be demonstrated. The student will participate in sample analysis including processing for mass spectrometry quantitation, ELISA, and western gel methods. Quantiation, analysis and modeling of the data will be taught in the context of data interpretation and study design.

Maurizio Corbetta, MD, 4525 East Building, 362-7620. The elective will provide hands-on experience in using functional neuroimaging (PET and fMRI) to map regions of the human brain responsible for vision and attention, and to study recovery of function in patients with cognitive deficits (aphasia, neglect) and brain injury.

Anne H. Cross, MD, and Laura Piccio MD, PhD, 3rd Floor McMillan, 362-3293. Understanding interactions of the immune system with the central nervous system as it relates to multiple sclerosis and other neuroimmunological disorders. Our goal is to understand how immune cells cross the blood-brain barrier and initiate the cascade of events leading to lesions of multiple sclerosis. We are also funded to study the effects of diet and adipokines on neuro-inflammation. Depending upon the time commitment of the student and their individual interests and goals, they will either assist with ongoing projects, or be given a laboratory project on which to work. Projects may involve animal models for MS, cell culture or studies of human samples (CSF, blood, autopsied specimens). Interested students should contact Dr. Cross (email: crossa@neuro.wustl.edu) or Dr. Piccio (email: picciol@neuro.wustl.edu) several weeks in advance before signing up for this research to allow for sufficient planning.

Marc Diamond, MD, 305 Biotechnology Building, 286-2165.

Molecular Mechanisms and Therapeutics for Neurodegenerative

Diseases. Students will have the opportunity to work in a basic science laboratory that is focused on translational discovery: identifying therapeutic mechanisms and developing drugs and drug targets for neurodegenerative diseases. The laboratory is focused on pathogenesis of the tauopathies, and of Huntington disease. In the tauopathies, we are testing the hypothesis that propagation of protein misfolding occurs by transfer of protein aggregates between cells in a manner similar to prions. In Huntington disease, we are using advanced biophysical techniques to identify and characterize proteins that interact with and regulate the misfolding of mutant huntingtin. Multiple projects are available that involve biophysics, biochemistry, cell biology, and animal studies, depending on the interest of the student.

Robert T. Naismith, MD, 310B McMillan, 747-0432. Clinical Imaging Research in Multiple Sclerosis (8 weeks). The student will learn about neuroimaging, imaging analyses, data collection, data management, and clinical study endpoints in multiple sclerosis (MS). They will observe patient participants undergoing a detailed evaluation of disability measures, such as ambulation, symptom scales, cognition, vision, upper extremity function, etc. They will witness the entire process of image acquisition, processing, analyses, and data extraction. They will have the opportunity to interact with many people who are vital to the research, including research coordinators, imaging technologists, imaging physicists/chemists, and specialized research clinicians (i.e. neurocognitive and physical therapy research specialists).

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

Software, SIENA Volume Analysis Software, and Matlab Imaging Analysis Software.

Steven E. Petersen, PhD, 2108 East Building, 362-3319. This lab is interested in the functional localization of higher brain processes, particularly those processes related to language, memory and visual attention. Our main approach to these issues is the use of PET and fMRI activation, but we also study task performance in normal and selected patient populations.

Joel S. Perlmutter, MD, 2nd Floor East Bldg, 362-6026.

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

Brad A. Racette, MD, 4th Floor McMillan, 747-0531. Our lab is primarily interested in environmental risk factors associated with Parkinson disease. We use a variety of techniques to study these risk

factors, including traditional field epidemiology in which we evaluate workers exposed to metals, neuroimaging where we study the pathophysiology of toxin mediated parkinsonism, geographic information systems research where we associate passive environmental toxin exposures with incident and prevalent Parkinson disease, and neuropathologic studies in manganese exposed workers from South Africa There are numerous opportunities available for students to be involved with any of these projects. Students will have some clinical exposure as well to familiarize them pertinent clinical syndrome.

Marcus E. Raichle, MD, Neuro Imaging Laboratory, 2nd Floor East Building, 362-6907. In vivo brain hemodynamic, metabolic and functional studies of human cognition and emotion using cyclotron-produced isotopes and emission tomography (PET) as well as functional magnetic resonance imaging (fMRI) in humans. See also Steven E. Petersen, Ph.D.

B. Joy Snider, MD, PhD, Biotechnology Building Room 225, 747-2107. Protein degradation and calcium homeostasis in cellular models of neurodegenerative disorders. We study regulation and dysfunction of the ubiquitin-proteasome system in cultured cells, including primary neuronal cultures. A second set of projects is aimed at elucidating the role of intracellular calcium homeostasis in neuronal dysfunction and death.

Gregory Wu, MD, PhD, 3rd Floor McMillan, 362-3293. Understanding how immune responses are generated that target the central nervous system. Specifically, studies on antigen presentation cell contributions to autoimmune animal models of multiple sclerosis. Our goal is to understand what cellular interactions are critical to the development of immune-mediated demyelination.

Kel Yamada, MD, 204 Biotechnology Center, 362-3533, 454-6120. Research on mechanisms modulating synaptic transmission in the central nervous system using electrophysiological techniques in neuronal cell cultures, in brain slices, and in live rodents. Studies are

relevant to epilepsy, neonatal brain injury, and stroke.

Faculty — Neurology: See Appendix

Department of Neurosurgery

Instruction in neurological surgery begins with an introduction to the anatomy and physiology of the nervous system presented in the first-year course in neural sciences directed by the [Department of Anatomy and Neurobiology](#) with participation of the neurosurgery faculty. In the second year, the [Department of Neurosurgery](#) presents the course in Diseases of the Nervous System in conjunction with the Departments of Neurology, Pathology, Molecular Biology and Pharmacology, Medicine and Pediatrics. The course emphasizes how knowledge derived from basic or clinical investigations leads to improvements in clinical care. In the third year, students may elect to participate in a two- or four-week Neurosurgery clerkship which introduces them to the clinical care of patients with diseases of the nervous system. Neurosurgical faculty members work with the neurologists in providing lectures, demonstrations and teaching exercises in patients with neurological diagnoses as part of the Clinical Medicine course. Students may elect

to fulfill their Neurology requirement by rotating on the neurosurgery service. Students may also choose neurosurgery as part of the Surgical Specialty rotations. Neurosurgical diagnosis, critical care, operative treatment and ethical issues in patient management are emphasized. In the fourth year, students may choose from several advanced electives including clinical externships in neurosurgery and experiences in basic or clinical/translational research.

Neurosurgery divisions

Division of Pediatric Neurosurgery

Matthew D. Smyth, MD; Tae Sung Park, MD; David D. Limbrick Jr., MD, PhD.

Based in St. Louis Children's Hospital, the Division of Pediatric Neurosurgery of the Department of Neurosurgery provides neurosurgical care for the many disorders that are unique to the developing nervous system, from the premature infant to the young adult. Subspecialty areas include pediatric neuro-oncology, spastic cerebral palsy, craniofacial disorders, obstetrical brachial plexus injuries and epilepsy surgery. Active areas of clinical and basic research include pediatric head trauma, brain tumors, epilepsy and neonatal brain injury and hydrocephalus.

Center for Innovation in Neuroscience and Technology

Eric C. Leuthardt, MD (director)

The multidisciplinary center is based in the Department of Neurosurgery with participation from multiple departments in the medical school and across the University campus. Current active participants include neurosurgery faculty members Ralph G. Dacey Jr., MD, chairman; Albert Kim, MD, David Limbrick, MD, PhD, Wilson Z.

Ray, MD, Matthew Smyth, MD, Neill Wright, MD, and Gregory J. Zipfel, MD; Colin Derdeyn, MD, with the Division of Neuroradiology; Steve Peterson, MD, with the Department of Neurology/Neurobiology; Frank C-P Yin, PhD, chairman and Daniel Moran, PhD, Dennis Barbour, MD, PhD, Shelly E. Sakiyama-Elbert, PhD, and Donald L. Elbert, PhD, with the Department of Biomedical Engineering; Philip Bayly, PhD, Skrikanth Singamaneni, PhD, and Guy Genin, PhD, with the Department of Mechanical Engineering; Alex Evers, MD, with the Department of Anesthesiology; and Matthew MacEwan.

James L. O’Leary Division of Experimental Neurology and Neurological Surgery

Thomas A. Woolsey, MD (director)

The O’Leary Division was created in 1980 to formalize a long-standing tradition of providing unique opportunities for residents, fellows and others to engage in basic research as part of this academic training program. The division pioneered techniques to study brain structure and activity, with a focus on developmental and adult nervous system plasticity. Trainees have published fundamental work on mechanisms of activity-based changes to cerebral blood flow, a novel stroke model, new understanding of impacts of glioblastoma growth on cortical structure and function, and novel approaches to visualizing and analyzing dynamic changes in structure and function. The division currently collaborates widely on projects conducted in and outside WUSM including: faculty in this Department and the departments of Neurology, Anatomy and Neurobiology, Biomedical Engineering, Earth and Planetary Sciences, Electrical and Systems Engineering, Pediatrics, Otolaryngology and Radiology.

Areas of neurosurgical specialization

Cerebrovascular Surgery

Michael R. Chicoine, MD; Ralph G. Dacey Jr., MD; Robert L. Grubb Jr., MD; Keith M. Rich, MD; Gregory J. Zipfel, MD

Cranial Base Surgery

Michael R. Chicoine, MD; Robert L. Grubb Jr., MD; Gregory J. Zipfel, MD

Epilepsy Surgery

Joshua L. Dowling, MD; Eric C. Leuthardt, MD

Neuro-Oncology

Michael R. Chicoine, MD; Ralph G. Dacey Jr., MD; Gavin P. Dunn, MD, PhD; Albert Kim, MD; Keith M. Rich, MD; Eric C. Leuthardt, MD

Pediatric Neurosurgery

Matthew D. Smyth, MD; Tae Sung Park, MD; David D. Limbrick Jr., MD, PhD

Peripheral Nerve Surgery

Wilson Z. Ray, MD

Pituitary Surgery

Michael R. Chicoine, MD; Ralph G. Dacey Jr., MD; Gregory J. Zipfel, MD

Spinal Neurosurgery

Ian G. Dorward, MD; Wilson Z. Ray, MD; Paul Santiago, MD; Todd J. Stewart, MD; Neill M. Wright, MD; Eric C. Leuthardt, MD

Stereotactic Radiosurgery

Michael R. Chicoine, MD; Ralph G. Dacey Jr., MD; Joshua L. Dowling, MD; Keith M. Rich, MD; Matthew D. Smyth, MD; Eric C. Leuthardt, MD

Surgical Management of Pain

Joshua L. Dowling, MD

For more information

Please visit the [Department of Neurosurgery website](#) for more information.

MD Courses — Neurosurgery

First year

Selectives

MO4 5878 INTRODUCTION TO CLINICAL NEUROSURGERY

Instructor: Gavin Dunn, MD, PhD, 362-4313

The objective for this selective course is to expose students to the various fields of neurosurgery. Students attend X-Ray/Case Management conferences and Grand Rounds. There are nine sessions for the semester: two case management conferences, two Grand Rounds and five discussions. Students (discussion leaders) are assigned to relevant literature to present. Discussion dates and discussion leaders are chosen at the introductory meeting. The course also exposes students to tools they can use in critical reading of medical literature. During the semester, as opportunities allow, patients with the disease processes being discussed are brought to class, and students are lead on rounds to discuss the various patients in the hospital at that time. In addition, there will be cadaver lab which provides students with hands-on experience with neurosurgical procedures, guided by faculty and residents.

Third year

Clerkship opportunities

Students may elect to obtain their neurology clerkship experience on the neurosurgery service, or they can choose neurosurgery as part of the surgical specialty rotations. Third-year students participate with the residents and attendings on hospital rounds, evaluate patients in

the neurosurgery outpatient department and participate in the neurosurgical operating room. The main objectives of the rotation include: 1) the evaluation of comatose or head-injured patients; 2) clinical presentation, diagnostic work-up and treatment of cervical and lumbar disc disease; and 3) evaluation and treatment of patients with hemorrhagic and ischemic stroke.

Fourth year

Elective

M40 805 NEUROSURGERY

Instructor(s): David Limbrick, MD, PhD, 454-2810

Enrollment limit per period: 4

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The goal is to provide an overview of neurological surgery. The fourth year medical student will participate in patient work-ups, pre, intra- and postoperative care, and diagnostic procedures. Students will also scrub in cases with senior level and chief residents assisting with neurosurgical procedures and observing the more critical portions of these procedures. It is expected that they will learn how to perform basic neurosurgical procedures such as lumbar punctures, ICP monitor placement, and ventricular drain placement. Fourth year medical students are encouraged to participate in Grand Rounds, Neurosurgery Resident Curriculum conference, and Journal Club with the neurosurgery residents. At least one day/week is spent in an outpatient neurosurgery office setting. A week spent on the pediatric service at St. Louis Children's Hospital is also strongly encouraged as a component of this fourth year elective.

Student time distribution: Inpatient 80%; Outpatient 20%,

Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: N/A

Patients seen/weekly: 125

On call/weekend responsibility: None

Location: Department of Pediatric Neurosurgery, St. Louis Children's Hospital, 4 South 20, 8:00 a.m. first day of elective.

Elective Contact: David Limbrick, MD, PhD, 454-2810

Other Information: Students should contact Dr. Limbrick prior to the first day of the elective.

Research — Neurosurgery

(M40 900)

Michael R. Chicoine, MD, 5th Floor McMillan, 362-4313. Outcomes analysis for adult patients with brain tumors. Current clinical studies focus on outcomes of patients with benign and malignant brain tumors utilizing a prospective brain tumor database. Particular emphasis includes the impact of intraoperative MRI (iMRI) upon outcomes for patients with brain tumors and other diseases. We are establishing a multicenter database pooling data from multiple iMRI centers in North America.

Ralph G. Dacey Jr., MD, 5th Floor McMillan, 362-3571. Research on the cerebral microcirculation and ischemia/reperfusion: Our studies focus on examination of molecular mechanisms in the endothelial cells and smooth muscle cells in the intracerebral microcirculation and the contribution of glial cells to their impairment after hypoxia/reoxygenation. In vitro techniques for studying isolated perfused microvessels are used to examine questions centered on endothelial smooth muscle and glial cell integration of cerebral blood flow responses.

Hans H. Dietrich, PhD, 5th Floor McMillan, 362-3656. Pathophysiology of the cerebral microcirculation in Alzheimer's disease and diabetes: Alzheimer's disease and diabetes impair the

vascular function of the cerebral microcirculation. We use in vitro techniques for studying isolated perfused microvessels from genetic models of the respective diseases to examine the impairment of molecular mechanisms involved in endothelial and smooth muscle integration of cerebral blood flow regulation. Based on our studies, we devise and test treatments to alleviate the observed microvascular dysfunction.

Jeffrey M. Gidday, PhD, 286-2795. Research in our lab is aimed at elucidating the innate mechanisms responsible for the promotion of robust neuronal and vascular protection against ischemic and other neurodegenerative injuries in CNS tissues (a phenotype called “tolerance”) that results from a sublethal “conditioning” stress. The current focus in brain is on defining endogenous, vascular-based, anti-inflammatory mechanisms of long-lasting stroke tolerance in response to repetitive hypoxic preconditioning. In the retina, we’ve found that this novel form of protracted plasticity in the CNS also protects against the slow, progressive degeneration of retinal ganglion cells that defines glaucoma. Identifying these epigenetic mechanisms, and how they are amenable to physiologic or pharmacologic activation, will provide novel therapeutic targets for cytoprotection in the setting of both acute, and chronic, neurodegenerative disease.

David D. Limbrick, MD, PhD, Suite 4S20, St. Louis Children’s Hospital, 454-2810. Clinical and translational research into newborn brain injuries, including post-hemorrhagic hydrocephalus. Main research areas include cerebrospinal fluid protein markers of disease, MRI diffusion tensor imaging, and prospective clinical trials. Also, multi-institutional clinical research opportunities exist for syringomyelia associated with Chiari I malformation.

T. S. Park, MD, 1546 St. Louis Children’s Hospital, 454-2810. Outcome studies of selective dorsal rhizotomies for treatment of spastic cerebral palsy in children, and brachial plexus repair for birth injury are ongoing projects.

Keith M. Rich, MD, 5th Floor McMillan, 362-3566. Research on neuronal and glioma cellular apoptosis after treatment with DNA-damaging agents. Techniques include growing human brain tumor cells in culture, bioassay for apoptosis with fluorescent staining, protein immunoblotting, and PCR.

Neill M. Wright, MD, 5th Floor McMillan, 362-3630. Clinical outcomes studies focusing on the treatment and results of cervical spine surgery. Several active research opportunities include the evaluation of novel surgical techniques for treatment of the atlantoaxial (C1-2) segment, the use of synthetic bone in cervical spine surgery, the relationship between cervical spondylosis and dizziness, and the critical evaluation of certain intra-operative techniques and surgical practices.

Gregory J. Zipfel, MD, 5th floor McMillan, 747-8871. My NIH-funded research program involves both basic and clinical research efforts focused on two main conditions: 1) Cerebral amyloid angiopathy and its contribution to ischemic stroke, vascular dementia, and Alzheimer's Disease; and 2) Vasospasm-induced delayed cerebral ischemia and long-term cognitive deficits following aneurysmal subarachnoid hemorrhage. My work spans from basic experimental methods including cell culture and ex vivo vascular techniques to in vivo studies utilizing animal models of ischemic stroke and subarachnoid hemorrhage and live animal epifluorescent and confocal imaging to Phase I clinical trials in patients.

Faculty — Neurosurgery: See Appendix

Department of Obstetrics and Gynecology

The **Department of Obstetrics and Gynecology** has clinical teaching services located at Barnes-Jewish Hospital and Missouri Baptist Medical Center under the following director:

George A. Macones, MD, MSCE, Professor and Head, Department of Obstetrics and Gynecology

In addition, for the purposes of teaching, clinical care and research, the Department of Obstetrics and Gynecology is divided into subspecialty divisions under the following directors:

Gynecologic Oncology

David G. Mutch, MD

Maternal-Fetal Medicine

Allison G. Cahill, MD, MSCI

Ultrasound and Genetics

Anthony O. Odibo, MD, MSCEReproductive Endocrinology and Infertility

Randall R. Odem, MD

General Obstetrics and Gynecology

Eric Strand, MD

Female Pelvic Medicine and Reconstructive Surgery (formerly Uro-Gynecology)

Jerry L. Lowder, MD, MS

Pediatric and Adolescent Gynecology

Diane F. Merritt, MD

Minimally Invasive Gynecologic Surgery

Scott W. Biest, MD

Research

Kelle H. Moley, MD (Basic Research), Jeffrey F. Peipert, MD, PhD
(Clinical Research)

Ob/Gyn Residency Program Director

Anthony L. Shanks, MD

Instruction in obstetrics and gynecology is provided during all four years of the medical curriculum, beginning with an introductory course in the first year as a component of Clinical Medicine. Teaching in the second year is designed to correlate basic science with the physiologic basis of normal pregnancy and parturition, reproductive biology, infertility and reproductive endocrinology and gynecologic malignancies. All third-year medical students participate in a six-week clinical clerkship in obstetrics and gynecology. This is divided into three two-week components of outpatient OB/GYN, inpatient obstetrics and inpatient gynecology. In the fourth year, students may elect a subinternship in the listed clinical subspecialties or a research elective.

For more information

Please visit the [Department of Obstetrics and Gynecology website](#) for more information.

MD Courses — Obstetrics and Gynecology

First year

As a component of the course in Clinical Medicine offered by the Department of Medicine, the student is introduced to the essentials in the medical history and examination for the gynecological evaluation of the adult woman patient.

Second year

Second-year students are introduced to obstetrics and gynecology with lectures in reproductive biology that apply and expand upon pelvic anatomy and gynecologic and obstetric physiologic principles taught in the first year.

M45 635B OBSTETRICS AND GYNECOLOGY

Instructor: Kenan R. Omurtag, MD, 286-1384

The obstetrical component of this course emphasizes the physiologic basis of normal pregnancy, parturition, labor and delivery, and adaptations of other organ systems to pregnancy. Pathophysiology of pregnancy, pregnancy complications and deviations from normal labor will also be introduced. The gynecologic component of the course reviews embryology and genetics of practical use for clinicians. This provides a foundation to overview adolescent gynecology, amenorrhea, abnormal uterine bleeding, reproductive endocrinology, infertility, menopause, surgical anatomy, and diagnosis and treatment of gynecologic neoplasm.

Third year

M45 730 OB/GYN CLERKSHIP

Clerkship Director: Tammy Sonn, MD

Clerkship Coordinator: Trish Werner, 362-3126

All third-year medical students participate in a six-week clinical clerkship in Obstetrics and Gynecology. This is divided into three two-week components of outpatient OB/GYN, inpatient obstetrics and inpatient gynecology. Comprehensive study of the reproductive health needs of women in both the office setting and the surgical

setting is the focus of the curriculum. Students are actively involved in all settings of health care delivery: outpatient faculty clinics within all specialties, resident ambulatory clinics, operating rooms for all obstetric or gynecologic cases, inpatient floors of L&D and Gynecology, and in the ED or off-service floors seeing consults. Faculty, fellows, residents, and nurse practitioners provide teaching for this rotation. Student-directed didactics include the faculty and chief resident lecture series, surgical skills session and faculty-assigned preceptor groups that meet throughout their six-week rotation.

Fourth year

Fourth-year students wishing to take an externship or research elective can choose from a variety of courses.

Electives

M45 804 OB/GYN OUTPATIENT CARE SUBINTERNSHIP

Instructor(s): Laura A. Parks, MD, parksla@wudosis.wustl.edu, 362-1016

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This experience is designed to primarily acquaint the student with the diagnosis and care of outpatients. Students will work one-on-one with attending staff, to focus on an overview of evaluation, diagnosis, and treatment of common obstetric and gynecologic concerns. The sub-intern will spend one to three half days weekly participating in outpatient surgery under the supervision of attendings and house staff, and five to six additional half days in clinic and private offices. Overnight OB call will be selected over a weekend to acquaint the student with the house staff and hospital, providing opportunity to participate in deliveries. A 30-45 minute presentation to attendings and house staff will culminate the rotation on a selected OB GYN topic.

Student time distribution: Outpatient 100%; Primary Care 100%

Major teaching responsibility: Attending staff

Patients seen/weekly: 5-20/day

On call/weekend responsibility: See above description

Location: Room 308, Maternity Hospital, Barnes-Jewish Hospital,
South Campus

Elective Contact: Patti Sasse, 362-1016

Other Information: Students should contact Patti Sasse one to two weeks before rotation for instructions of start time/location for first day of elective.

M45 810 OB-GYN ENDOCRINOLOGY-INFERTILITY SUBINTERNSHIP

Instructor(s): Randall Odem, MD; Amber Cooper, MD; Emily Jungheim, MD; Sarah Keller, MD; Kelle Moley, MD; and Valerie Ratts, MD, 314-286-2421

Enrollment limit per period: 1 (will consider 2 students if faculty presence allows)

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The subintern will participate (in the office and hospital) in the study and treatment of women with reproductive endocrine disorders and infertility. S/he will attend and present in conferences, attend surgery, observe assisted reproductive technology procedures, have assigned reading and be an integral part of the reproductive endocrine service. Opportunities for clinical research projects in reproductive endocrinology are also available.

Student time distribution: Inpatient 10%, Outpatient 75%,
Conferences/ Lectures 15%; Primary Care 10%, Subspecialty Care 90%

Major teaching responsibility: Attendings, fellows, and resident

Patients seen/weekly: 75

On call/weekend responsibility: None

Location: 4444 Forest Park Avenue, Suite 3100

Elective Contact: Randall Odem, MD, odemr@wustl.edu

Other Information: Students report to Dr. Odem first day of elective.
Please email Dr. Odem the prior week.

M45 830 GYN ONCOLOGY SUBINTERNSHIP

Instructor(s): David Mutch, MD, 362-3181

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37 and 41.

The subintern will take part in the work-up of tumor patients prior to surgery and/or radiotherapy, assist in pelvic operations, help render perioperative care, and review pathology specimens and slides. S/he will participate in GYN Tumor Clinic sessions, make hospital rounds with house staff, accompany chief residents on consultations, and attend OB-GYN conferences. Opportunities for clinical or basic research project in gynecologic malignancy are also available.

Student time distribution: Inpatient 70%, Outpatient 20%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings, fellows, and residents

Patients seen/weekly: 40

On call/weekend responsibility: Weekend rounds

Location: Maternity Hospital, Barnes- Jewish Hospital, South Campus

Elective Contact: David Mutch, MD, 362-3181

Other Information: Students report to Dr. Mutch, 4th Floor Maternity Hospital, 9 a.m. first day of elective.

M45 843 MATERNAL-FETAL MEDICINE OUTPATIENT CARE SUBINTERNSHIP

Instructor(s): Roxane Rampersad, MD, 747-0739

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will see a variety of high risk obstetrical patients in the out patient setting. The student will evaluate various types of reproductive age patients with medical or obstetrical complications, including preconception consultations, prenatal care consultations and initial prenatal visits. The student will also see return patients to experience the continuity of prenatal care. Students will participate in antenatal testing and learn basic ultrasonography skills. Students will spend some time with geneticists, and experience counseling of

a variety of genetic conditions. In addition they will spend time on the ultrasound unit observing numerous high resolution scans. The student will be responsible for one presentation to be given to the OB teams at the end of the rotation. Students are provided independent study time to put together the presentation which should be in power point and on a topic of their choice, inspired by a patient-related clinical condition that peaked their interest during the block. In addition the student will have the option to take overnight call, or call in the Pregnancy Assessment Center in order to gain more hands-on experience with in-patient obstetrics. This is voluntary and not a requisite.

Student time distribution: Inpatient 5%, Outpatient 85%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Maternal-Fetal Medicine Attendings and fellows

Patients seen/weekly: 40

On call/weekend responsibility: Not required, overnight call available to enhance experience

Location: 5th Floor, Center for Advanced Medicine, Ob/Gyn office

Elective Contact: Roxane Rampersad, MD, 747-0739

Other Information: Students report to the 5th Floor, Center for Advanced Medicine, Ob/Gyn office, 8:00 a.m. first day of elective.

M45 844 MATERNAL-FETAL MEDICINE INPATIENT (ANTEPARTUM) SUBINTERNSHIP

Instructor(s): D. Michael Nelson, MD, 747-0738

Enrollment limit per period: 1, unless cleared by course master.

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Sub-interns will participate in the antepartum and intrapartum management of high-risk hospitalized patients. There is limited interaction with outpatients through the High-Risk Obstetrics Clinics and the Center for Diabetes in Pregnancy. Examples include diabetes, hypertension, renal disease, hematologic abnormalities, preterm labor, and others. Antepartum evaluation and monitoring of the pregnant woman and her fetus are emphasized. Supervision is

by the antepartum chief resident and a maternal-fetal medicine faculty member and fellow. An opportunity for intense labor and delivery experience with the Night Team is also encouraged. Students will spend time observing diagnostic obstetric ultrasound examinations. The student will prepare a brief talk on a topic of his/her interest during the course of the rotation.

Student time distribution: Inpatient 80%, Outpatient 15%, Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: Inpatient: 20; Outpatient: 5

On call/weekend responsibility: Overnight/weekend call optional — student self-scheduled

Location: Maternity Hospital, Barnes- Jewish Hospital, South Campus

Elective Contact: D. Michael Nelson, MD, 747-0738

Other Information: Students report to Antepartum Service (ward 5300), 7:30 a.m. first Monday of elective. If the first day is a holiday, email Dr. Nelson prior to start date for instructions.

M45 856 OB/GYN ULTRASOUND – GENETICS

Instructor(s): Jeffrey Dicke, MD, 454-8135

Enrollment limit per period: 1 (will consider 2 students if faculty presence allows)

Valid start weeks for 2-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

Working with the attending physicians in the Ultrasound Units at the Center for Advanced Medicine and the Center for Women's Wellness at Missouri Baptist Medical Center, the student will learn the principles and techniques of non-invasive screening for fetal disorders and observe the performance of invasive prenatal diagnostic procedures. The student will also learn the standards and guidelines for performance of the antepartum obstetrical ultrasound examination and female pelvic examination. Normal and abnormal fetal and gynecologic anatomy will be reviewed. Experience will be gained in pedigree analysis and familial risk factor assessment by working with genetic counselors. One day is spent in the Cytogenetics Laboratory observing the preparation of prenatal

specimens for karyotype analysis. Opportunities for participation in clinical research are also available.

Student time distribution: Outpatient 90%, Conferences/Lectures 10%; Primary Care 30%, Subspecialty Care 70%

Major teaching responsibility: The attendings of the ultrasound section

Patients seen/weekly: 40

On call/weekend responsibility: None

Location: The Women's Health Center, 5th floor, Center for Advanced Medicine and The Center for Women's Wellness, 4th floor, Building D, Missouri Baptist Medical Center

Elective Contact: Jeffrey Dicke, MD, 454-8135

Other Information: Students should contact Dr. Dicke one week prior to first day of elective.

M10 823 OBSTETRICAL ANESTHESIA

Instructor(s): Swarup Varaday, MD, 362-6252

Enrollment limit per period: 1

Valid start weeks for 2 or 4-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

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

Student time distribution: Inpatient 90%, Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attending, Senior Resident

Patients seen/weekly: 20

On call/weekend responsibility: None (optional)

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Swarup Varaday, MD, 362-6252 or 362-2628

Other Information: Students should report to 5400 Labor and

Delivery, 7:00 a.m. first day of elective.

M65 833 SPECIAL TOPICS IN REPRODUCTIVE HEALTH

Instructor(s): Tessa Madden, MD, 747-6495

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 17, 21, 29, 33, 37, and 41.

Students will attend a variety of outpatient clinics to interact with patients seeking different reproductive health services. These clinics include family planning and abortion services at Planned Parenthood, the County STD clinic, Adolescent and Pediatric Gynecology, Child Sexual Abuse, Teen OB clinic, the Contraceptive CHOICE Clinic, and outpatient gynecology clinics at the Center for Advanced Medicine. Clinical experiences will be ambulatory. Conferences include weekly Obstetrics and Gynecology Grand Rounds, weekly Family Planning Meeting and monthly Family Planning Journal Club. Reading will include relevant articles and chapters. Students will be responsible for a brief presentation on a reproductive health topic at the conclusion of the course. Opportunities for clinical research in contraception are also available.

Student time distribution: Outpatient 100%; Primary Care 30%,
Subspecialty Care 70%

Major teaching responsibility: Attendings

Patients seen/weekly: Varies

On call/weekend responsibility: None

Location: Division of Clinical Research, 4533 Clayton Ave, 2nd floor

Elective Contact: Tessa Madden, MD, 747-6495

Other Information: Students should contact Dr. Madden a week prior to the beginning of the rotation, email maddent@wustl.edu.

Research — Obstetrics and Gynecology

(M45 900)

Jeffrey F. Peipert, MD, PhD, Gina M. Secura, PhD, 4533 Clayton Avenue, 747-6434. Reproductive Epidemiology. In this 4-week elective, students will have the opportunity to immerse themselves in an epidemiologic study examining an obstetric or gynecologic outcome. Dr. Allsworth's research focuses on risk factors for the acquisition of sexually transmitted infections and how social factors, including race/ethnicity, poverty, discrimination and violence impact women's reproductive health. Dr. Peipert's research focuses on family planning, long-acting reversible contraception, sexually transmitted infections and the promotion of dual contraceptive use. Dr. Secura's research focuses on HIV and STD risk among young men and women and contraception among women. The Division has many ongoing clinical research studies for potential collaboration, include the Contraceptive CHOICE Project. The CHOICE Project is a prospective cohort study of 10,000 women in the St. Louis region that is seeking to reduce unintended pregnancy rates in the region through the promotion of long-acting reversible contraception as well as describe method related satisfaction, compliance and continuation rates for long and short acting methods. This rotation is designed for the student planning a career in academic medicine as a physician scientist and one who is interested in considering pursuing clinical research. Prior to signing up for this course, the student must contact Dr. Allsworth to discuss the schedule and expectations of the rotation.

Kelle H. Moley, MD, Sarah England, PhD, Indira Mysorekar, PhD, and Joan Riley, PhD, 10th Floor, BJCIH building, 287-1775. In this six week elective, students will have the opportunity to immerse

themselves in bench research in reproductive science. The four PI's willing to take students are Drs. Kelle Moley, Joan Riley, Sarah England and Indira Mysorekar. Dr. Moley's research focuses on mammalian gametes, fertilization, preimplantation development and implantation. Dr. Riley's research centers around the immunoregulatory processes of mammalian fetomaternal interaction and ovarian biology. Dr. England's laboratory focuses on uterine contractility and ion channels in the uterine myometrium. The Mysorekar lab studies the dynamics of tissue regeneration in the adult mammalian urinary bladder pathogenesis of a common infectious disease in women, namely recurrent urinary tract infections (UTIs) and investigation of potential infectious etiology for preterm birth in pregnant women. The main criteria for this rotation is that the student must have prior experience as an undergraduate or postgraduate in a laboratory, not including class work. This rotation is designed for the student planning a career in academic medicine as a physician scientist and one who is interested in considering reproductive science as a field. Prior to signing up for this course, the student must contact Dr. Moley to discuss the schedule and expectations of the rotation.

Faculty — Obstetrics and Gynecology: See Appendix

Department of Ophthalmology and Visual Sciences

Instruction begins in the first year with examination of the eye and a lecture on various aspects of ocular disease. During the second year, students will receive a refresher lecture and lab on direct ophthalmoscopy as well as a lecture on ophthalmic manifestations of systemic disease. During the third year, students are given the opportunity during the surgery clerkship to spend four weeks on the ophthalmology services. In addition, during the third year there are lectures given to students during the Internal Medicine rotations. In the fourth year, a four-week intensive clinical rotation is tailored to students interested in pursuing ophthalmology as a career. Also, research electives are available under the guidance of numerous different ophthalmology faculty members for fourth year students.

Please visit the [Department of Ophthalmology website](#) for more information about the department.

MD Courses — Ophthalmology and Visual Sciences

First year

Introduction to clinical ophthalmology begins in the first year with a lecture and practicum (peer exam) on taking an ocular history and performing an ocular exam. Emphasis is on ophthalmoscopy.

Lectures and practicum session will be led by Dr. Collin McClelland and Dr. Morton Smith.

Second year

During the second year, students will receive a refresher lecture and lab on direct ophthalmoscopy as well as a lecture on ophthalmic manifestations of systemic disease.

Third year

Third-Year Clerkship Opportunities

In the third year, students are given the opportunity to spend four weeks of their surgery rotation on the ophthalmology service. The students work closely with the ophthalmology residents and review the differential diagnosis of the “red eye,” how to interpret an ophthalmologic consult note, and how to handle ocular emergencies. During this rotation, there is again emphasis on the use of the ophthalmoscope. Additional clinical skills introduced to student rotators include the use of the slit lamp and indirect ophthalmoscopy. All third-year students must complete the “Case Studies in Ophthalmology for Medical Students” and attend the periodic “feedback/oral exam” session with Dr. Morton Smith and/or Dr. Collin McClelland.

Third year/fourth year

Ophthalmology Sub-Internship Rotation (“The Sub-eye”). During the month of June prior to fourth year, students interested in pursuing a career in ophthalmology are encouraged to rotate on this intensive four week rotation. Students will have personal indirect ophthalmoscopy lenses available for use on the rotation. Formal didactics and workshops will be used to teach students how to perform a detailed ophthalmic history and exam including mastery of advanced slit lamp techniques and indirect funduscopy. There will be an intense schedule of both live and recorded lectures delivered

by ophthalmology faculty members with post-lecture quizzes. Students will be expected to perform daily required reading. Retention and understanding of reading materials will be gauged by frequent quizzes. Students are strongly encouraged to present a case at the Department's Grand Rounds. By the end of the rotation, students will be expected to function at the level of a first year ophthalmology resident.

Fourth year

Electives

M50 801 OPHTHALMOLOGY

Instructor(s): Collin M. McClelland, MD, mcclellandc@vision.wustl.edu

Morton E. Smith, MD, 747-5559 or 362-5722

Location: McMillan Hospital, Room 114, Barnes-Jewish Hospital, South Campus

Elective Contact: Mary Hitt, 362-5722

Other Information: All students interested in this senior elective must meet with Dr. Collin McClelland or Dr. Morton Smith in March of year WUMS III.

Enrollment limit per period: 8

Valid start weeks are: June 2, 2014 through June 29, 2014

This elective is for senior students who plan to apply for a residency in ophthalmology. In accordance with any sub-internship, medical students will be expected to function at the level of a beginning first-year ophthalmology resident on this rotation. The students will rotate through the resident eye clinic and the subspecialty clinics of the full time faculty of the Washington University Medical School Department of Ophthalmology and Visual Sciences (e.g., neuro-ophthalmology service, cornea/external disease service, etc.) The first day of the rotation will consist of an orientation day in which students will receive extensive didactics and participate in workshops to learn the basics of a complete ophthalmic history and examination. Students may opt to check-out indirect ophthalmoscopy lenses that may be used for the month to facilitate

the acquisition of funduscopy skills.

During the rotation the student's responsibilities range from observation (including observing surgery) to working at a resident level and completing full eye examinations. There will be a rigorous academic curriculum for the rotation including a weekly case presentation to Dr. Collin McClelland or Dr. Morton Smith, a bi-monthly wet lab sessions with a resident, weekly attendance at grand rounds, and a mix of medical student-oriented and resident-oriented conferences. On day one, students will receive a rotating call schedule for the entire month. A medical student is expected to be present at all times to assist the primary call ophthalmology resident during the rotation. By the end of the four-week rotation, the student is expected to be proficient in taking an ocular history and performing a complete eye exam including slit lamp biomicroscopy and indirect ophthalmoscopy.

All students interested in this senior elective must meet with Dr. Collin McClelland or Dr. Morton Smith in March of year WUMS III. The final grade of the student is determined by input from the director of the particular service(s) through which the student rotated, plus the case presentations, plus scores on quizzes over required reading. The grades at Washington University are Honors, High Pass, Pass, Fail.

Student time distribution: Inpatient 5%, Outpatient 80%,
Conferences/ Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Attendings, fellows and residents

Patients seen/weekly: At least 25, usually more

On call/weekend responsibility: yes / yes- call schedule will be finalized on day 1 of the rotation.

Research — Ophthalmology and

Visual Sciences

(M50 900)

Usha P. Andley, PhD, 1114-C McMillan, 362-7167. Molecular basis of cataract; the function of molecular chaperones in cataract; proteomics, imaging and biochemical studies on cell culture and mouse models for crystallin gene mutations linked with cataract; testing drugs to inhibit cataract.

Rajendra S. Apte, MD, PhD, apte@vision.wustl.edu. Innate immunity and immune effector mechanisms in the retina, oxidative stress and cell death, models of developmental angiogenesis and neovascularization, inflammation and photoreceptor survival, macular degeneration.

Steven Bassnett, PhD, 1114 McMillan, 362-1604. Eye development, stochastic models of lens growth, stem cell biology, age-related cataract, UV-induced somatic mutation, ocular manifestations of Marfan syndrome, cell death suppression on the optic axis, cell biology of transparent tissues.

David C. Beebe, PhD, 101C McMillan, 362-1621. The molecular and biomechanical mechanisms responsible for early eye formation, using conditional gene deletion and gene expression analysis in mice and biomechanical modeling in mouse and chicken embryos (in collaboration with Dr. Larry Taber, Dept. Biomedical Engineering). Our research group is also collaborating with clinicians in the Department, Drs. Carla Siegfried, Stella Arthur, Andrew Huang and Nancy Holekamp, to identify the importance of intraocular oxygen homeostasis in the pathogenesis of age-related cataract, open angle glaucoma and corneal endothelial dystrophy. Recent work in our group is aimed at preventing the degeneration of the vitreous body, which is expected to reduce the risk of retinal detachment, macular hole, macular traction syndrome and nuclear cataracts.

Anjali Bhorade, MD, 362-5343. Evaluating the effect of glaucoma on visual function in older adults in the home. Understanding the relationship between vision and driving in older adults with glaucoma.

Shiming Chen, PhD, 618 McMillan, 747-4350. The molecular mechanisms regulating photoreceptor gene expression and the implications in understanding photoreceptor development and disease. We are focusing on three transcription factors, CRX, NRL and NR2E3, linked to photoreceptor degenerative diseases. Molecular genetics and biochemical approaches are used to identify the regulatory pathways associated with each factor. Mouse models are used to understand why mutations in these factors cause disease and develop therapeutic strategies, including AAV-gene therapy.

Steven M. Couch, MD, couch@vision.wustl.edu. Orbital inflammatory diseases, surgical techniques and novel treatments of periocular/orbital disease.

Susan M. Culican, MD, PhD, 1104 McMillan, 362-9278. Cellular mechanisms of inter-ocular competition in visual development.

Philip L. Custer, MD, custer@vision.wustl.edu. Enucleation and anophthalmic socket disorders. Orbital fractures and implants. Hemorrhagic complications during oculoplastic procedures.

Thomas A. Ferguson, PhD, 1207 McMillan, 362-3745. Molecular basis of immune tolerance and how apoptotic cells tolerize the immune response. The role of immune privilege in the pathogenesis of eye diseases such as age-related macular degeneration (AMD). The role of basal autophagy in the cells of the eye by using the cre-loxP system to delete essential autophagy genes from specific cell types in the eye.

Mae Gordon, PhD, 1125 Old Shriners, 362-3716. Ocular hypertension, glaucoma, keratoconus, adenoviral conjunctivitis,

randomized clinical trial methodology, patient-reported outcome measures and measurement reliability.

George J. Harocopos, MD, harocopos@vision.wustl.edu. Age-related cataract, ophthalmic pathology.

Didier Hodzic, PhD, 620 McMillan, 362-7037. Nuclear migration and anchorage in retinal development and homeostasis, Sun proteins, Nesprins, lamins.

Andrew Huang, MD, MPH, 106 McMillan Building, 362-0403. Ocular surface stem cell biology, molecular therapy for corneal dystrophies and corneal neovascularization, oxidative stress of corneal endothelium, clinical research on dry eye and ocular surface disease.

Humeyra Karacal, MD, karacal@vision.wustl.edu. biologics in uveitis, prevention of cataracts with anti-oxidants, anti-oxidants in age related macular degeneration.

Michael A. Kass, MD, kass@vision.wustl.edu. Principal Investigator of the Ocular Hypertension Treatment Study (OHTS). Diagnosis, treatment and public health aspects of glaucoma.

Vladimir Kefalov, PhD, 625 McMillan, 362-4376. Photoreceptor Neurobiology and Retinal Degeneration. We are a sensory neurobiology lab interested in the function of mammalian rod and cone photoreceptors. In addition, we are interested in the mechanisms of neurodegeneration in the retina and are working on developing pharmacological and gene-therapy tools for preventing photoreceptor cell death.

Daniel Kerschensteiner, MD, kerschensteinerd@vision.wustl.edu. To understand the principles that guide the assembly of neural circuits and to decipher the way they process information. We would like to understand the principles that guide the assembly of neural circuits in the retina and to decipher the way they process information and hope to identify features of the retinal circuit architecture that perform particular computations and characterize

how they arise during development. We then probe underlying mechanisms of circuit assembly and function through genetically targeted manipulations of specific cells in the retina.

John T. Lind, MD, MS, lindj@vision.wustl.edu. Glaucoma education, resident education, pharmacologic and surgical treatment of glaucoma, ophthalmic microbiology.

Gregg T. Lueder, MD, lueder@vision.wustl.edu. Retinoblastoma, eye misalignment (strabismus), retinopathy of prematurity, abnormal tearing, nasolacrinal disorders, cataracts, glaucoma.

Peter Lukasiewicz, PhD, 1003C McMillan, 362-4284. Neurotransmitters, synapses, retinal function in health and disease, retinal information processing.

John R. Pruett, Jr., MD, PhD, 1153K East Building, 747-6769. Visual Systems and Cognitive Neuroscience Studies of Autism. Two active areas of research in my lab include: 1) behavioral and imaging studies of visual attention to and processing of eyes and faces in autistic and non-autistic subjects, and 2) developmental studies of large-scale brain networks in autistic and non-autistic subjects using functional connectivity magnetic resonance imaging (fcMRI). Example research rotation projects might include: pilot visual psychophysical studies of intermediate visual processes supporting face perception, or – for trainees with computational and/or imaging skills and interests – graph theory-based analyses of visual system sub-network structure across various groups in fcMRI data we have acquired from on-going projects.

P. Kumar Rao, MD, rao@vision.wustl.edu. Surgical and medical therapies for disorders of retina and choroid.

Nathan Ravi, MS, PhD, MD, FAAO, ravi@vision.wustl.edu. Directed toward understanding the pathophysiology of presbyopia and developing medical or surgical treatments for this condition.

Alan Shiels, PhD, 1128 McMillan, 362-1637. Molecular genetic

mechanisms underlying cataract, glaucoma and associated eye disorders: (1) genome-wide linkage analysis and targeted (exome, amplicon) sequencing for discovery of causative or susceptibility genes, and (2) genotype-phenotype and functional expression studies of naturally occurring and gene-targeted mouse models to characterize pathogenic mechanisms.

Carla J. Siegfried, MD, siegfried@vision.wustl.edu. My research is focused on ocular oxygen metabolism and the development of open angle glaucoma. We are studying how the oxygen gradient in the eye is altered in disease states as well as non-invasive methods of measuring corneal oxygen consumption.

Florentina Soto, PhD, sotolucasf@vision.wustl.edu. Studies in my laboratory aim to identify the molecular basis of dendrites and axons lamination and synapse formation during development and in the adult retina. In addition we investigate how these molecules could be involved in the development of retinal pathologies including retinal degeneration.

Larry Tychsen, MD, 2S89 Eye Clinic, St. Louis Children's Hospital, 454-6026. Principal investigator on NIH-funded studies of visual brain maldevelopment and repair in infant primates, as well as clinical studies of visuomotor abnormalities in cerebral palsy and pediatric refractive surgery.

Gregory P. Van Stavern, MD, vanstavern@vision.wustl.edu. Neuroimaging of the visual pathways, Idiopathic Intracranial Hypertension, evidence based medicine and clinical decision making; using the visual system as a model to study neurologic disorders.

David E. Vollman, MD, MBA, 294-2102. Healthcare Economics/Outcomes: cost-effectiveness of ophthalmic treatments, delivery of healthcare, and quality improvement. Current projects: 1) (along with Dr. Culican) to screen for maculopathy in elderly patients and 2) cataract surgery outcomes using the OSOD project at VA . Also involved in advocacy for ophthalmology with the Missouri Society of

Eye Physicians and Surgeons as well as the American Academy of Ophthalmology editorial board of YO Info.

Faculty — Ophthalmology and Visual Sciences: See Appendix

Department of Orthopaedic Surgery

Orthopaedic surgery is a discipline of surgery that is concerned with the musculoskeletal system. A medical student rotation exposes one to various aspects of orthopaedic surgery. This rotation should provide a variety of experiences ranging from operative, office and clinical practice and emergency room care of patients.

Please visit the [Department of Orthopedic Surgery website](#) for more information.

MD Courses — Orthopaedic Surgery

Third year

THE MUSCULOSKELETAL CLERKSHIP: A PART OF THE COMPREHENSIVE SURGICAL CLERKSHIP

The objective of this rotation is to convey to the student appropriate knowledge, skills and attitudes for the recognition, diagnosis, investigation and treatment of conditions affecting the musculoskeletal system.

Most students at Washington University School of Medicine are not entering specialties that devote themselves to the treatment of diseases of the musculoskeletal system. It is noteworthy, though, that greater than one-third of complaints directed toward primary caregivers and general internists are related to the musculoskeletal system: the actual volume of these complaints presented to primary care physicians, general internists and pediatricians is second only to complaints related to the cardiovascular system (and for pediatricians, presentations related to infectious diseases).

Musculoskeletal signs and symptoms are encountered commonly in emergency medicine, trauma surgery, internal medicine, oncology, neurology, pediatrics and endocrinology as well as many other surgical and medical specialties. Since students who enter postgraduate training in these subspecialties as well as in general primary care will be required to evaluate, diagnose and treat these conditions, it is important for the undergraduate curriculum to have these topics addressed in an organized and consistent way. It is for this reason that we developed a comprehensive integrated exposure to musculoskeletal surgery and medicine during the third-year comprehensive surgical clerkship. This is a key component of the integrated third-year curriculum.

To accomplish these goals, there will be a balance between clinical, operative, emergency room and didactic (lecture and small group) experiences. Didactic sessions will be in several formats: lectures, physical examination demonstrations and small group discussions. Only instructor or assistant-, associate- or professor-level members of the full-time Washington University School of Medicine staff will deliver formal lectures to the students. Lecturers will be from the Department of Orthopedic Surgery's full-time faculty.

The following lecture topics will be scheduled monthly:

- Spinal Disorders
- Musculoskeletal Emergencies
- Common Fractures
- Adult Disorders of the Hip and Knee
- Adult Disorders of the Shoulder and Elbow
- Sports Injuries and Conditions in Adults and Children
- Nerve Compression Syndromes of the Upper and Lower Extremity
- Cancer

The clinical experience is one month in duration, and takes place during the comprehensive surgical clerkship for all Washington University medical students during either the first, second or third months of the 12-week clerkship. The one-month block is divided into two two-week sessions wherein the students would spend time with staff from the following specialties: orthopaedic surgery, rheumatology, physical medicine and rehabilitation, sports medicine, neurosurgery, and bone and mineral physiology.

The experience can be combined inpatient and outpatient, clinic and operating room, emergent and non-emergent care as well as both surgical and nonsurgical, based upon the student's own choosing. However, to ensure an appropriately balanced experience, students will usually be limited to specific rotation combinations from which to choose, such as those below:

Hand/Joint Reconstruction (2 weeks/2 weeks)

Shoulder and Elbow/Orthopaedic Oncology (2 weeks/2 weeks)

Physical Medicine and Rehabilitation/Spine (2 weeks/2 weeks)

Pediatric Orthopaedic Surgery/Sports Medicine or Sports Surgery (2 weeks/2 weeks)

VA Orthopaedic Service/Rheumatology Bone and Mineral (2 weeks/2 weeks)

Trauma (4 weeks)

Foot and Ankle/ (2 weeks/2weeks)

The following Washington University School of Medicine full-time attending staff mentors are available to have students rotate with them during the rotation:

- Martin Boyer (Hand)
- Charles Goldfarb (Hand)
- Ryan Calfee (Hand)
- Daniel Osei (Hand)
- Lindley Wall (Hand)
- Matthew Matava (Sports)
- Mark Halstead (Sports)
- Robert Brophy (Sports)
- Matt Smith (Sports)
- Heidi Prather and Devyani Hunt (Physical Medicine and Rehabilitation)
- John Metzler and Adam Labore (Physical Medicine and Rehabilitation)
- Eric Gordon (Pediatric Orthopaedic Surgery)
- Gary Miller (VA Orthopaedic Surgery Service)
- James Keeney (Joint Reconstruction)
- Ryan Nunley (Joint Reconstruction)
- Denis Nam (Joint Reconstruction)
- Richard Brasington and Kathy Diemer (Rheumatology, Bone and Mineral)
- Jacob Buchowski (Spine)
- Mike Kelly (Spine)
- Ron Lehman (Spine)
- Paul Santiago (Neurosurgery Spine)
- Douglas McDonald (Orthopaedic Oncology)
- Cara Cipriano (Orthopedic Oncology)

- Leesa Galatz (Shoulder and Elbow)
- Jay Keener (Shoulder and Elbow)
- Aaron Chamberlain (Shoulder and Elbow)
- Jeremy McCormick (Foot and Ankle)
- Sandra Klein (Foot and Ankle)
- William Ricci (Trauma)
- Mike Gardner (Trauma)
- Chris McAndrew (Trauma)

There should only be ONE student per attending staff in order to promote one-on-one teaching; however, exceptions can be made in the event of vacations, illness, conference travel, etc. on the part of the attending staff.

The learning of physical examination skills by the students is a critical part of the musculoskeletal block. The coursemaster and other attendings will meet weekly with the students to demonstrate physical examination of the neck and spine, shoulder and elbow, hip and knee, and the hand and foot. The normal examination will be covered, and relevant common conditions and provocative tests will be covered as well.

Fourth year

Electives

M95 838 PEDIATRIC ORTHOPAEDIC SPINE & SPORTS SURGERY

Instructor(s): Scott J. Luhmann, MD, 454-2045

Location: Washington University/St. Louis Children's Hospital;

Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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. In addition to general pediatric orthopaedics, Dr. Luhmann has special interests in the treatment of pediatric spinal injuries and disorders as well as pediatric sports medicine. Attendance at and participation in the weekly pediatric orthopaedic conference activities required.

Student time distribution: Inpatient 48%, Outpatient 47%,
Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies ? generally one weekend call every two weeks

M95 840A ORTHOPAEDIC SURGERY – FOOT/ANKLE

Instructor(s): Jeremy J. McCormick, MD, 514-3584

Location: Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

M95 839 ORTHOPAEDIC SPORTS MEDICINE

Instructor(s): Matthew Smith, MD, 514-3584

Location: Washington University/Barnes-Jewish Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 5%, Outpatient 90%,
Conferences/ Lectures 5%; Subspecialty Care 100%
Major teaching responsibility: Faculty attending and fellow/resident
mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call
every two weeks

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21,
25, 29, 33, 37, and 41.

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 non-operative care.

Student time distribution: Inpatient 20%, Outpatient 75%,
Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and fellow/resident
mentors

Patients seen/weekly: 80

On call/weekend responsibility: Varies, generally one weekend call
every two weeks

M95 842A ORTHOPAEDIC SHOULDER/ELBOW SURGERY

Instructor(s): Ken Yamaguchi, MD, 747-2534

Location: Washington University/Barnes-Jewish Hospital; Washington
University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the
first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21,
25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%, Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call every two weeks

M95 842B ORTHOPAEDIC SHOULDER/ELBOW SURGERY

Instructor(s): Leesa Galatz, MD, 747-2813

Location: Washington University/Barnes-Jewish Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%, Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call

every two weeks

M95 842C ORTHOPAEDIC SHOULDER/ELBOW SURGERY

Instructor(s): Jay D. Keener, MD, 747-2639

Location: Washington University/Barnes-Jewish Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call every two weeks.

M95 845A ORTHOPAEDIC HAND AND UPPER EXTREMITY SURGERY

Instructor(s): Ryan P. Calfee, MD, 747-2813

Location: Washington University/Barnes-Jewish Hospital; Shriners Hospital for Children; and St. Louis Children's Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Washington University/ Barnes-Jewish Hospital; Shriners Hospital for Children; and St. Louis Children's Hospital; Washington University Orthopedics – Chesterfield

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Clinical elective available, during which time the student will work with attending surgeons primarily at Barnes-Jewish Hospital, St Louis Children's Hospital, and Shriner's Hospital. 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.

Student time distribution: Inpatient 5%, Outpatient 85%, Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings, fellow and resident mentors

Patients seen/weekly: 70+

On call/weekend responsibility: Varies, generally one weekend call every two weeks

M95 845B ORTHOPAEDIC HAND AND UPPER EXTREMITY SURGERY

Instructor(s): Charles Goldfarb, MD, 747-4705

Location: Washington University/Barnes-Jewish Hospital; Shriners Hospital for Children; and St. Louis Children's Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Clinical elective available, during which time the student will work with attending surgeons primarily at Barnes-Jewish Hospital, St Louis Children's Hospital, and Shriner's 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.

Student time distribution: Inpatient 5%, Outpatient 85%,
Conferences/ Lectures 10%; Subspecialty Care 100%
Major teaching responsibility: Faculty attendings, fellow and resident
mentors
Patients seen/weekly: 100+
On call/weekend responsibility: Varies, generally one weekend call
every two weeks

M95 845C ORTHOPAEDIC HAND AND UPPER EXTREMITY SURGERY

Instructor(s): Richard H. Gelberman, MD, 747-2531
Location: Washington University/Barnes-Jewish Hospital; Washington
University Orthopedics – Chesterfield
Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu
Other Information: Students should contact Kathy Jones prior to the
first day of the elective
Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21,
25, 29, 33, 37, and 41.

Clinical elective available, during which time the student will work
with attending surgeon 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.

Student time distribution: Inpatient 48%, Outpatient 47%,
Conferences/ Lectures 5%; Subspecialty Care 100%
Major teaching responsibility: Richard Gelberman, MD
Patients seen/weekly: Varies
On call/weekend responsibility: Varies, generally one weekend call
every two weeks

M95 846A ORTHOPAEDIC TRAUMA

Instructor(s): William Ricci, MD, Michael Gardner, MD, Christopher
McAndrew, MD, 747-2811
Location: Washington University/Barnes-Jewish Hospital
Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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, PA's, and NP's 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.

Student time distribution: Inpatient 60%, Outpatient 35%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentor

Patients seen/weekly: Varies

On call/weekend responsibility: Varies?generally one weekend call every two weeks

M95 846B ORTHOPAEDIC TRAUMA

Instructor(s): Michael Gardner, MD, 747-2523

Location: Washington University/Barnes-Jewish Hospital

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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, PA's, and NP's 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.

Student time distribution: Inpatient 60%, Outpatient 35%,
Conferences/ Lectures 5%; Subspecialty Care 100%
Major teaching responsibility: Faculty attendings and resident
mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call
every two weeks

M95 846C ORTHOPAEDIC TRAUMA

Instructor(s): Christopher McAndrew, MD, 747-2523

Location: Washington University/Barnes-Jewish Hospital

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the
first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21,
25, 29, 33, 37, and 41.

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,
PA's, and NP's 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.

Student time distribution: Inpatient 60%, Outpatient 35%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident
mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies?generally one weekend call
every two weeks

M95 848A ORTHOPAEDIC

PEDIATRIC SURGERY

Instructor(s): Eric Gordon, MD, 454-2045

Location: Washington University/St. Louis Children's Hospital;

Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call every two weeks

M95 848B ORTHOPAEDIC PEDIATRIC SURGERY

Instructor(s): Kathryn Keeler, MD, 747-2523

Location: Washington University/St. Louis Children's Hospital, Barnes-Jewish Hospital

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%,
Conferences/ Lectures 5%; Subspecialty Care 100%
Major teaching responsibility: Faculty attendings and resident
mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call
every two weeks

M95 849B ORTHOPAEDIC SPINE SURGERY IN ADULT PATIENTS

Instructor(s): Jacob Buchowski, MD, MS, 747-4950

Location: Washington University/Barnes-Jewish Hospital; Washington
University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the
first day of the elective

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21,
25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%,
Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attending, spine fellow
assigned to this service and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call
every two weeks.

M95 855A RECONSTRUCTIVE and JOINT PRESERVATION SURGERY

Instructor(s): Robert L. Barrack, MD, 747-2562

Location: Washington University/Barnes-Jewish Hospital; Washington

University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings, fellow and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call every two weeks

M95 855B RECONSTRUCTIVE and JOINT PRESERVATION SURGERY

Instructor(s): John C. Clohisy, MD, 747-2566

Location: Washington University/Barnes-Jewish Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 48%, Outpatient 47%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings, fellow and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: On call one weekend every two weeks

M95 855C RECONSTRUCTIVE and JOINT PRESERVATION SURGERY

Instructor(s): Ryan M. Nunley, MD, 747-2523

Location: Washington University/Barnes-Jewish Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Surgical 60%, Clinics 30%, Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings, fellow and resident mentors

Patients seen/weekly: 40-60 patients in clinic, 8-12 surgeries

On call/weekend responsibility: On call one weekend every two weeks

M95 855D RECONSTRUCTIVE and JOINT PRESERVATION SURGERY

Instructor(s): James Keeney, MD, 747-2523

Location: James Keeney, MD, 747-2523

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 patients with basic and complex reconstruction concerns affecting the hip and knee. Students will be exposed to conventional approaches to hip and knee reconstruction surgery, minimally invasive total knee replacement, and revision surgery of the hip and knee. Students will participate in inpatient and outpatient procedures, attend designated office hours, and participate in orthopaedic educational conferences and anatomy sessions.

Student time distribution: Inpatient 55%, Outpatient 40%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings, fellow and resident mentors

Patients seen/weekly: 60 outpatients, 10-15 inpatient surgical cases.

Some variance.

On call/weekend responsibility: On call one weekend every two weeks

M95 859 ORTHOPAEDIC ONCOLOGY

Instructor(s): Douglas J. McDonald, MD, 747-2563

Location: Washington University/Barnes-Jewish Hospital

Elective Contact: Kathy Jones, 747-2813, jones.k@wustl.edu

Other Information: Students should contact Kathy Jones prior to the first day of the elective.

Enrollment limit per period: 1

Valid start weeks for four-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This clinical elective, centered primarily at Barnes-Jewish Hospital, is available for four weeks during which the student participates in orthopaedic conferences, outpatient clinics, surgical cases, and patient rounds on the Musculoskeletal Oncology service.

Student time distribution: Inpatient 48%, Outpatient 47%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Douglas J. McDonald, M.D.

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call every two weeks

M95 8991 ORTHOPAEDIC SURGERY EXTERNSHIP (Visiting Students Only)

Instructor(s): Martin I. Boyer, MD, and Rick Wright, MD

Location: Washington University/Barnes-Jewish Hospital; Washington University Orthopedics – Chesterfield

Elective Contact: Orthopaedics Education Office, 747-2835, orthosurg@wudosis.wustl.edu

Other Information: Students meet in the Education Office, 8:00 a.m. first day of the elective.

Enrollment limit per period: Varies

June 4, 2012 through November 30, 2012

Students rotate on Orthopaedic Services for two- or four-week blocks. Students typically participate in two weeks of hand and upper extremity surgery with Dr. Martin Boyer and two weeks of sports medicine with Dr. Rick Wright. Two weeks on another clinical rotation may also be selected. Please contact the Orthopaedics Education Coordinator, Michelle Tuetken, for further information. E-mail address: tuetken@wustl.edu.

Student time distribution: Inpatient 48%, Outpatient 47%, Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Faculty attendings and resident mentors

Patients seen/weekly: Varies

On call/weekend responsibility: Varies, generally one weekend call every two weeks

Research — Orthopaedic Surgery

(M95 900)

Various orthopaedic surgery research opportunities are available with the following faculty attendings. If interested, please contact the Education Office at 747-2543, orthsurg@wudosis.wustl.edu or contact the faculty member directly.

Yousef Abu-Amer, PhD

Robert L. Barrack, MD.

Jacob M. Buchowski, MD, MS

John Clohisy, MD

Matthew Dobbs, MD

Leesa Galatz, MD

Richard H. Gelberman, MD

Charles A. Goldfarb, MD

J. Eric Gordon, MD

Michael Kelly, MD

Sandra Klein, MD

Scott J. Luhmann, MD

Matthew J. Matava, MD

Linda Sandell, PhD

Perry Schoenecker, MD

Matt Silva, PhD

Stavros Thomopoulos, PhD

Lindley B. Wall, MD

Rick Wright, MD

Ken Yamaguchi, MD

Faculty — Orthopaedic Surgery: See Appendix

Department of Otolaryngology

Otolaryngology is presented to students in the first-, second-, third- and fourth-year classes. Physical diagnosis skills are taught in the first year. Clinically oriented lectures and a physical diagnosis workshop are presented to second-year students. In the third year of the medical curriculum, four-week elective rotations on one of the services in East Pavilion, the St. Louis VA Medical Center — John Cochran Division or St. Louis Children's Hospital are offered. During this period, there is teaching at the bedside, in the operating room and in the clinic, supplemented by daily afternoon lectures, Grand Rounds on Wednesdays and an introduction to audiology.

Fourth-year students interested in ENT as a specialty may take a two- to four-week elective designed to give them exposure to patient care, both in the outpatient clinic and the operating room and postoperative setting. An additional four-week elective that provides comprehensive ambulatory experience is offered to students headed for primary care.

CID at Washington University School of Medicine

The consortium of graduate-education, research and clinical programs known today as CID at Washington University School of Medicine was born out of the pioneering efforts of St. Louis physician Max Goldstein, MD. In 1914, he founded the Central Institute for the Deaf (CID), where doctors and teachers worked together to help deaf people. When CID's school building opened two years later, its auditory/oral methods for instructing deaf children were groundbreaking.

Washington University and CID first joined forces in 1931, when CID's established teacher training program became the first deaf education undergraduate program to affiliate with a university. Graduate programs in deaf education, audiology, and speech and

hearing sciences soon followed.

CID's research efforts began in the 1930s to study the anatomy and science of hearing. During World War II, CID's research on hearing loss in military personnel laid the foundation for the field of audiology. CID also pioneered hearing testing and hearing aids and opened the country's first hearing aid clinic in 1941. In September 2003, a new affiliation transferred CID's graduate degree programs, research programs and adult audiology clinic, along with its building, to Washington University School of Medicine. The CID school continues to operate on the School of Medicine campus as CID — Central Institute for the Deaf.

Today, these programs continue to work together to fulfill a shared mission to serve people with hearing loss.

For more information

Please visit the [Department of Otolaryngology website](#) for more information.

MD Courses — Otolaryngology

First year

OTOLARYNGOLOGY CLINICAL SKILLS

Instructor: Jason Rich, MD, 362-0365

Introductory lecture and group sessions pertaining to the complete head and neck examination. After the one-hour lecture, students will be divided into small groups to learn the otoscopic, nasal, oral cavity and neck examination to be proctored by physicians from the ENT department.

Second year

M55 660B CLINICAL TOPICS IN OTOLARYNGOLOGY

Instructor: Brian Nussenbaum, MD, 362-6599

This course consists of eight introductory lectures on common diseases of the head and neck, including head and neck carcinoma, hearing loss, vertigo, neck masses, pediatric otolaryngology, salivary gland disorders, sinusitis, otolaryngologic emergencies and facial fractures. Each lecture is highlighted by case presentations and treatment options in addition to pathophysiology. This course follows the physical examination practicum given earlier in the academic year.

Fourth year

Electives

M55 801 OTOLARYNGOLOGY

Instructor(s): Joel Goebel, MD, FACS, 747-0553

Enrollment limit per period: Limit 3/period for Weeks: 1, 5; Limit 2/period for Weeks: 9, 13, 17, 21,25, 29, 33, 37, and 41.

Four-week rotation includes evaluation of ENT problems presented to specialist for diagnosis and treatment. The student participates in the clinic, hospital, and operating room. This also includes time on the Pediatric ENT Service, Audiology, Voice Laboratory, and Vestibular Evaluation Laboratory. Option of rotation on the ENT Service at VAMC is available.

Student time distribution: Inpatient 40%, Outpatient 40%, Conferences/Lectures 20%; Primary Care 20%, Subspecialty Care 80%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 50

On call/weekend responsibility: Every fourth day

Location: 9916 McMillan

Elective Contact: Maria Harrington, 747-0553

Other Information: Students considering a career in otolaryngology should speak to Dr. Goebel prior to scheduling this elective. Prior to

first day of elective student should contact Dr. Goebel to discuss options of elective and to ascertain starting time and location.

M55 802 GENERAL OTOLARYNGOLOGY

Instructor(s): Joel Goebel, MD, FACS, 747-0553

Enrollment limit per period: 1

Valid start weeks for 2-week blocks are: Weeks 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

This two-week elective is an extremely flexible program consisting of several options:

General Ear, Nose and Throat Service: Student functions as a junior resident at either Barnes-Jewish Hospital or John Cochran VA Medical Center. At Barnes-Jewish Hospital participation in clinic, hospital inpatient, and operating room settings would expose student to a broad spectrum of patients. At the VA Hospital the emphasis would be on head and neck tumors.

Head and Neck Service—Barnes-Jewish Hospital: Student functions as junior resident on ENT hospital floor with great deal of exposure to head and neck surgery. Pediatric Otolaryngology—St. Louis Children's Hospital: Student participates as a junior resident, involved in pre- and postoperative surgical care as well as outpatient medical care.

Preceptorships: Student is assigned to a private practitioner's office functioning in his/her office as well as hospital service. Other options can be entertained and formulated according to the student's particular needs. Students participating in this elective will be required to spend an afternoon or morning in the Audiology/Vestibular Laboratory learning fundamentals of audiological and vestibular evaluation. Attendance at Monday afternoon conferences as well as Grand Rounds on Wednesday mornings is expected.

Student time distribution: Inpatient 20%, Outpatient 70%, Conferences/Lectures 10%; Primary Care 40%, Subspecialty Care 60%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 60

On call/weekend responsibility: None

Location: 9916 McMillan

Elective Contact: Maria Harrington, 747-0553

Other Information: Students considering a career in otolaryngology should speak to Dr. Goebel prior to scheduling this elective. Prior to first day of elective student should contact Dr. Goebel to discuss options of elective and to ascertain starting time and location.

M55 803 PEDIATRIC OTOLARYNGOLOGY

Instructor(s): David W. Molter, M., 454-2136

Enrollment limit per period: 2

This course is offered as either a 2 or 4 week duration.

Valid start weeks for 2-week or 4-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41 and 43.

The student will actively participate in the clinical office, inpatient consultations, and surgery with the attending staff at St. Louis Children's Hospital. Care would be taken to provide experience in the common problems one would see in primary care pediatrics or family practice. Participation in sub-specialty/multidisciplinary clinics such as the Cleft and Craniofacial clinic is encouraged. Opportunity will be provided to learn the fundamentals of audiological evaluation. Students participating in this elective will attend academic conferences in both the pediatric and adult divisions.

Student time distribution: Inpatient 50%, Outpatient 40%, Conferences/ Lectures 10%; Primary Care 30%, Subspecialty care 70%

Major teaching responsibility: Attending physician and residents

Patients seen/weekly: 100

On call/weekend responsibility: At student's discretion

Location: 3S35 St. Louis Children's Hospital

Elective Contact: Patty Tampow, 454-2136

Other Information: Students should report to 3S35, St. Louis Children's Hospital, 8:00 a.m. first day of elective.

M55 820 PRACTICUM IN ADULT CLINICAL AUDIOLOGY

Instructor(s): Michael Valente, PhD, 362-7489

Enrollment limit per period: 8

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25,

29, 33, 37, and 41.

Guidance provided in the administration and interpretation of audiometric tests. Emphasis on defining the severity of auditory dysfunction in addition to identifying sites of pathological processes.

Theoretical bases of acoustics, anatomy and physiology, and electronics reviewed as they relate to auditory assessment.

Modification of conventional test paradigms and hearing aid procedures covered according to each student's interests and needs.

Student time distribution: Inpatient 10%, Outpatient 80%, Conferences/ Lectures 10%; Primary Care 50%, Subspecialty Care 50%

Major teaching responsibility: Audiology staff

Patients seen/weekly: 120

On call/weekend responsibility: None

Location: 11th Floor, Center for Advanced Medicine (CAM)

Elective Contact: Michael Valente, PhD, 362-7489

Other Information: Students should contact Dr. Valente to schedule this elective.

M55 831 NEUROTOLOGY

Instructor(s): Joel Goebel, MD, FACS, 747-0553

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Active student participation in the physical exam, advanced testing, and management of patients with balance dysfunction. Attend patient clinic two days a week and test patients on ENG, rotary chair, and computerized platform three days a week. Research participation welcome with prior arrangements.

Student time distribution: Outpatient 80%, Conferences/Lectures 20%; Primary Care 10%, Subspecialty Care 90%

Major teaching responsibility: Attending

Patients seen/weekly: 40

On call/weekend responsibility: None

Location: 9th Floor McMillan

Elective Contact: Maria Harrington, 747-0553

Other Information: Students should contact Dr. Goebel if interested in this elective.

M55 833 AMBULATORY OTOLARYNGOLOGY FOR THE PRIMARY CARE PHYSICIAN

Instructor(s): Joel Goebel, MD, FACS, 747-0553

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This course offers a four-week exposure to ambulatory care of patients with diseases of the head and neck. Eight half-day sessions per week will be offered in attending clinics for general otolaryngology, head and neck cancer, otology, and pediatric otolaryngology. Two half-day sessions are reserved for audiology, vestibular lab, and voice lab experience. Surgical exposure is available for selected cases as identified by the student and attending physician, but the main goal of this rotation is outpatient diagnosis and management.

Student time distribution: Outpatient 100%; Primary Care 50%, Subspecialty Care 50%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: >100

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital and St. Louis Children's Hospital clinics

Elective Contact: Maria Harrington, 747-0553

Other Information: Students should contact Maria Harrington, 9906 McMillan, 747-0553, prior to the start of this elective.

Research — Otolaryngology

(M55 900)

The type of research will depend upon the current phase of the research program in each laboratory. Students should contact the director of each laboratory to negotiate.

Pablo M Blazquez, PhD, 4566 Scott Avenue, East McDonnell Science Building 362-1013. Role of the vestibulo-cerebellum and its target nuclei in eye movement control and spatial orientation. We used a range of methodologies: single and multiunit recordings, electrical brain stimulation, computational methods, pharmacology and behavioral studies. Our main lines of research are: 1-Signal transformations carried out by the the vestibulo-cerebellum during visual and vestibular stimulation. 2-Physiology of the vestibular nuclei 3-Role of the cerebellum-brainstem loop in motor learning in the vestibulo-ocular reflex. Students will be instructed in one or several techniques and are expected to contribute significantly to the development of specific lab projects.

Brian T. Faddis, PhD, 1020 McMillan, 747-3665, faddisb@wustl.edu. Our lab is interested in the cellular and molecular mechanisms that modulate sensitivity and temporal acuity in the auditory pathway and how deficits in these mechanisms lead to functional losses. We are particularly interested in molecules that have physiologic roles in normal auditory signal transduction but engender pathologic responses due to inflammation, noise and ototoxin exposure and aging. Utilizing a wide variety of functional, anatomical and molecular techniques, we are currently investigating the roles of the synuclein family of proteins in peripheral and central auditory processing. Our work has shown that alpha- and beta-synuclein localize to nerve endings and spiral ganglion cells and work in a compensatory fashion to modulate hearing sensitivity. Further, over-expression of alpha-synuclein can actually enhance the acuity of central auditory processing as well as protect the inner ear from oxidative damage so we are interested in exploring how these properties can be manipulated to improve auditory processing under adverse conditions and pathologic states. A wide variety of

techniques are employed to gain a broad understanding of normal and disease processes at molecular, cellular and organism levels. We use a variety of molecular, anatomical and functional testing methods to assess the role of these proteins in normal and injured auditory structures. Students in the lab will typically take some time to become familiar with a variety of projects and techniques before selecting a specific area or project for more in-depth and independent study. Students or residents with specific but unrelated research questions that may benefit from the techniques we employ are also welcome to discuss the possibility of conducting these studies in the lab.

Joel A. Goebel, MD, FACS, 8th Floor McMillan, 747-0553. Clinical research testing of posture and ocular motor control. Projects include measurement of gaze stabilization during head movement, otolith input into dynamic subjective visual vertical measurements, computerized historical data screening for dizziness, and head-mounted vibrotactile balance prosthesis (BalCap). We welcome students to join these projects at any stage.

Timothy E. Hullar, MD, 2235 Central Institute for the Deaf Building, 362-8641. Vestibular Anatomy and Physiology. Our laboratory's efforts reflect the principal investigator's interest in problems of balance and equilibrium. We are pursuing three major directions. First, we use physiologic and anatomic techniques to understand the peripheral vestibular system's remarkable ability to transmit accurate information regarding rotational and linear head rotations. The temporal resolution of the system in humans is 7 ms or better, while the spatial resolution is not as well known. Animal studies are required to determine the cellular basis for this ability, using light and electron microscopy, digital image processing, and neural and eye movement recordings.

Second, dizziness remains a diagnostic and therapeutic challenge for all practitioners. We are developing novel tests of human vestibular function and improved techniques for replacement or rehabilitation of a damaged vestibular system in patients. Our studies with

patients are aimed at making disequilibrium, which is an increasingly important symptom as the population ages, a condition which can be more accurately diagnosed and more effectively treated.

Finally, we are studying balance and equilibrium among marine mammals including sirenians, pinnipeds, and cetaceans (whales and dolphins). Using anatomic studies as well as recordings on captive animals, we are exploring how these animals orient in their aquatic medium. This research has implications for understanding the effect of anthropogenic noise (i.e., sonar) on these animals. A student's involvement in the lab would be tailored to his or her background and interest. Possibilities range from hands-on animal surgery to analysis and interpretation of digitized anatomic images. Opportunities exist for summertime and school year projects as well as a yearlong full-time research experience.

Judith E. C. Lieu, MD, 3S35 Children's Hospital and 8th Floor McMillan, 454-2138. Clinical Outcomes Research in Pediatric Otolaryngology. The Clinical Outcomes Research office performs clinical epidemiology and health services research. (Please reference the research elective offered by Dr. Jay Piccirillo in otolaryngology for more details.) These techniques and methodologies are used to investigate clinical problems seen in pediatric otolaryngology. Projects currently underway include the evaluation of quality of life of children with hearing loss, progression of hearing loss in children, and evaluation of unilateral hearing loss, use of functional connectivity MRI to investigate effects of hearing loss in children, and quality of life of parents whose young children with recurrent otitis media. Other projects of the student's choosing that would utilize these research techniques may also be pursued.

Kevin K. Ohlemiller, PhD, 2205 Central Institute for the Deaf Bldg., 747-7179, Gene/environment interactions in cochlear injury. We study the interaction of genes and environment that increase cochlear injury due to noise and ototoxic exposure, with an emphasis on how these may yield apparent presbycusis. Because cochlear function and injury is the same in mice and humans, and

governed by the same genes, we use mostly mouse models. Methods employed include standard ABR assessment and intra-cochlear recording, quantitative light microscopy, immunohistochemistry, and western blots. We also collaborate to map, and perform expression profiling of genes that underlie traits we have discovered. We and our collaborators have identified specific genes and inbred strains of mice that mimic the three major forms of human presbycusis (sensory, neural, and strial). Sensory presbycusis appears promoted by alleles and mutations that impair protective factors such as antioxidant enzymes, or that impair ion homeostasis. Neural presbycusis can be modeled by mutations that alter the function of cholinergic receptors. While we are not sure what types of genes and mutations can lead to strial presbycusis, we have discovered four mouse strains that show the key feature of this disease (age-related endocochlear potential reduction), and also show distinct types of strial pathology. We have shown that some of the same gene alleles and mutations that promote presbycusis also promote cochlear noise injury. Such findings point to an interpretation of sensory presbycusis as principally cumulative injury. We have also published evidence for one or more QTLs that impact the qualitative character of noise injury. Important implications of our findings are (1) that there exists no single mammalian archetype of cochlear noise injury, and (2) that injury to the organ of Corti and lateral wall are mechanistically and genetically independent. Our research is eminently adaptable in difficulty and scale to students schedules and other requirements. Students may expect to learn the full range of methods we employ, including physiology, immunohistochemistry, histopathology, and cellular/molecular techniques.

Jay F. Piccirillo, MD, 8th Floor McMillan, 362-8641. The Clinical Outcomes Research Office of the Division of Research performs basic and applied clinical epidemiology and health services research. Clinical epidemiology is the study of the diagnosis, prognosis, and evaluation of treatment. Health service research is the study of the delivery of health care. The scientific methodology of clinical

epidemiology is based on the architecture of clinical research, biostatistics, and data processing. Current projects include studying the impact of comorbidities on treatment and outcome for patients with cancer and the impact of a web-based cancer patient-specific prognostic information (Prognostigram) on treatment choices, outcomes, and satisfaction with care. We also conduct research into treatment and outcomes for patients with tinnitus. Using clinical epidemiology methodology, we can also study a variety of other diseases.

Faculty — Otolaryngology: See Appendix

Department of Pathology and Immunology

The **Department of Pathology and Immunology** is involved in the clinical diagnosis and monitoring of disease, in the teaching of Pathology and Immunology, and in research on the molecular basis of disease and immunology.

The Department is responsible through its divisions for studying the pathogenesis and the biochemical and anatomical basis of diseases. Pathologists do research on disease processes using molecular, genetic and structural analysis. Pathologists have the responsibility for the cytological and anatomical diagnosis of diseases and for developing novel structural and molecular approaches for the

analysis of them, particularly cancers and infectious diseases. The divisions of [Anatomic and Molecular Pathology](#) (headed by Steven L. Teitelbaum, MD), [Laboratory and Genomic Medicine](#) (headed by Barry P. Sleckman, MD, PhD) and [Neuropathology](#) (headed by Robert E. Schmidt, MD, PhD) have faculty involved in teaching, clinical service and research. Prominent areas of research include experimental diabetes, hematology, bone pathophysiology, cancer and gastrointestinal and vascular pathology.

The department teaches an extensive course in the second year of the curriculum and presents a number of conferences that third- and fourth-year students can attend. The department also offers a number of clerkships. The coursemaster of the second-year Pathology course is Erika C. Crouch, PhD, MD. Students can take clerkships in Autopsy Pathology, Surgical Pathology or Laboratory Medicine, or participate in the research activities of the faculty.

The [Division of Immunobiology](#) integrates immunobiology activities in the School. It is responsible for the teaching of immunology in the first year of the curriculum (Andrey S. Shaw, MD, is the coursemaster) and for conducting basic research in immunobiology and in the immunological basis of disease.

Many faculty in the department are involved in graduate teaching and participate in the various programs offered by the [Division of Biology and Biomedical Sciences](#). The department has strong participation in the Immunology Graduate Program, which is headed by Paul M. Allen, PhD.

For more information

Please visit the [Department of Pathology and Immunology website](#) for more information.

MD Courses — Pathology and Immunology

First year

M30 523 IMMUNOLOGY

Instructors: Andrey S. Shaw, MD, 362-4614; Emil R. Unanue, MD, 747-0561; John P. Atkinson, MD, 362-8391; Jeffrey J. Bednarski, II, MD, 454-6018; Brian Edelson, MD, PhD, 362-4427; Todd A. Fehniger, MD, PhD, 454-8304; Anthony French, MD, PhD, 454-6124; Ronald Jackups, MD, PhD, 362-8413; Alfred Kim, MD, PhD, 362-4785; Anthony Kulczycki, Jr., MD, 454-5140; Deborah Lenschow, MD, PhD, 362-8637; Jonathan Miner, MD, PhD, 454-7367; S. Celeste Morley, MD, PhD, 454-6050; Eugene Oltz, PhD, 362-5515; Gwendalyn J. Randolph, PhD, 747-2345; Robert D. Schreiber, PhD, 362-9103; Barry P. Sleckman, MD, PhD, 747-8235; Thaddeus Stappenbeck, MD, PhD, 362-4214; Herbert W. Virgin IV, MD, PhD, 362-9223; Gregory Wu, MD, PhD, 362-3293

This course consists of lectures, laboratory exercises and small group clinical discussions. It covers all aspects of the immune response, general properties of the immune system, effector molecules, cells and their function, cellular interactions and immunological diseases. The Immunology course requires a strong background in biochemistry, genetics and cell biology. Some of the basic concepts from these fields should be reviewed during the course. There are two laboratory sessions. These will cover the areas of blood typing/blood banking and allergy. In these laboratories, students will type blood and be tested for allergies. POPS (Patient Oriented Problem-Solving System in Immunology) will also be used during each laboratory sessions and contain a clinical problem that is analyzed and solved by small groups of three to four students. There are five hours of small group clinical discussion sessions. In these sessions, students meet with physicians to discuss the role of immunology and a particular human disease. The Immune System (latest edition) by Peter Parham is used. For the small group clinical

sessions, the latest edition of the textbook Case Studies in Immunology: A Clinical Companion by Rosen and Geha is used. There will be an online self-assessment (multiple-choice and true/false), a take-home exam (essay questions) and a formal final exam (multiple choice and short answer) on the topics described in the lectures and in the laboratory sessions. This course is restricted to medical students only.

Second year

M60 665 PATHOLOGY

Instructor: Erika C. Crouch, PhD, MD, 454-8462

This course provides a comprehensive survey of the biology and morphology of human disease through a combination of lectures and laboratory/case study sessions. The year begins with a review of basic disease mechanisms at the cellular and molecular level. Subsequently, the pathogenesis and characteristics of important diseases involving each organ system of the body are presented. Considerable emphasis is placed on learning the “language” of human disease. During the year, students become familiar with the methods of contemporary pathologic analysis. They also learn how the results of pathologic studies are used in the clinical setting to establish diagnoses, to assess prognosis and response to therapy, and to evaluate the quality of patient care.

Third year

Conferences

Tumor Conference

One hour each week for 12 weeks during the Surgery and Obstetrics and Gynecology clerkships. Problem cases are presented for illustration and discussion of all aspects of neoplastic disease.

Instructors: Staff

Fourth year

Electives

M60 805 AUTOPSY PATHOLOGY

Instructor(s): Louis P. Dehner, MD, 362-0150

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 13, 17, 21, 25, 29, 33, 37, and 41.

This full-time elective is designed to introduce students to autopsy pathology. Students will assist in performing autopsies, and together with the first-year pathology residents, will participate in all of the activities of the Autopsy Service including brain cutting, specialty microscopic conferences, and weekly autopsy case conferences. Students will be under the direction of senior pathology faculty.

Student time distribution: Autopsy Activities 75%,
Conferences/Lectures 25%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: N/A

On call/weekend responsibility: None

Location: West Building

Elective Contact: Louis P. Dehner, MD, 362-0150

Other Information: Students should contact Dr. Dehner prior to scheduling this elective.

M60 807 DERMATOPATHOLOGY

Instructor(s): Andras Schaffer, MD, PhD, and Ilana Rosman, MD

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 21, 25, 29, 33, 37, and 41

The student will be involved in all activities of the dermatopathology service. These include review, discussion and signout of gross and microscopic skin specimens. Signout occurs each day with a team that includes an attending, fellow, and residents from both dermatology and pathology. The medical student will work closely with the residents and fellow to preview cases prior to signout.

Dermatology Grand Rounds and dermatopathology lectures are held on Thursday mornings and are mandatory. In addition, dermatopathology slide review conferences are held on Friday

mornings and are mandatory. Other learning opportunities include daily Consensus Conference, informal unknown slide sessions, weekly Dermatology Consult Clinicopathologic Conference and monthly Cutaneous Lymphoma Conference and Journal Club. The primary goal of this elective is to acquire basic competence in the diagnosis of skin diseases at the microscopic level. A secondary goal is to acquire understanding of the structure and function of the laboratory at the technical, administrative and medical professional level as it pertains to skin specimens.

Student time distribution: Inpatient 5%, Outpatient 80%,
Conferences/Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Drs. Andras Schaffer and Ilana Rosman
Patients seen/weekly: Average number of specimens per week is 300; percentages above reflect specimens not patients.

On call/weekend responsibility: None

Location: Dermatopathology Center

Elective Contact: Andras Schaffer, 362-5757

Other Information: Students will meet at the Dermatopathology Center Signout Room, CORTEX building, 4320 Forest Park Avenue, Room 212M at 8:00 a.m. on the first day of the elective.

M60 812 GENERAL CYTOPATHOLOGY

Instructor(s): Jeff Wang, MD, 747-8159

Enrollment limit per period: 2

Valid start weeks for 2 or 4-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, and 43.

This elective is designed to familiarize students with the discipline of cytopathology and to encourage the development of basic skills. Cytopathology impacts many different areas of patient care and medical practice. The cytopathology laboratory at Barnes-Jewish Hospital receives a broad range of medical cytology material involving fine needle aspiration (FNA), body fluids and Pap tests. As a result, the elective is beneficial for students considering a career in pathology and for students planning careers in internal medicine, surgery, OB-GYN, ENT, and radiology. The focus of the experience can be customized based on the interest of the student. Desk space

and a microscope are provided. Students on the elective will (1) learn how patient specimens are received and processed (2) acquire skills in the microscopic diagnosis of disease through active participation and (3) learn the role of the cytopathologist in the care and management of patients. Students will have the opportunity to function as junior house staff managing their own cases with supervision from residents, fellows, and attending cytopathologist. There are extensive study sets to permit students to focus on specific areas of cytopathology. The daily schedule for student begins previewing the cytology cases at 8:00 a.m. The student will attend the cytology conference on Wednesday and Thursday. In general, the student will be able to complete sign-out activities by 4:30p.m.

Students are welcome to stay beyond 4:30 p.m. to participate in any of the academic or other working activities of the Section.

Student time distribution: Clinical Duties 85%, Conferences/Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Attending staff, residents and fellows

Patients seen/weekly: N/A

On call/weekend responsibility: None

Location: BJC Institute of Health, 5th Floor Suite 5801

Elective Contact: Kim Green, 747-8159, greenk@path.wustl.edu

Other Information: Please call

or e-mail Dr. Wang at jwang@path.wustl.edu at least one week before the rotation to discuss goals for the elective and to receive clerkship information and password access forms. Students report to Cytopathology Resident's Room, 5th Floor IOH Building Suite 5801, 8:00 a.m. first day of elective

M60 815 OB-GYN PATHOLOGY SUBINTERNSHIP

Instructor(s): Phyllis Huettner, MD, 362-0118

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The elective stresses the principles of anatomic pathology when applied to operative material in obstetrics and gynecology. The

subintern will examine gross and microscopic specimens in the Ob-Gyn Pathology Lab and review pertinent literature with a senior pathologist. Ample time will be available for attending regular conferences in ob-gyn and pathology.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;

Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: N/A

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Phyllis Huettner, MD, 362-0118

Other Information: Students report to Dr. Huettner's office, 300S Peters Building, Barnes-Jewish Hospital, South Campus, 9:00 a.m. first day of elective.

M60 820 SURGICAL PATHOLOGY – BARNES-JEWISH HOSPITAL

Instructor(s): Samir El-Mofty DMD PhD, and staff, 362-2681

Enrollment limit per period:

In order to permit maximum interaction with the surgical pathology staff and house staff, the elective is limited to four students per four-week block. For the initial round of scheduling the available slots are allotted to accommodate two 4th year students and two 3rd year students. Any open slots after the original scheduling period are then made available to either 3rd and 4th year students on a first-come, first-serve basis. Contact your scheduling office for details.

This elective is designed to familiarize students with the discipline of surgical pathology and to encourage the development of basic skills in gross pathology and histopathological interpretation. The Laboratory of Surgical Pathology at Barnes-Jewish Hospital receives a broad range of medical biopsy material in addition to specimens derived from the busy surgical subspecialty practices. As a result, this elective is beneficial not only for students considering a career in pathology, but also for students planning careers in internal medicine, surgery, obstetrics-gynecology, pediatrics, radiology, radiation oncology and dermatology. Students on this elective will (1) Learn how patient specimens are received and processed, (2)

Acquire skills in the gross examination and microscopic diagnosis of disease through active participation and (3) Learn the role of the pathologist in the preoperative, intraoperative, and postoperative care and management of patients. Students will function as junior house staff managing their own cases with supervision from residents, fellows and attending pathologists. Students may also wish to participate in ongoing research projects within the Department as time, and interest, allows. At the end of the rotation the students are required to do a formal case presentation for the residents, fellows and attending staff.

The daily schedule for students begins at 8:00 a.m. with morning conference. In general, the student will be able to complete all gross examination and sign-out activities by 4:30 p.m. Students are welcome to stay beyond 4:30 p.m. to participate in any of the academic or other working activities of the Division.

Student time distribution: Clinical duties 85%, Conference/Lectures 15%

Major teaching responsibility: Attending staff, residents and fellows

Patients seen/weekly: N/A

On call/weekend responsibility: None

Location: Division of Surgical Pathology, 3rd Floor Peters Building, Barnes-Jewish Hospital, South Campus

Elective Contact: Samir El-Mofty DMD PhD, 362-2681, elmofty@wustl.edu or Julie Gutierrez, 362-0143,

jgutierrez@path.wustl.edu.

Other Information: See the pathology website for detailed orientation and introductory information. If you need to discuss individual goals and interests, please call or email Dr. Samir El-Mofty at least one week prior to the elective

M60 825 INTRODUCTION TO NEUROPATHOLOGY

Instructor(s): Robert E. Schmidt, MD, PhD, 362-7426

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 13, 17, 21, 29, 33, 37, and 41.

The course is structured to give the student a full-time immersion in

the specialty of neuropathology including both neurosurgical and neuroautopsy derived material. There are daily didactic sessions that cover the spectrum of neurological diseases, review gross and microscopic neuro-anatomy, discuss approaches to the diagnosis of nervous system disease, and point out the interrelationships of research to clinical problems. Multiple clinical conferences and diagnostic working sessions complement reading, use of a large microscopic Divisional study set and project work. Time: 35 to 40 hours per week.

Student time distribution: Conferences/Lectures 100%; Subspecialty Care 100%

Major teaching responsibility: Attendings and fellows

Patients seen/weekly: N/A

On call/weekend responsibility: None

Location: West Building

Elective Contact: Robert E. Schmidt, MD, PhD, 362-7426

Other Information: Students report to 3720 Neuropathology, West Building, 9:00 a.m. first day of elective.

M60 855 DIAGNOSTIC HEMATOPATHOLOGY

Instructor(s): Anjum Hassan M.D., and Nabeel Yaseen MD, PhD, 362-1329

Enrollment limit per period: 2

Valid start weeks for 2 or 4-week blocks are: Weeks 9, 11, 13, 15, 17, 19, 29, 31, 33, and 35.

Student electives in diagnostics of diseases of hematopoietic cells aims to foster understanding of acute and chronic leukemias, reactive conditions mimicking malignancies, and lymphomas affecting adults and pediatric populations. This diverse field involves multiple ancillary diagnostic tests such as immunohistochemistry, flow cytometry and genetic testing. This elective will offer medical students an in-depth insight into what goes behind the final pathologic diagnoses in hematologic malignancies before a treatment plan can be executed. This insight is crucial to understand the importance of correct diagnosis (the answer to the usual "what's taking pathology so long" comment) and accurate, timely

communication of preliminary and final diagnosis to the clinicians. Under general faculty and fellow supervision, the students will be primarily responsible for handling of their own cases such as bone marrow biopsies, simple lymph node biopsies, ordering the required tests, dictating the final reports and communicating with the clinicians. They will also participate in several conferences per week including Hematopathology consensus conference, weekly cytogenetic/molecular correlation conferences, journal club and interdepartmental bone marrow transplant and lymphoma conferences.

Student time distribution: Bench Signouts 60%, Conference/Lectures 40%

Major teaching responsibility: Anjum Hassan MD

Patients seen/weekly: 60-70 bone marrow biopsies; 50 consults and in-house cases

On call/weekend responsibility: None

Location: Room 2303, 2nd Floor, Kingshighway Building

Elective Contact: Kevin Hutchinson,

Heme Path Division Secretary, 362-1329,

khutchinson@path.wustl.edu

Other Information: Students will meet on the 2nd Floor, Kingshighway Building Room 2303, 10:00 a.m. first day of elective.

M60 860 CLINICAL LABORATORY MEDICINE – BARNES-JEWISH HOSPITAL

Instructor(s): Mitchell Scott, PhD, 362-1503

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: 13, 17, 21, 29, 33, 37, and 41.

This elective is designed to teach the student how clinical laboratory assays are used in the diagnosis of disease and to understand the quality assurance tools the laboratory utilizes to assure the reliability of tests. The four-week elective includes rotations through laboratories in clinical chemistry, clinical microbiology, transfusion medicine and hematopathology. During the elective the student will have a daily schedule, which includes didactic sessions with senior staff and house staff. Particularly useful clinical skills to be acquired

include: morphology of peripheral blood smears and bone marrow biopsies; interpretation of coagulation tests, biomarkers of cardiac damage and serum protein electrophoresis patterns; appropriate use of blood component therapy and therapeutic apheresis; and identification of infectious organisms. Students will attend quality assurance meetings with senior staff, participate in microbiology rounds and present case discussions during this elective.

Student time distribution: Inpatient 25%, Conferences/Lectures 75%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 5

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Mitchell Scott, PhD, 362-1503

Other Information: Students meet in chief resident's office, 2nd Floor Barnes-Jewish Hospital, South Service Building, 8:30 a.m. first day of elective.

Research — Pathology and Immunology

(M60 900)

Paul M. Allen, PhD, 8th Floor, BJCIH, 362-8758. Research in immunology. The recognition of antigen by T cells. We are investigating how the T cell receptor functions developmentally, biochemically and structurally. We utilize in vivo models to study the role of T cells in alloreactivity/graft rejection and inflammatory bowel

disease.

Jacques U. Baenziger, MD, PhD, 2nd Floor Kingshighway Building, Room 2423, 362-8730. Glycobiology, informational role of carbohydrates in protein targeting and reproductive endocrinology.

Erika C. Crouch, MD, PhD, 454-8462. The structure and function of collagenous carbohydrate bindings' proteins known as collectins. We are actively investigating the structure, function, synthesis, assembly and secretion of SP-D—a lung surfactant associated collectin that contributes to the innate pulmonary host defense against a wide variety of important bacterial, fungal, and viral pathogens. The laboratory is studying the human SP-D promoter and using site-directed mutagenesis to examine the structural requirements for assembly, secretion and biologic activity.

Jeffrey I. Gordon, MD, 5th Floor 4444 Forest Park, 362-7243. Genomic and metabolic foundations of symbiotic host-microbial interactions in the human gut; impact on obesity and malnutrition.

Jack Ladenson, PhD, Cortex Building, 207J, 454-8436. Development and use of monoclonal antibodies including single-chain antibodies and antibody libraries.

Michael McDaniel, PhD, 3709 West Building, 362-7435. The focus of this laboratory is to study the function and growth of pancreatic islets in Types 1 and 2 diabetes. Mammalian target of rapamycin (mTOR) is a protein kinase that integrates signals from growth factors and nutrients to regulate DNA and protein synthesis. G protein-coupled receptor agonists, such as GLP-1, have been shown to enhance proinsulin biosynthesis and secretion, and stimulate cellular growth and proliferation. Our objective is to further explore the mechanisms of action of GLP-1 to enhance DNA and protein synthesis via mTOR in rodent and human islets. These studies are of fundamental interest in optimizing mTOR to induce cellular growth and proliferation to: (1) enhance pre- and post- islet transplantation in Type 1 diabetes and (2) prolong b-cell compensation in response

to insulin resistance in Type 2 diabetes. b-cell failure in obesity-associated Type 2 diabetes is believed to correlate with the intracellular accumulation of lipids that contribute to defects in insulin secretion and maintenance of b-cell mass. Our studies have identified lipoprotein lipase in b-cells, a key enzyme for catalyzing the hydrolysis of lipoprotein-associated TAG, to produce free fatty acids (FFA) for local cellular uptake. We are also characterizing the effects of enhanced FFA uptake through fatty acid transporters and determining the regulation of lipid droplet synthesis and breakdown by lipid droplet associated proteins. Recent studies suggest that FFA up-regulate mitochondrial uncoupling proteins proposed to dissipate the proton gradient across the mitochondrial inner membrane. The objective of this study is to delineate the link between FFA and b-cell mitochondrial dysfunction in Type 2 diabetes.

Kenneth M. Murphy, MD, PhD, 7th Floor, Room 7766, CSRB, 362-2009. Function of dendritic cells in T cell responses and anti-tumor vaccines.

Robert D. Schreiber, PhD, 8th Floor, BJCIH, 362-8747. Tumor Immunology and Cancer Immunoediting. Research on natural and therapeutically induced responses to tumors and definition of the molecular roles of interferon-gamma and interferon-alpha/beta in these processes.

Andrey S. Shaw, MD, 8th Floor, BJCIH, 362-4614. Signal transduction in lymphocytes. Genetic basis of renal disease.

Barry Sleckman, MD, PhD, 4711 West Building, 747-8235. Cellular immunology; repair of DNA damage; Mechanisms of chromosomal translocations.

Carl H. Smith, MD, St. Louis Children's Hospital, 454-6029. Placental transport and surface membrane structure and function.

Thaddeus S. Stappenbeck, MD, PhD, Room 1020 CSRB North Tower, 362-4214. My lab studies the cause of inflammatory bowel

disease, a condition that leads to spontaneous inflammation of the intestine. We study the mechanisms of host gene mutations as well as abnormalities in host-microbial interactions that drive this disease.

Steven Teitelbaum, MD, Barnes-Jewish Hospital, 454-8463. Cellular and molecular mechanisms of bone remodeling with particular emphasis on osteoclast biology as relates to pathogenesis and prevention of diseases, such as osteoporosis. We focus on integrin and cytokine biology utilizing a variety of genetically-manipulated mice.

John Turk, MD, PhD, 6609 Wohl, 362-8190. Phospholipase A2 (PLA2) enzymes in regulating insulin secretion from pancreatic islet -cells, e.g. a novel iPLA2 that does not require Ca²⁺ cloned from rat and human islets that is involved in -cell secretion and proliferation. Studies of iPLA2, its post translational modifications, and its interactions with other proteins involve mice that are iPLA2-deficient globally or in selected tissues, transgenic mice that overexpress iPL2 in -cells, and insulinoma cells with genetically manipulated iPLA2 expression. Mass spectrometric characterization of proteins and complex lipids is an important tool in these studies.

Emil R. Unanue, MD, 1751 West Building, 747-0561. Research in immunobiology/immunopathology. Examination of cellular interactions resulting in immune induction and cellular immunity. These cellular interactions are being studied in normal, in infectious processes, and in autoimmune diseases. The focus is to identify the proteins responsible for activation of lymphocytes in Type 1 diabetes as well as in infection with the intracellular pathogen *Listeria monocytogenes*.

Herbert Virgin, MD, PhD, 1754 West Building, 362-9223. We work on issues at the interface of virology and immunology by analyzing aspects of viral immunity, viral pathogenesis, and viral genetics that contribute to virulence and disease. We focus on latency and pathogenesis of herpes viruses.

Mark A. Watson, MD, PhD, Barnes-Jewish Hospital, Room 2316 Kingshighway Building, 454-7919. Our laboratory is interested in defining gene transcriptional programs associated with the early progression of human breast cancer. The experimental approach utilizes histopathological review and laser capture microdissection of tumor tissue from patient biopsies coupled with state-of-the-art quantitative RT-PCR, DNA expression microarray, and tissue microarray technologies. Using bioinformatics and statistical analysis of microarray data, we are defining gene expression profiles associated with breast tumor progression, from cellular atypia to invasive disease. Individual genes and signaling pathways identified will be used to better understand the biology of breast cancer, to identify novel diagnostic markers, and to develop strategies for new, targeted therapies. Similar approaches using DNA microarrays and bioinformatics are being applied to molecularly classify several other types of inherited and sporadic solid tumor neoplasms.

Faculty — Pathology and Immunology: See Appendix

Edward Mallinckrodt Department of Pediatrics

The primary aim of the teaching program of the **Department of Pediatrics** is to stimulate interest in developmental biology, especially

human growth and development, and to provide the student with a foundation sufficiently comprehensive so that he or she will have an appreciation of clinical pediatric problems regardless of his or her future career choice in medicine.

The major clinical and research facilities are in [St. Louis Children's Hospital](#), and the newborn services are at Barnes-Jewish Hospital. St. Louis Children's Hospital is a facility with 235 beds that accepts patients through 21 years of age with all types of medical and surgical problems. Hospital admissions average 11,000 annually. Pediatric medical ambulatory activity, including subspecialty and emergency visits, averages about 90,000 visits a year. Nearly 5,000 infants are born annually at the Washington University Medical Center.

For more information

Please visit the [Department of Pediatrics website](#) for more information.

MD Courses — Pediatrics

First year

Selectives

M04 526 NEW DISEASES, NEW PATHOGENS

For full description, see Department of Molecular Microbiology.

Second year

M65 640A PHYSICIANS, PATIENTS & SOCIETY: PEDIATRICS

Instructors: Amanda Emke, MD and Erika Hayes, MD

Students are introduced to the unique nature of pediatrics as a subspecialty through a series of lectures and Team-Based Learning sessions designed to demonstrate the longitudinal nature of pediatrics through a variety of sessions addressing normal and pathologic aspects of human growth and development as well as the unique role of the physician in assessing and managing pediatric patients at all stages of development. The unique aspects of the physical examination of patients across various ages and developmental levels are presented in an optional Physical Examination Night.

Third year

M65 760 PEDIATRICS CLERKSHIP

Instructors: Michelle Estabrook, MD and Colleen Wallace, MD (both: 454-6299)

This six-week curriculum emphasizes pediatric pathophysiology and normal growth and development from birth through adolescence.

This rotation consists of three two-week combinations of the following: Regular or special-care nurseries at Barnes-Jewish Hospital or Missouri Baptist Medical Center spent assessing newborns, seeing patients in the pediatric emergency department and Hematology/Oncology outpatient service and in St. Louis Children's Hospital on a variety of inpatient services. Emphasis is on performing a pediatric history and physical examination and developing an appropriate differential diagnosis. Daily rounds with house staff and attending physicians, as well as weekly case management conferences and grand rounds, further this emphasis. A core lecture series also is offered on Mondays and Thursdays during this six-week clerkship.

Fourth year

Electives

M65 801 GENERAL PEDIATRIC SUBINTERNSHIP – ST. LOUIS
CHILDREN'S HOSPITAL

Instructor(s): Middy Estabrook, MD 454-6299

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This is the general pediatric subinternship. Liz will hold a lottery in the pediatric medical student education office to determine if the student will be assigned to 8 East or 8 West. The student will be assigned patients on one of two inpatient pediatric floor teams. They will follow patients from initial evaluation and for continuing care. The student works as an extern and is expected to take call every fourth night. Students work directly under the supervision of the senior resident. Teaching rounds are conducted by the faculty. The elective will provide experience in the management of many pediatric medical conditions (variable depending on floor) and will include the care of patients with various diseases including pulmonary, infectious diseases, gastrointestinal, renal, neurological, endocrine and rheumatologic issues. Additionally, patients with failure to thrive, asthmatic exacerbations, poisonings and undiagnosed conditions may be seen.

Student time distribution: Inpatient 100%; Subspecialty Care/General Pediatrics 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 12

On call/weekend responsibility: Every fourth night

Location: St. Louis Children's Hospital

Elective Contact: Liz Scott, 5S50 St. Louis Children's Hospital, 454-6299

Other Information: Students should call Liz Scott, 454-6299, one month before start date. Floor assignments will be determined by lottery from floor choices 8 East and 8 West. Students should report to 5S20 Medical Education Office by 7:30 a.m. for orientation on their first day.

M65 808 PEDIATRIC ASTHMA AND ALLERGY

Instructor(s): Leonard B. Bacharier, MD; Robert C. Strunk, MD; Gordon Bloomberg, MD; Caroline Horner, MD; Avraham Beigelman, MD and Alysa Ellis, MD, 454-2694

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

In predominantly an outpatient setting, students will evaluate patients with a wide variety of allergic and immunologic disorders including asthma, allergic rhinitis, anaphylaxis, food allergy, atopic dermatitis, urticaria, angioedema and primary immunodeficiency. Rotation goals include: (1) the extension of history-taking skills to include environmental exposures, (2) the recognition of physical findings suggestive of allergic disease, (3) understanding the indications and interpretation of diagnostic testing including skin testing and assessment of pulmonary function, and (4) application of appropriate therapeutic strategies to these disorders. Weekly didactic conferences and inpatient consultations provide additional educational opportunities to the student.

Student time distribution: Inpatient 10%, Outpatient 80%, Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Leonard B. Bacharier, MD, and Robert C. Strunk, MD.

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: St. Louis Children's Hospital and Barnes-Jewish West County Hospital

Elective Contact: Kim Tinsley, 454-2158

Other Information: Students should call 454-2158 prior to the start of this elective for location and time.

M65 809 PEDIATRIC PULMONARY SUBINTERNSHIP

Instructor(s): Thomas Ferkol, Jr., MD; Leonard Bacharier, MD; Avraham Beigelman, MD; Ferdinand Coste, DO; Alysa Ellis, MD; Albert Faro, MD; Kay Horner, MD; James Kemp, MD; Peter Michelson, MD; Anand Patel, MD; Katherine Rivera-Spoljaric, MD; Stuart C. Sweet MD,

PhD.

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

On the 7 East Respiratory Unit, the sub-intern is an active member of a multidisciplinary care team, consisting of attending pulmonologist or allergist, advanced practice nurses, second-year pediatric residents, unit nurses, and other care providers and takes responsibility for children with acute and chronic lung diseases admitted to the unit. The student will be co-managed with a senior pediatric resident and the sub-intern will be directly supervised by the pediatric residents and attending physician in the daily care of patients. The rotation is structured to provide students with a primarily clinical experience to allow them to gain exposure to the breadth of lung diseases seen at St. Louis Children's Hospital.

The volume of patients on the 7 East Respiratory Unit varies with the number of patients covered by the sub-intern at any time, and he or she will typically be responsible for the care of two to six patients at any given time. The student will be exposed to children with wide-ranging lung diseases and breathing disorders, such as asthma, cystic fibrosis, bronchopulmonary dysplasia, bronchiolitis, pneumonia, chronic respiratory insufficiency, and congenital lung anomalies during their clinical rotation. The student will also have the opportunity to participate in tests and procedures essential to the practice of pulmonary and allergy medicine, including pulmonary function studies, flexible fiberoptic bronchoscopy, and overnight polysomnography. Sub-interns do not have evening coverage responsibilities, and weekend responsibilities are limited to two days during the four-week block. They are strongly encouraged to attend departmental and divisional conferences.

Student time distribution: Inpatient 80%, Outpatient 10%,
Conferences/ Lectures 10%; Primary Care 30%, Subspecialty Care 70%

Major teaching responsibility: Attending Physician

Patients seen/weekly: 10-15

On call/weekend responsibility: Two weekend days per month

Location: Room 8117, Northwest Tower

Elective Contact: Thomas Ferkol, Jr., MD, 454-2158

Other Information: Students report to 7 East Respiratory Unit, St. Louis Children's Hospital, 7:00 a.m. first day of elective.

M65 811 PEDIATRIC CRITICAL CARE MEDICINE

Instructor(s): Amanda Emke, M.D., emke_a@kids.wustl.edu, 454-2527

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective is designed to familiarize the student with the diagnosis and treatment of critical illness in infants and children. To this end, each student is made responsible for a small number of assigned cases under the direct supervision of pediatric residents, pediatric critical care fellows, and faculty. The teaching activities emphasize the understanding of pathophysiological processes that lead to respiratory, cardiocirculatory, and central nervous system dysfunction and their therapy in the developing subject. Students are expected to participate in all the daily activities of the Pediatric Intensive Care Unit at St. Louis Children's Hospital and be on occasional call after hours.

Student time distribution: Inpatient 100%; Subspecialty Care 100%

Major teaching responsibility: Attending, critical care fellows, and pediatric residents

Patients seen/weekly: 150

On call/weekend responsibility: Yes

Location: St. Louis Children's Hospital

Elective Contact: Amanda Emke, M.D., 454-2527

Other Information: Students report to the PICU, 7th Floor St. Louis Children's Hospital, 7:15 a.m. first day of elective.

M65 813 PEDIATRIC CARDIAC CATHETERIZATION

Instructor(s): David Balzer, MD; Joshua Murphy, MD, and Shabana Shahanavaz, MBBS, 454-6095

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Elective will focus on interpretation of hemodynamic and angiographic data acquired in the cardiac catheterization laboratory. Student time distribution: Inpatient 95%, Conferences/ Lectures 5%; Subspecialty Care 100%
Major teaching responsibility: Two attendings, supplemented by one fellow
Patients seen/weekly: 10
On call/weekend responsibility: None
Location: St. Louis Children's Hospital
Elective Contact: David Balzer, MD, 454-6095
Other Information: Students report to St. Louis Children's Hospital Cath Lab (7th Floor), 8:00 a.m. first day of elective.

M65 819 PEDIATRIC CARDIOLOGY-OUTPATIENT SERVICE

Instructor(s): Joshua Murphy, MD; George Van Hare, MD; Dave Balzer, MD; Charles Canter, MD; Mark Grady, MD; Patrick Jay, MD; Mark Johnson, MD; Caroline Lee, MD; Mark Levin, MD; Joshua Murphy, MD; Jennifer Silva, MD, Shabana Shahanavaz, MBBS, and Gautam Singh, MD, 454-6095
Enrollment limit per period: 1
Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.
Students will independently evaluate outpatients referred for cardiac murmurs, chest pain, arrhythmia and report findings to the attending physician. Clinics are held at St. Louis Children's Hospital and Barnes-Jewish West County Hospital. Auscultation skill acquisition will be enhanced through examination of patients and use of other teaching tools. The student will review with the attending all ECGs, holter monitors, echocardiograms performed. Participation in weekly surgical conference and other educational conferences is expected.
Student time distribution: Outpatient 95%, Conferences/Lectures 5%; Subspecialty Care 100%
Major teaching responsibility: Multiple attendings
Patients seen/weekly: 25
On call/weekend responsibility: None required

Location: St. Louis Children's Hospital

Elective Contact: Joshua Murphy, MD, 454-6095

Other Information: Schedules are kept on the residents' hard drive.

For additional information and questions, students should report to 8th Floor Northwest Tower, Division of Cardiology, Kim Graham, Room 8206, 8:00 a.m. first day of elective to pick up a rotation schedule/information packet.

M65 826 GENETICS AND GENOMIC MEDICINE

Instructor(s): D. Kathy Grange, MD, 454-6093

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The goal of this senior elective is to facilitate the acquisition of clinical skills and knowledge in genetics and genomic medicine. The student will actively participate in the diagnosis and management of pediatric and adult patients with genetic disease in both the ambulatory and in-patient settings. Emphasis will be placed on application of the science of genetics to the bedside and will include a broad exposure to patients with biochemical, metabolic, structural and complex genetic diseases. Students will have an opportunity to visit clinical laboratories involved with diagnosis of genetic disorders, including the cytogenetics, molecular genetics and biochemical genetics laboratories. Students will be expected to participate in the weekly clinical case conference.

Student time distribution: Inpatient 30%, Outpatient 60%, Conferences/Lectures 10%; Subspecialty Care 100%.

Major teaching responsibility: Attendings

Patients seen/weekly: 15

On call/weekend responsibility: None

Location: St. Louis Children's Hospital

Elective Contact: D. Kathy Grange, MD, 454-6093

Other Information: Students should report to the Genetics office on the 9th floor of the Northwest Tower at 9:00 a.m. first day of elective.

M65 827 SUBINTERNSHIP-PEDIATRIC HEMATOLOGY/ONCOLOGY

Instructor(s): Robert Hayashi, MD, 454-4118

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students will assume the responsibilities of a pediatric resident on the inpatient Hematology/Oncology service at St. Louis Children's Hospital.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Single attending, first-year hem-onc fellow and junior resident

Patients seen/weekly: 2-3 patients a day

On call/weekend responsibility: Every 4 days with resident

Location: St. Louis Children's Hospital, 9 West

Elective Contact: Robert Hayashi, MD, 454-4118

Other Information: Students report to 9 South Nursing Station, 8:00 a.m. first day of elective.

M65 833 SPECIAL TOPICS IN REPRODUCTIVE HEALTH

Instructor(s): Tessa Madden, MD, 747-6495

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 17, 21, 29, 33, 37, and 41.

Students will attend a variety of outpatient clinics to interact with patients seeking different reproductive health services. These clinics include family planning and abortion services at Planned Parenthood, the County STD clinic, Adolescent and Pediatric Gynecology, Child Sexual Abuse, Teen OB, Ultrasound and Prenatal Diagnosis, and Postmenopausal Gynecology clinic. Clinical experiences will be ambulatory. Conferences include Obstetrics and Gynecology Grand Rounds and Family Planning Journal Club.

Reading will include relevant articles and chapters. Students will be responsible for a brief presentation on a reproductive health topic at the conclusion of the course. Opportunities for clinical research in contraception are also available.

Student time distribution: Outpatient 100%; Primary Care 30%, Subspecialty Care 70%

Major teaching responsibility: Attendings

Patients seen/weekly: Varies

On call/weekend responsibility: None

Location: Division of Clinical Research, 4533 Clayton Ave, 2nd floor

Elective Contact: Tessa Madden, MD, 747-6495

Other Information: Students should contact Dr. Madden a week prior to the beginning of the rotation, email maddent@wustl.edu.

M65 836 PEDIATRIC RHEUMATOLOGY

Instructor(s): Andrew White, MD, 454-6124; Megan Cooper, MD, PhD and Anthony French, MD, PhD.

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Opportunities are available to care for children with a variety of immunologic and rheumatologic disorders. Students will see patients in outpatient clinics and inpatient consultations. An in-depth approach to evaluating disorders of the immunologic system will be provided. Students will participate in evaluation of new patients with a variety of rheumatologic diseases including JRA, SLE, and scleroderma at both SLCH and Shriners Hospital clinics. Students may elect to participate in conferences and seminars.

Student time distribution: Inpatient 20%, Outpatient 70%, Conferences/ Lectures 10%; Primary Care 30%, Subspecialty Care 70%

Major teaching responsibility: Andrew White, MD

Patients seen/weekly: 35-40

On call/weekend responsibility: None

Location: St. Louis Children's Hospital

Elective Contact: Andrew White, MD, 454-6124

Other Information: Students report to Rheumatology Clinic, Suite C, St. Louis Children's Hospital, 8:30 a.m. first day of elective.

M65 838 PEDIATRIC GASTROENTEROLOGY, HEPATOLOGY & NUTRITION

Instructor(s): Yumi Turmelle, MD; Robert Heuckeroth, MD; Lori Holtz, MD; Robert Rothbaum, MD; David Rudnick, MD; Chip Samson, MD; Philip Tarr, MD; Liz Utterson, MD; and Alex Weymann, MD, 454-6173

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The rotation in Pediatric Gastroenterology, Hepatology, and Nutrition provides broad exposure to specialized and common pediatric problems. Gastroenterology patients are seen in the outpatient suites and in the hospital. Students see outpatients with common pediatric complaints like abdominal pain, constipation, and poor growth. Additionally, students experience the ongoing outpatient care of patients with liver disease, inflammatory bowel disease, short-gut syndrome, celiac disease, and other rare disorders. The inpatient service provides experience in caring for patients with acute illnesses such as gastrointestinal bleeding, malnutrition, liver failure, complications of inflammatory bowel disease, and pancreatitis. Students participate in diagnostic and therapeutic endoscopic procedures. At weekly divisional conferences, attendings, fellows, and students review pathology slides from current cases and discuss difficult patient problems and topics of interest.

Student time distribution: Student time distribution: The time spent in the outpatient clinic and on the inpatient service can be individualized according to the student's interests. In general, the distribution is: Inpatient 50%, Outpatient 30%, Procedures 10%, Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings and fellows

Patients seen/weekly: Patients seen/weekly: 130 (entire division), students see a subset (most interesting/instructive cases)

On call/weekend responsibility: None

Location: Gastroenterology Clinical Offices, 9th Floor, Northwest Tower

Elective Contact: Ariana Jasarevic, 454-6173,

Jasarevic_A@kids.wustl.edu

Other Information: Students should contact Ariana Jasarevic at least one week in advance of first day of elective for further information.

M65 840 PEDIATRIC INFECTIOUS DISEASES

Instructor(s): Gregory Storch, MD; Alexis Elward, MD; Michele

Estabrook, MD; Stephanie Fritz, MD; Ericka Hayes, MD; David Hunstad, MD; S. Celeste Morley, MD, PhD; Audrey Odom, MD, PhD; and Rachel Orscheln, MD, 454-6050

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective is designed to introduce students to the clinical aspects of infectious diseases in children. Students will consult on both inpatients and outpatients. Regular daily activities will include evaluation of new patients, work rounds on inpatient consults, microbiology teaching rounds in the bacteriology and virology labs, and teaching rounds with the infectious diseases attending. Students will attend the general pediatric clinic and the pediatric HIV clinic once per week. Formal teaching sessions include a weekly pediatric infectious disease case conference, a weekly joint clinical conference with the adult infectious diseases group, and a weekly pediatric infectious diseases research conference.

Student time distribution: Inpatient 70%, Outpatient 20%, Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: One or two attendings, one or two fellows

Patients seen/weekly: 5-10 new patients primarily, over 15-20 new patients with team

On call/weekend responsibility: Saturdays optional

Location: St. Louis Children's Hospital

Elective Contact: Pam Wilson, 286-2778

Other Information: Students should contact Fellow on call at 424-6877 one week prior to start of elective.

M65 845 PEDIATRIC EMERGENCY MEDICINE

Instructor(s): David M. Jaffe, MD, 454-2341

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The goal of this elective is to provide the senior medical student with a broad introductory clinical experience in pediatric emergency

medicine. Functioning as a subintern in the Emergency Unit of St. Louis Children's Hospital, the student will have the opportunity to evaluate and manage patients with a wide variety of emergent and urgent medical and surgical problems. Examples include: respiratory distress, abdominal pain, lacerations, bone injuries, rashes, fever, etc.

Students will work either a day shift (7:30 a.m.-3:00 p.m.) or an evening shift (3:00 p.m.-11:00 p.m.) in rotation. Daily teaching conferences are provided by the attending staff. A weekly meeting of the students and senior faculty will occur to review interesting cases. Also, attending staff and senior pediatric residents provide 24-hour on-site supervision. Each medical student will be asked to prepare a 20-minute presentation on a topic of his/her choosing.

Student time distribution: Outpatient 90%, Conferences/Lectures 10%; Subspecialty Care (Emergency Medicine) 100%

Major teaching responsibility: All EM attendings

Patients seen/weekly: ~30

On call/weekend responsibility: None (unless making up time)

Location: St. Louis Children's Hospital

Elective Contact: Carol Heller, 454-2341

Other Information: Students report to Room 9105 Northwest Tower, 8:30 a.m. first day of elective.

M65 849 PEDIATRIC ENDOCRINOLOGY AND DIABETES

Instructor(s): Abby Hollander, MD; Bess Marshall, MD; Paul Hruz, MD, PhD; Ana Maria Arbelaez, MD; Neil White, MD; and Michelle Vanstone, MD, 454-6051

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective is designed to include broad clinical experience in pediatric endocrinology and diabetes. The student will have an opportunity to evaluate both patients admitted to St. Louis Children's Hospital and patients referred for consultation in our three outpatient clinics each week. In addition to a divisional conference to review referred patients, several joint conferences with the adult

Endocrinology and Diabetes Division (clinical rounds, journal club/research seminar, case conference) are held weekly.
Student time distribution: Inpatient 40%, Outpatient 50%,
Conferences/Lectures 10%; Subspecialty Care 100%
Major teaching responsibility: Attending physicians and fellows
Patients seen/weekly: 10-20 by student
On call/weekend responsibility: None
Location: St. Louis Children's Hospital
Elective Contact: Lesa Sutherland, 286-2725
Other Information: Student has the option to extend elective.
Students report to Endocrinology and Diabetes Office, 9th Floor
Northwest Tower, 8:30 a.m. first day of elective.

M65 852 CLINICAL PEDIATRIC PULMONARY MEDICINE

Instructor(s): Thomas Ferkol, Jr., MD; Robert C. Strunk, MD; Leonard Bacharier, MD; Avraham Beigelman, MD; Gordon Bloomberg, MD; Ferdinand Coste, DO; Alysa Ells, MD; Albert Faro, MD; Kay Horner, MD; James Kemp, MD; Peter Michelson, MD; Anand Patel, MD; Katherine Rivera-Spoljaric, MD; and Stuart C. Sweet, MD, PhD, 454-2694.

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective provides an opportunity for students to be exposed to the full scope of respiratory diseases and sleep disorders in infants and children. Pediatric referrals will be seen in both an inpatient and outpatient setting. Rotation goals include: (1) to gain greater insights into the genetics, epidemiology, pathophysiology, and clinical presentations of lung diseases in children; (2) to learn the importance of the physical examination using inspection, percussion and auscultation; (3) indications and interpretation of diagnostic tests, such as chest imaging, blood gas measurements, polysomnography, pulmonary function testing, and bronchoscopy with biopsy and lavage; and (4) therapeutic interventions. Unique aspects of this rotation include a broad exposure to children with asthma, cystic fibrosis, ciliopathies, interstitial lung diseases, chronic

lung disease of infancy, congenital lung malformations, and end-stage cardiopulmonary diseases referred for lung transplantation. Weekly didactic sessions as well as divisional clinical conferences provide opportunities for the trainee to develop his or her presentation skills.

Student time distribution: Inpatient varies, Outpatient varies, Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 25

On call/weekend responsibility: None

Location: St. Louis Children's Hospital

Elective Contact: Kim Tinsley,
454-2158

Other Information: Students should call 454-2158 prior to the start of elective for location and time.

M65 861 NEWBORN MEDICINE

Instructor(s): Akshaya Vachharajani, MD, 454-6148

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The goal of this course is to provide students with responsibility for caring for newborn infants who range from normal to acutely ill to chronically ill and for their families. The physiology of the transition from fetal to extrauterine existence, the pathophysiology of specific diseases, and primary accountability of the student for patient management decisions and procedures will be emphasized. In addition, collaboration with nursing staff and other health care providers in decision-making (especially concerning the viability of individual infants) and family management will be regularly required. Students during each rotation will have the option to rotate through the Neonatal Intensive Care Unit at St. Louis Children's Hospital and/or the labor and delivery services at Barnes-Jewish Hospital. Students assigned to the Labor and Delivery Service will routinely be involved in normal newborn care and delivery room management. The student will be expected to rotate patient responsibilities every

fourth night.

Student time distribution: Inpatient 90%, Outpatient 5%,

Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Attending, fellow and residents

Patients seen/weekly: 30

On call/weekend responsibility: Every fourth night

Location: 8th Floor Northwest Tower

Elective Contact: Emily Alexander, 454-6148

Other Information: Students should schedule an appointment with Emily to meet with Dr. Vachharajani. Appointments should be scheduled one week prior to class start date.

M65 875 PEDIATRIC RENAL DISEASE

Instructor(s): Vikas Dharnidharka, MD, MPH; Keith A. Hruska, MD;

Anne M. Beck, MD; S. Paul Hmiel, MD, PhD; Sun-Young Ahn, MD;

Thomas Keefe Davis, MD, and Michael Seifert, MD; 454-6043

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This course is designed to provide the student with a wide exposure to all aspects of pediatric renal disease and an opportunity to explore a desired aspect of the field in-depth. The student will be an integral part of the Renal Team and as such will see both inpatients and outpatients. Students will have an opportunity to follow the courses of patients with acute renal disease as well as those with more chronic problems and will help to plan the evaluation and therapeutic management of these patients. Discussions and rounds with the attending staff and fellows emphasize the relationship between clinical problems and the pathophysiology of the underlying disease. These informal teaching sessions are supplemented by more formal sessions. These include renal attending rounds, renal research rounds and grand rounds, which are conducted weekly in conjunction with the Renal Division of Barnes-Jewish Hospital. Renal biopsy material is reviewed with the renal pathologists. Attendance at the weekly pediatric grand rounds and pediatric case conferences is encouraged. Opportunities in

clinical and translational research projects will be discussed with interested students.

Student time distribution: Inpatient 50%, Outpatient 40%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 12-15

On call/weekend responsibility: None

Location: St. Louis Children's Hospital

Elective Contact: Vikas Dharnidharka, MD, MPH, 454-6043

Other Information: Students report to Danielle Janek, 286-1574, 10th
Floor Northwest Tower, Cubicle 1021, 8:30 a.m. first day of elective.

M65 876 PEDIATRIC LUNG TRANSPLANTATION

Instructor(s): Stuart C. Sweet, MD; Peter Michelson, MD; and Albert
Faro, MD; 454-2214

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25,
29, 33, 37, and 41.

St. Louis Children's Hospital has the largest pediatric lung transplantation program in North America. This unique clinical rotation will enable students to be exposed to the process of transplantation from referral and listing to the actual surgery and post-operative care. Both inpatient and twice weekly outpatient clinics will be available for participation and learning. The use of diagnostic tests, including flexible fiberoptic bronchoscopy with biopsies and bronchoalveolar lavage, histopathology of infection and graft rejection, and the complexities of immunosuppression will all be explored. Weekly multidisciplinary meetings with our team, as well as didactic, psychosocial, and ethical meetings will be available. Our patient referral base is worldwide, and includes infants and children with cystic fibrosis, pulmonary hypertension, complex congenital heart defects, surfactant protein defects and alveolar proteinosis.

Student time distribution: Inpatient 50%, Outpatient 40%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 20-30

On call/weekend responsibility: None

Location: St. Louis Children's Hospital

Elective Contact: Kim Tinsley, 454-2158

Other Information: Students should call 454-2158 prior to the start of elective for location and time.

M65 878 CLERKSHIP IN RURAL PRIMARY CARE PEDIATRICS

Instructor(s): Middy Estabrook, MD, 454-6299. Claudia Preuschoff, MD., in Cape Girardeau

Enrollment limit per period: 1

Valid start weeks for 2 or 4-week blocks are: Weeks 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, and 41.

The clerkship in rural primary care pediatrics is designed to provide the student with first-hand experience in general pediatric practice in a rural community setting. Students will have the opportunity to see patients in a private office, participate in delivery room resuscitation, evaluate patients in the emergency department, and provide pediatric consultation to family practitioners, obstetricians, and surgeons. The objective of this elective is to provide the student with the experience of serving as a general pediatrician providing comprehensive health services in a rural community. Students assume responsibility for ongoing care of patients and have opportunities to perform procedures. Housing is available through SEMA ADHEC/Southeast Missouri Health Network at no cost to the student, however, reservations must be made early. Two-week or four-week blocks are available.

Student time distribution: Inpatient 10%, Outpatient 90%; Primary Care 100%

Major teaching responsibility: Single attending

Patients seen/weekly: 25-50

On call/weekend responsibility: Call with instructor, not in-house call

Location: Cape Girardeau, MO

Elective Contact: Liz Scott, St. Louis Children's Hospital, 454-6299

Other Information: Students should call Liz Scott, 454-6299, at beginning of school year to complete additional paperwork, and

make housing reservations. Note: Must show current Tdap immunization before beginning of elective. Students should then report to the site on their first day at 7:30 a.m.

M65 880 QUALITY OF CARE THROUGH HEALTH INFORMATICS

Instructor(s): Feliciano Yu, MD, 454-2808

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 21, 29, 33, and 41.

Health Informatics lies at the intersection of information science, computer science and health care delivery. It is an emerging scientific field that deals with biomedical data, information and knowledge – their storage, retrieval, and optimal use for problem solving and decision making. It touches on all basic and applied fields in biomedicine and is closely tied to modern healthcare communication and information technologies, such as Electronic Health Records (EHR). EHRs are fast becoming ubiquitous in the clinical settings. These systems offer the greatest potential for practice-based learning and improvement as well as research. In this elective, the student will be exposed to the concepts and application of health informatics as it relates to improving the quality of care. The first week will involve a tour of the institutions's health informatics infrastructure (i.e., clinical information systems, clinical decision support, electronic health records, etc) and organizational structures that impact quality; didactics on health informatics and quality improvement; and real-world exposure to health informatics and quality improvement activities. The second week will involve a self-directed study on real clinical issues and its potential for process improvement. The major emphasis of this elective is to increase the student's awareness to a systems-based approach to improving quality of healthcare. The student will be evaluated by the attendance, level of participation as well as on a 1-2 page deliverable at the end of the rotation, describing a real-world clinical issue that is appropriate for quality improvement. At the end of the rotation, the student will have gained practical knowledge and exposure to health informatics and how it relates to improving the care delivery process.

Student time distribution: Inpatient 10%, Outpatient 10%,
Conferences/ Lectures 80%; Primary Care 0%, Subspecialty Care
100%
Major teaching responsibility: Feliciano Yu, MD
Patients seen/weekly: None
On call/weekend responsibility: None
Location: St. Louis Children's Hospital, Suite 3S36
Elective Contact: Leslie Frandsen, 454-2724
Other Information: Students report to Dr. Yu's office, Suite 3S36, St.
Louis Children's Hospital, 9:00 a.m. first day of elective.

Research — Pediatrics

(M65 900)

Ana Maria Arbelaez, MD, 10th Floor, Northwest Tower, 286-1138.
Clinical Research in Diabetes Mellitus. Clinical research studies on
hypoglycemia associated autonomic failure in patients with type 1
diabetes mellitus and on cystic fibrosis related diabetes.

Charles E. Canter, MD, 8th Floor Northwest Tower, Division of
Cardiology, 454-6095. Single-center and multi-center clinical studies
and trials in pediatric cardiomyopathy, heart failure, and heart
transplantation.

F. Sessions Cole, MD, 8th Floor Northwest Tower and 5th floor,
McDonnell Pediatric Research Building, 454-6148. Using population-
based data based and case-control data bases, our laboratory
focuses on understanding the contribution of genetic variation in
candidate genes of the pulmonary surfactant metabolic pathway
(surfactant protein B, surfactant protein C, and ABCA3), with
neonatal respiratory distress syndrome (disease severity and

pulmonary surfactant metabolic phenotype).

Vikas Dharnidharka, MD, 10th Floor, Northwest Tower, 286-1574. Clinical and translational research in childhood kidney disease. Our group is involved in several different types of clinical and translational research, including (a) multicenter clinical intervention trials to improve teen adherence with transplant medications and test new medications in children on dialysis; (b) translational biomarker studies in transplant acute and chronic rejection and genomic studies or post-transplant lymphoproliferative disease; (c) large transplant database epidemiological analyses for associations of immunosuppressive regimens with efficacy and morbidity balance.

Allan Doctor, MD, 5th Floor, MPRB, 454-2527. Role of Erythrocytes in Pathologic Vascular Signaling. We employ several novel experimental platforms to pursue a range of basic, translational, and clinical studies exploring (1) the role of erythrocytes in context-responsive metabolism of vasoactive effectors in flowing blood; (2) molecular control of antioxidant defense in erythrocytes; (3) the role of acquired injury to normal erythrocytes in the pathophysiology of acute lung injury and multiple organ failure syndrome; and (4) the impact of genetic abnormalities in erythrocytes upon antioxidant defense and vascular signaling (modeled by sickle cell anemia). Query is modeled on many levels from isolated proteins – cell culture – isolated organ – whole mouse – to studies in humans.
<http://research.peds.wustl.edu/>.

Todd Druly, MD, 4444 Forest Park Avenue, Room 6203, 286-2124. Translational genomic research in pediatric oncology. The Druley lab aims to develop novel genomic and computational methodologies for characterizing the functional impact of rare acquired and germline variation on the etiology and outcomes of various pediatric malignancies.

Jennifer Duncan, MD, 3rd Floor, MPRB, 747-0802. Understanding the Transgenerational Impact of Maternal Nutrition. Our lab uses

Drosophila melanogaster as a model system to evaluate the impact of maternal caloric excess on metabolism and mitochondrial function in offspring. We are currently pursuing epigenetic mechanisms, specifically the role of histone modification, for altering gene expression. In addition, we are evaluating the molecular mechanisms underlying triglyceride excess in the offspring and are evaluating tissue specific mitochondrial function. This elective is for students interested in research in any of these areas.

Stephanie A. Fritz, MD, M.S.C.I., Room 10125, Northwest Tower, 454-4115. Our research team studies the epidemiology, microbial virulence mechanisms, and host defenses against community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) colonization, transmission, and disease. We are investigating the transmission dynamics of CA-MRSA in households. Our lab also explores microbial virulence as well as the host immune response to staphylococcal toxins implicated in the pathogenesis of CA-MRSA in patients across a spectrum of disease states. Our goal is to develop novel approaches for the prevention of community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infections.

Matthew Goldsmith, MD, Room 7108 McDonnell Pediatric Research Building, 286-2769. Growth Control and Regeneration in Zebrafish. All of our patients are growing. Indeed, it's the sine qua non of pediatric medicine that distinguishes us from all other physicians. The research efforts of our laboratory center on understanding the biology of growth and regeneration. Growth control and the development of proper size and form is a fundamental problem for growing children, moreover multiple pediatric diseases result in undergrowth, overgrowth or dysregulated growth (i.e. structural birth defects). In addition, while many animals are capable of extensive regeneration, the ability of diseased or damaged tissues and organs to regenerate in humans is quite limited.

We are using the zebrafish, *Danio rerio*, as a model system for studying the biology of growth and regeneration. Current studies are focused on: (1) Using fin overgrowth mutants already identified

in forward genetic screens (e.g. rapunzel) to help dissect the genetics of growth control pathways; (2) Using forward genetic and pharmacologic screens to identify novel pathways/molecules important in organ regeneration, and; (3) Understanding how the nutritional environment is integrated into an overall hierarchy of growth regulatory signals.

An elective is offered for students wishing to pursue research on one of the three topics described above.

Robert J. Hayashi, MD, 9S St. Louis Children's Hospital, 454-4118.

Clinical research interests include stem cell transplantation and its complications including Post Transplant Lymphoproliferative Disease and long-term side effects of therapy.

Keith A. Hruska, MD, 5th Floor McDonnell Pediatric Research Building, 286-2772. The research in the laboratory focuses on chronic kidney disease (CKD) and its complications of the chronic kidney disease mineral bone disorder syndrome that involves skeletal frailty, cardiovascular disease and vascular calcification. The lab has discovered important new pathologic mechanisms of disease leading to vascular calcification through systemic effects of factors involved in renal repair, and hyperphosphatemia Translational studies that continue to develop new therapeutic approaches are being aggressively pursued. New therapies for chronic kidney disease and its complications are being studied in clinical trials.

Paul Hruz, MD, PhD, 3rd Floor McDonnell Pediatric Research Building, 286-2797. Research interests include structure/function relationships in facilitative glucose transporters, congenital and acquired lipodystrophy syndromes, and insulin resistance associated with HIV protease inhibitor therapy.

David A. Hunstad, MD, Room 6106 McDonnell Pediatric Research Building, 286-2710. Work in our lab focuses on the interactions of pathogenic bacteria with their hosts. We aim to elucidate the modulation of host immune responses by pathogens and to determine the mechanisms by which these bacteria present specific

virulence factors on their surfaces. We employ cultured bladder epithelial cell models and the murine model of cystitis to investigate the ability of uropathogenic *Escherichia coli* and *Klebsiella* to modulate host innate and adaptive immune responses. In addition, we are studying the molecular mechanisms by which selected outer membrane proteins contribute to the virulence of uropathogenic *E. coli*. On the translational side, we are enrolling subjects in a translational study of immune response to UTI in male and female infants. Our primary goal is to discover novel targets for interventions that will prevent and treat these and related bacterial infections of the urinary tract and other epithelial surfaces. Along these lines, we are leveraging recent discoveries in UTI pathogenesis to design nanoparticle-based therapies for prevention of acute and recurrent UTI, and studying novel biomarkers for diagnosis of UTI and prediction of recurrence risk.

David M. Jaffe, MD, 9th Floor Northwest Tower, Suite 900C, Room 9105, 454-2341. Clinical research interests are: (1) occult bacteremia—identification, clinical decision making; (2) trauma—injury prevention, head and cervical spine injuries; (3) health care delivery system—role of the pediatric emergency department; and (4) pain management.

Beth Kozel, MD, 4th Floor, McDonnell Pediatric Research Building, 286-1665. Clinical research in rare disease. Research involves collection and analysis of clinical research data related to the multi-gene disorder, Williams syndrome. This syndrome affects multiple organ systems so projects can be designed to fit many clinical interests. Potential topics include assessment of developmental differences, autism spectrum disorder, cardiovascular abnormalities, urologic disorders, and chronic abdominal pain this rare disease group. Genomic changes affecting the likelihood of these features in each individual are evaluated in tandem. Basic science projects related to cardiovascular disease are also available to interested students.

S. Celeste Morley, MD, PhD, Room 6105 McDonnell Pediatric

Research Building, 286-2136. Our laboratory investigates the molecular mechanisms underlying immune cell signaling and trafficking using mouse models. We hope to identify molecules critical for host defense against infectious organisms such as pneumococcus. Our focus is currently on an actin-binding protein called L-plastin, which is required for normal T and B cell motility.

Audrey R. Odom, MD, PhD, Room 6108, McDonnell Pediatric Research Building, 747-2370. Antimalarial therapies and diagnostics. Severe malaria due to infection with *Plasmodium falciparum* kills nearly a million children annually. My laboratory uses translational approaches to develop new methods to diagnose and treat malaria. Projects are available in several research areas, ranging from clinical studies to molecular parasitology approaches in the lab. We are eager to have students join either our team on campus, where we study parasite metabolism and evaluate new potential therapies, or our team in the field in Malawi, where we are collecting samples for new malaria biomarkers

Jose A. Pineda, MD, 10th Floor, Northwest Tower, (Patient Oriented Research Unit), 286-1246. Mechanisms of brain injury in children. Our clinical research efforts focus on studies aimed at further understanding the complex pathophysiology of acute brain injury in children, with special emphasis on traumatic brain injury (TBI). In collaboration with a multidisciplinary team of investigators, our research aims at identifying neuroprotective therapies for severe TBI in children. We utilize advanced imaging techniques (MRI), physiological monitoring and biochemical analysis of clinical samples.

Scott Saunders, MD, PhD, 4105 McDonnell Pediatric Research Building, 286-2850. Investigative efforts are aimed at understanding the molecular basis of development through cell and molecular biological approaches, including transgenic and knockout mouse technology. A particular focus is on the role of a class of tissue- and cell-type specific glycoproteins (heparan sulfate proteoglycans) that play a unique and essential role in the regulation of growth factor

and morphogen signaling during human development and diseases.

Alan L. Schwartz, MD, PhD, 3S36 St. Louis Children's Hospital, 454-6005. Investigative efforts are aimed at understanding: (1) the biology of cell surface receptors including biochemical and molecular dissection of the mechanisms responsible for receptor-mediated endocytosis of blood coagulation proteins; and (2) the regulation of intracellular protein turnover.

Shalini Shenoy, MD, 9S St. Louis Children's Hospital, 454-6018. Investigation of novel reduced intensity transplant strategies for pediatric non-malignant disorders and the immunologic basis of graft versus host disease and graft rejection.

Gregory A. Storch, MD, Richard S. Buller, PhD, and staff, 2N52 St. Louis Children's Hospital, 454-6079. Rapid diagnosis Role of viral and other unconventional infections. The Diagnostic Virology Laboratory is studying the use of the polymerase chain reaction and oligonucleotide sequencing formolecular techniques in the diagnosis of infections caused by viruses and other unconventional pathogens, and the detection of resistance. Our laboratory is interested in developing new diagnostic tests and using them to antimicrobialexpand clinical knowledge of infections caused by infectious agents. Detection of undiscovered for which existing diagnostic tests are suboptimal. We are also interested in discovery of novel pathogens in another area of interest. Recently, we have been using virus-specific PCR assays and high throughput nucleotide sequencing to study viral causes of fever in young children. We are now expanding those studies to investigate immunocompromised children.

Robert C. Strunk, MD, 10th Floor Northwest Tower, 4990 Children's Place, 454-2694. Clinical studies of patients with asthma aimed at understanding the mechanisms of death due to asthma in children.

Phillip I. Tarr, MD, 6103 McDonnell Pediatric Research Building, 286-2848. Research in Pediatric Gastroenterology and Nutrition.

Students have opportunities in broadly encompassing research projects. Investigator in the Division have funded and vibrant projects in liver disease (fatty liver disease, acute liver failure, biliary atresia, liver transplants, cystic fibrosis liver disease), inflammatory bowel diseases (Crohn's Disease and ulcerative colitis), infections of the gastrointestinal tract (diarrhea), acute liver failure, Hirschsprung Disease, diarrhea, gut microbiome, aflatoxin injury to the liver and stunting, health services research, necrotizing enterocolitis, and functional gastrointestinal disorders. Short and long term projects can be arranged around these and other related efforts. The exact nature of the project depends on the time that the student can contribute to the effort, and the availability of any of the Division faculty, who all have established track records as mentors. Interested students should contact any of our faculty, or Dr. Tarr, to discuss the possibilities.

Neil H. White, MD, CDE, 9th Floor Northwest Tower, St. Louis Children's Hospital, 286-1157. Our work involves patient-oriented research in the management of diabetes in children. Arrangements can be made for involvement in or development of projects aimed at improving outcome or prevention of diabetes mellitus and its complications.

David B. Wilson, MD, PhD, 3102 McDonnell Pediatric Research Building, 286-2834. Research is focused on the molecular switches that regulate control genes during early embryonic development and differentiation.

Faculty — Pediatrics: See Appendix

Department of Psychiatry

Instruction in psychiatry is given during the second, third and fourth years of the medical curriculum. Emphasis is on the teaching of psychiatry as a medical discipline, including the biological, social and psychological mechanisms and manifestations of psychiatric illness, as well as psychological reactions to other illnesses. Psychiatric disorders are common and disabling illnesses. An explosion of knowledge resulting from research in neuroscience, genetics and epidemiology is leading to exciting advances in understanding and treating these disorders. Our department is heavily involved in this research, and our didactic curriculum integrates current clinical information with research advances to help students develop the knowledge, skills and attitudes to recognize these illnesses and understand the basic principles of treatment.

William Greenleaf Eliot Division of Child Psychiatry

The Division of Child Psychiatry offers a varied teaching program for medical students, residents in psychiatry and fellows at St. Louis Children's Hospital and the Child Psychiatry Center. The center provides outpatient services to children with an array of mental disorders. Trainees are assigned to these various services, where they participate in diagnostic evaluations and see patients in treatment, under supervision of a fellow and attending physician.

For more information

Please visit the [Department of Psychiatry website](#) for more information.

MD Courses — Psychiatry

Second year

M85 676A DISEASES OF THE NERVOUS SYSTEM: PSYCHIATRY

Co-Instructors: Marcie Garland, MD and Melissa A. Harbit, MD, 362-2440

This course emphasizes the diagnosis of major psychiatric illnesses in adults and children. Psychiatric diseases are described in terms of epidemiology, clinical presentation, natural history, genetics, differential diagnosis and clinical management. Interviewing techniques and performance of the mental status exam will be demonstrated by patient interviews.

Third year

M85 770 PSYCHIATRY CLERKSHIP

Instructor: Fay Y. Womer, MD, 362-2469

During this 4-week rotation, students will participate in the evaluation and treatment of patients under the supervision of resident and attending physicians, attend teaching conferences and lectures, and complete other assigned learning experiences and educational requirements. Students will spend the majority of their time in inpatient adult psychiatry but will also have variety experiences, which could include consult-liaison, child and adolescent, and outpatient psychiatry. All students will spend time with the electroconvulsive therapy (ECT) and ER Psychiatry services during the clerkship. See <https://medportal.wustl.edu/> for further details.

M85 771 AMBULATORY CLERKSHIP: PSYCHIATRY FOR GENERALISTS

Instructor: Fay Y. Womer, MD, 362-2469

Students may elect to pursue their ambulatory medicine selective

through the Department of Psychiatry. Students will make an oral presentation on a relevant clinical topic of their choice and participate in clinical duties. Students may request one of the following clinical options: outpatient adult psychiatry at Barnes-Jewish Hospital (BJH) Wohl Clinic or psychiatry consultation service at BJH, or outpatient child and adolescent psychiatry at Washington University Child and Adolescent Psychiatry Center. See <https://medportal.wustl.edu/> for further details.

Fourth year

Electives

M85 805 PSYCHIATRY CONSULT SERVICE

Instructor(s): Monica Bishop, MD, 362-2469

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The fourth-year student will work closely with the consult resident and consult team that also includes the attending and advanced practice nurse in the evaluation and treatment of patients referred to the psychiatry consult service. Students will attend weekly consult/liason teaching conferences during the summer, and Grand Rounds and Research Rounds in non-summer months.

Student time distribution: Inpatient 90%, Conferences/Lectures 10%;

Subspecialty Care 100%

Major teaching responsibility: Attendings and residents and advanced practice nurses

Patients seen/weekly: 3 workups per week expected; follow up to 10 or more

On call/weekend responsibility: None

Location: 4410, Renard Building

Elective Contact: Tammie Repko, 362-2469

Other Information: Students should page the consult team at 848-2402, 8:00 a.m. first day of elective.

M85 810 OUTPATIENT COMMUNITY PSYCHIATRY

Instructor(s): Brianne Disabato, MD,362-1222

Enrollment limit per period: minimum 2; maximum 3.

Valid start weeks for 4-week blocks are: Weeks 17 and 21

This is a flexible clerkship where effort is made to tailor the activities to the students' interests. Students will assist in diagnosis and treatment of adult psychiatric clinic patients. The patients present with a wide variety of psychological and interpersonal problems, as encountered in an everyday office practice. In this setting, the student will have the opportunity to learn a variety of treatment techniques under supervision.

Student time distribution: Outpatient 80%, Conferences/Lectures 20%; Subspecialty Care 100%

Major teaching responsibility: Attending Psychiatrist and psychiatry residents

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: The Psychiatry Clinic and community sites

Elective Contact: Brianne Disabato, MD,362-1222

Other Information: Location of first meeting will be specified in a mailing.

M85 836 CLINICAL PSYCHIATRY – INPATIENT PSYCHIATRIC SERVICE

Instructor(s): Michael Jarvis, PhD, MD, 362-1816

Enrollment limit per period: 3

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This is a senior rotation that provides the students with an opportunity to expand their knowledge of inpatient clinical psychiatry by functioning as interns. Students attend all staffing and teaching conferences given to first-year psychiatry residents, take patients in rotation, and share night call with first-year residents approximately every fifth night.

Immediate supervision is provided by the inpatient attending, and additional supervision can be arranged as desired. Teaching emphasis is directed toward psychiatric diagnosis, appropriate use of

psychopharmacologic agents, psychotherapeutic intervention, use of community resources and pursuit of the psychiatric scientific literature. The student will write a self selected clinical topic relevant to treatment and management of psychiatric inpatients.

Student time distribution: Inpatient 85%, Conferences/Lectures 15%

Major teaching responsibility: Clinical attending, teaching attendings and residents

Patients seen/weekly: 5-15

On call/weekend responsibility: Every fifth night

Location: Barnes-Jewish South

Elective Contact: Michael Jarvis, PhD, MD, 362-1816

Other Information: Contact Cindy Bander prior to first day of elective at 362-1816.

M85 840 CHILD PSYCHIATRY

Instructor(s): Anne Glowinski, MD, 286-2217

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 9, 13, 17, 21, 25, 29, 33, 37, and 41 or contact Dr. Glowinski for modifications.

This elective in child psychiatry utilizes the Child Psychiatry Outpatient Clinic and the consult-liason service at St. Louis Children's Hospital. It provides experience in age-appropriate diagnostic and treatment methods in children and adolescents. A paper on topic of student's choosing is required.

Student time distribution: Outpatient 75%, Conferences/Lectures 25%; Subspecialty Care 100%

Major teaching responsibility: Attendings and fellows

Patients seen/weekly: 15-20

On call/weekend responsibility: No, but can shadow fellow during call if requested by student

Location: Montclair Building, 24 S. Kingshighway, Outpatient Psychiatry Clinic

Elective Contact: Brigitte Northrop, MD, 286-2217

Other Information: Interested students should contact Dr. Anne Glowinski at 286-2217 in the Department of Psychiatry.

M85 855 INTRODUCTION TO EATING DISORDERS

Instructor(s): Kimberli McCallum, MD, 968-1900, ext. 111

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 9, 13, 21, 29, and 33

Students will learn the basics of assessment, participate in groups that focus on family education, gain experience in interdisciplinary psychiatric team work, attend case discussions with psychiatrists, and participate in treatment planning. Students will be able to describe core symptoms, recommend treatment options, and discuss the medical, nutritional, and psychiatric components of treatment.

Student time distribution: Inpatient 80%, Day Program 10%, Conferences/Lectures 10%; Primary Care 20%, Subspecialty Care 80%

Major teaching responsibility: Kimberli McCallum, MD

Patients seen/weekly: 5

On call/weekend responsibility: Second Saturday of each month

Location: 231 W. Lockwood Ave., Suite 201, St. Louis, MO 63119

Elective Contact: Kimberli McCallum, MD, 968-1900 ext. 111

Other Information: Students report to Dr. McCallum's office, 231 W. Lockwood Ave., Suite 201, St. Louis, MO 63119, 9:00 a.m. first day of elective.

M85 870 PSYCHIATRIC ONCOLOGY

Instructor(s): Monica Bishop, MD 362-2469

Enrollment limit per period: 3

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This elective will provide additional training related to consultation-liaison psychiatry with a special emphasis on caring for patients with cancer. The Institute of Medicine has identified the need to increase the availability of psychiatric services in the setting of cancer treatment, and this elective will allow students to gain additional experience working with inpatients and outpatients receiving treatment at Siteman Cancer Center. This elective will allow students to learn about the management of end of life issues, and experience the satisfaction of providing comfort to patients and families via psychotherapy and pharmacology. Opportunities also exist to focus

on specific conditions, such as gynecological cancers. Dr. Bishop and Marty Clarke, PhD, PA-C will directly supervise students providing a unique opportunity for individualized teaching and autonomy.

Student time distribution: Inpatient 60%, Outpatient, 30%,
Conferences/Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Monica Bishop, MD, (coursemaster)
and Marty Clarke, PhD, PA-C

Patients seen/weekly: 12

On call/weekend responsibility: None

Location: Center for Outpatient Health (COH), Suite 441

Elective Contact: Stefanie Breuer, 362-8251

Other Information: Students should contact Stefanie Breuer, 362-8251, prior to the first day to coordinate meeting time/place.

M85 880 SCHIZOPHRENIA PRECURSORS & PRODROMAL STATES

Instructor(s): Angela M. Reiersen, MD, 747-6793

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This is an opportunity for trainees to gain experience in the evaluation of children, adolescents, and young adults with symptoms suggestive of a schizophrenia prodrome. The rotation would center around the "First Contact Assessment Service", which evaluates patients who show characteristics suggestive of prodromal schizophrenia. Since the full symptoms of schizophrenia are often preceded by a wide range of childhood behavioral & developmental abnormalities, this rotation would also help trainees integrate information regarding the continuity between childhood development and adult psychopathology. Trainee would observe all aspects of First Contact evaluations (including semi-structured diagnostic interviews & cognitive testing), participate in multidisciplinary case conferences discussing new evaluation cases, and observe follow-up clinic visits involving patients with psychotic and/or neurodevelopmental disorders. Trainee would also be required to write a literature review on a topic relevant to the rotation.

Student time distribution: Outpatient 50%, Conferences/Lectures 50%; Subspecialty Care 100%

Major teaching responsibility: Coursemaster and/or psychiatry attending

Patients seen/weekly: 4

On call/weekend responsibility: None

Location: Dr. Reiersen's office, Suite 1153-Room B, East Building and the Washington University Child and Adolescent Psychiatry Clinic at 24 S. Kingshighway (Montclair Building).

Elective Contact: Angela M. Reiersen, MD, 747-6793, reiersea@wustl.edu

Other Information: Students report to Dr. Reiersen's office, Suite 1153-Room B, East Building, 9:30 a.m. first day of elective. Contact instructor prior to rotation to confirm schedule for first day.

M85 889 INTERVENTIONAL PSYCHIATRY

Instructor(s): Charles Conway, MD; Donald Bohnencamp, MD.; Pilar Cristancho, MD, Nuri Farber, MD; Michael Jarvis, PhD, MD; Yvette Sheline MD; Dragan Svrakic PhD, MD; Charles Zorumski MD and ECT staff

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Interventional Psychiatry involves the application of ECT (Electroconvulsive Therapy), rTMS (Repetitive Transcranial Magnetic Stimulation) and VNS (Vagus Nerve Stimulation) in the treatment of medication-resistant psychiatric illness. The student will participate in the evaluations of patients referred to the Treatment Resistant Depression Clinic supervised by Dr. Charles Conway. The student will be involved in the neuropsychiatric assessment of patients referred for ECT. In addition, the student will receive training in the application of ECT and in the clinical management of patients receiving inpatient and outpatient ECT. As cases become available, the student will be involved in rTMS and VNS evaluations and treatment. The student will be encouraged to review appropriate literature and make clinically relevant case-oriented presentations.

The student will be expected to write a review of a self-selected clinic topic relevant to interventional psychiatry.

As advances in the field occur, the rotation may also involve exposure to individuals receiving other modalities of intervention, including deep brain stimulation (DBS) and magnetic seizure therapy (MST).

Student time distribution: Inpatient 70%, Outpatient 20%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Charles Conway, MD

Patients seen/weekly: 20

On call/weekend responsibility: None

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Charles Conway, MD, 362-1816

Other Information: Students should call Cindy Bander 362-1816 prior to scheduling the elective.

Research — Psychiatry

(M85 900)

Andrey Anokhin, PhD, Central Institute for the Deaf (CID) Building, Suite 1, 660 S. Euclid Ave, 286-2201, andrey@wustl.edu. Genetics of the brain, behavior and psychopathology. This research elective is intended for students interested in cognitive neuroscience, biological psychology, psychophysiology, and behavior genetics in relation to psychopathology. Dr. Anokhin's laboratory is investigating relationships between genes, brain, and behavior in order to better understand complex etiology of mental disorders. Our main focus is on "externalizing" spectrum of psychopathology characterized by deficits in inhibitory self-regulation including ADHD, conduct disorder, and addictive behaviors. We are particularly interested in

the intermediate phenotypes, or “endophenotypes”, mediating genetic risk for addiction such as impulsivity, risk taking, and abnormal affective processing of social-emotional information. In our laboratory-based studies with human volunteers, including twins, we investigate individual differences in brain activity using the recording of brain oscillation (event-related brain potentials, or ERPs) during the performance of different behavioral tasks. A subsample of our twin subjects also undergoes functional magnetic resonance imaging (fMRI) scanning. Other assessments used in the lab include psychiatric diagnostic interviews, personality questionnaires, neuropsychological tests, and collection of DNA samples. For example, an ongoing longitudinal study of adolescent twins explores developmental trajectories and genetic determinants of brain activity related to inhibitory control of behavior and processing of emotional information in order to identify prospective predictors of substance abuse and associated behavioral problems. Another twin study investigates the consequences of heavy drinking during adolescence by comparing neurocognitive functioning in twins who are discordant for heavy drinking. Interested students will be able to learn a variety of methods used in these studies, such as the recording and analysis of brain oscillations, event-related neural dynamics, startle response, and autonomic measures, administration of neuropsychological and behavioral tests, and statistical analysis of data. Format of this research elective may include: (1) directed reading; (2) participation in laboratory experiments involving human subjects; (3) analysis of existing data from various research projects; (4) designing and piloting new behavioral tests and ERP experiments. Qualifications: Reliability and responsibility, ability to commit specified amount of time per week and work on schedule which can be negotiated on an individual basis, and good computer skills.

Deanna M Barch, PhD, 6612 Renard Hospital, 747-2160. Cognitive and Affective Neuroscience of Schizophrenia and Depression. Students may participate in the conduct of clinical studies of schizophrenia and depression. Involvement in clinical studies can include training and experience in interviewing psychiatric patients,

or gaining experience in the techniques of assessing cognitive and emotional function using behavioral and brain imaging methods.

Laura Jean Bierut, MD, Maternity Building, 362-2544. This research elective will focus on analyzing data from high-risk studies of smoking and other addictions. Students will have the opportunity to examine genetic and environmental factors that place some at risk for developing nicotine, alcohol and other substance dependence and protect others from the development of these disorders.

Kevin J. Black, MD, 4525 Scott Ave, Room 2106, 362-5041, E-mail: Kevin@wustl.edu. Students will participate in ongoing studies of brain imaging, movement disorders or neuropsychiatric illnesses. Degree of participation will relate to the student's available research time, skills, and interest. See www.nil.wustl.edu/labs/kevin for examples of past research.

Alison Goate, DPhil., 9th Floor, BJH – 1H Building, 362-8691. Genetic studies of Alzheimer's disease. Studies can involve laboratory-based projects on the genetics or cell biology of Alzheimer's disease or clinical studies involving the collection of data through telephone or personal interview of individuals with a family history of dementia.

Ginger E. Nicol, MD, 4412 Renard Building, 362-5939. Clinical research concerning metabolism and the regulation of weight and body composition in persons with mental illness, particularly during exposure to psychotropic medications. Additional projects include 1) participation in the conduct and interpretation of results from gold standard metabolic assessments in mentally ill individuals within the context of a clinical trial 2) participation in clinical studies testing the effectiveness of behavioral and medical interventions for weight loss in youth and adults 3) learning how clinical and administrative data can be used to characterize and examine psychotropic prescribing and metabolic monitoring trends in antipsychotic-treated individuals 4) learning to evaluate the cost effectiveness of various clinical approaches to the management of weight problems and metabolic risk conditions in mentally ill individuals using decision analytic

techniques, and 5) participation in the development, implementation and effectiveness testing of patient safety and quality improvement (PSQI) interventions in mentally ill obese patients in Wash U outpatient psychiatry clinic settings. This elective offers the student a broad exposure to clinical research protocols, including protocols in adults and children. Students will have an opportunity to focus on a particular project of interest.

Rumi Kato Price, PhD, MPE*, Arpana Agrawal, PhD, Kathleen B. Bucholz, PhD, MPE, Li-Shiun Chen, MD, Anne Glowinski, MD, MPE, Rick Grucza, PhD, MPE, Alexandre Todorov, PhD (*Concentration program director). 4560 Clayton Rd., CID Bldg. 286-2282. Courses are held at the Institute for Public Health TAB Bld. The Psychiatric and Behavioral Sciences Concentration, an integral component of the Master of Population Health Sciences (MPHS) accredited in WUSM and taught by Psychiatry faculty members, provides clinician-researchers, postdoctoral fellows, and advanced medical and other graduate students with strong conceptual and methodological skills required for the design, advanced analysis and interpretation of epidemiological and treatment-effectiveness studies. With an emphasis on a clinical approach to psychiatric and addiction health research, didactic training focuses on in-depth understanding of disease phenotypes, pathobiology and developmental trajectories; understanding the underlying biological and environmental factors and their interactions; understanding the role of psychiatric epidemiology in disease prevention and intervention; and evaluating psychiatric clinical treatment and management programs of psychopathology. A student has an option of applying for a MPHS degree program or taking appropriate courses as part of his/her training or academic program. A total of 18 credits are needed for this Concentration for a matriculated student. Currently available courses include: (1) Epidemiology of Psychiatric Disorders across the Lifespan (M19-561; Course master, A. Glowinski, MD; 3 credits): This course takes an integrated developmental approach to the epidemiology, etiology and evolving nosology of psychiatric disorders. (2) Addictions and Addictive Behaviors (M19-562; Course

maser, R. Grucza; 3 credits): This course provides an overview of the principles of substance-related addictions and the processes and mechanisms that underlie addiction. Students are introduced to the epidemiology and developmental course of addiction, risk and protective influences that act on the course of addiction and its adverse health consequences. (3) Methods for Studying Global Burden of Diseases (M19-565; Course master, RK Price; 1 credit): This short course provides an overview of the current methods for studying global burden of medical and psychiatric diseases. In addition to understanding and applying the current methodology used in studying global burden of diseases, students will learn the updated knowledge of communicable and non-communicable chronic diseases including psychiatric and addiction diseases. (4) Psychiatric Genetic Epidemiology (Course master, A Todorov; 1 credit): This short course provides an introduction to psychiatric genetic epidemiology, with an emphasis on the relevant methodology, study design and interpretation. This course assumes only basic knowledge of genetics or statistics.

Rumi Kato Price, PhD, MPE, 4560 Clayton Rd., CID Bldg. 286-2282.

The students and postdoctoral fellows will work closely with Dr. Price and her collaborators on ongoing research projects in substance abuse, psychiatric epidemiology, and community research. The current projects include: a longitudinal study assessing the impact of war experience and trauma spectrum disorder (posttraumatic stress disorder (PTSD), mild-traumatic brain injury (mTBI), substance abuse) and health services utilization on National Guard service members and their families after service members deployment to Iraq and Afghanistan; prevention and intervention programs on this and other veteran populations; a 30-year longitudinal study of the impact of drug abuse and war trauma, PTSD and suicidality; epidemiology and human-genome epidemiology studies focusing on models for substance abuse and psychiatric disorder comorbidity using private and public domain large databases; and, epidemiologic applications of highly-flexible computational techniques to improve predictive modeling and to identify interactions of risk and protective factors.

Other opportunities include working with associated faculty members through the pre- and post-doctoral training for NIDA T32 drug abuse epidemiology, services and prevention program; working with WUSM investigators with a joint appointment with the VA St. Louis Health Care System, Health Services Research & Development Group.

NOTE TO STUDENTS: There are always a number of research projects in the Department of Psychiatry. For additional information contact Dr. Rubin, 362-2462.

Faculty — Psychiatry: See Appendix

Department of Radiation Oncology

The **Department of Radiation Oncology** was created on July 1, 2001, having been part of the Mallinckrodt Institute of Radiology for many decades. The department has a broad academic program that focuses on excellence in patient care and the development of new

treatment paradigms; innovative research in each of the four divisions of clinical, physics, biology and bioinformatics; and teaching for residents in radiation oncology, medical students and allied health personnel. The department is one of the largest, most academically balanced and best equipped in the country, and is responsible for all radiation therapy procedures at Washington University Medical Center. Our faculty has gained international recognition for innovative technological advances in physics and treatment planning, biological research, computer applications and clinical investigation.

Milestones

- demonstration of a hypoxic subpopulation in tumors in vivo
- demonstrated the importance of the cell cycle in the sensitivity to ionizing radiation
- customized (Cerrobend) shielding system to protect normal tissues during irradiation
- design and construction of the first small dedicated
- customized (Cerrobend) shielding system to protect normal tissues during irradiation
- design and construction of the first small dedicated computer for radiation therapy treatment planning in collaboration with Varian Associates and NCI, design and construction of the first generation of high-energy, dual-modality, multiple-energies linear accelerator (Clinac 35)
- development of three-dimensional radiation therapy treatment planning and delivery systems
- clinical applications of 3-D conformal and intensity-modulated radiation therapy
- use of multiple imaging modalities in treatment planning in customized (Cerrobend) shielding system to protect normal tissues during irradiation
- radiation therapy, including CT, PET and MRI scanning
- implementation of novel respiratory gating algorithms
- development of biomarkers of DNA repair capacity of tumors

demonstrated the use of Proton Therapy

The Department of Radiation Oncology currently occupies a large, attractive and convenient clinical facility on the lower level of the Center for Advanced Medicine. The clinical facilities include nine linear accelerator rooms, four simulator rooms and a brachytherapy center with two high dose-rate treatment units. Furthermore, the facility houses the latest Gamma Knife Perfexion unit. We have advanced treatment planning computer systems for 3-D conformal and intensity-modulated radiation therapy. We have four linear accelerators with on-board CT imaging capability. The brachytherapy suite includes capability for high dose-rate remote afterloading and for image-guided permanent prostate seed implants. Interstitial and external hyperthermia treatments are also available. We recently implemented a new type of proton treatment facility, using a miniaturized cyclotron mounted on a gantry, and also recently implemented the world's first MRI-guided radiation therapy treatment program.

The Physics faculty have research laboratories and offices on the fourth floor of the Clinical Sciences Research Building plus designated areas adjacent to the clinical facility in the CAM building. The Radiation Biology laboratory and faculty offices are housed at the 4511 Forest Park Building, where there has been a significant expansion of biology research space.

For more information

Please visit the [Department of Radiation Oncology website](#) for more information.

MD Courses — Radiation

Oncology

Third year

M90 740 RADIATION ONCOLOGY CLERKSHIP

Instructor: Jeffrey Olsen, MD, 362-8567

The four-week clerkship in radiation oncology will provide students with an introduction to the evaluation and management of a broad range of patients referred for consultation regarding radiation therapy. Clerkship activities will take place within the Barnes-Jewish Hospital/Siteman Cancer Center complex, Christian Hospital, Barnes-Jewish West County Hospital and Barnes-Jewish South County Hospital. Students will conduct inpatient and outpatient evaluations under the supervision of radiation oncology department residents and faculty. Students will also attend and participate in regularly scheduled departmental conferences at noon Monday through Wednesday and 8 a.m. on Friday. Students will also have the opportunity to attend the appropriate multidisciplinary conferences (such as pediatric neuro-oncology, cardiothoracic oncology, lymphoma, GYN oncology and ENT) pertaining to their rotation schedule. Students will be given the opportunity to make a teaching case presentation and will meet weekly with the Coursemaster and/or the department Chairman for small-group case discussions. Instructional materials are available for students on the rotation. (Students are NOT expected to purchase any curricular materials for the clerkship.) Student performance will be evaluated by faculty members who supervise the student over the course of the four-week clerkship.

Fourth year

Elective

M90 840 CLINICAL RADIATION ONCOLOGY

Instructor(s): Joseph Simpson, MD, PhD, 362-8567

Enrollment limit per period: 3

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The clinical division offers an elective with emphasis on the evaluation, planning of and administration of radiation therapy in patients with malignant tumors. The students have the opportunity to enhance their knowledge on the natural history, pathological, and biological features of cancer and to sharpen their clinical skills participating in the management of these patients.

Student time distribution: Inpatient 7%, Outpatient 78%, Conferences/ Lectures 15%; Subspecialty Care 100%

Major teaching responsibility: Attendings, residents and staff

Patients seen/weekly: 20-35 per physician

On call/weekend responsibility: None

Location: Center for Advanced Medicine, Lower Level

Elective Contact: Joseph Simpson, MD, PhD or Gwendolyn Jackson, Executive Secretary, 362-8567

Other Information: Students should meet the Chief Resident in the Department of Radiation Oncology in the Siteman Cancer Center on the lower level of the CAM Building.

Research — Radiation Oncology

(M90 900)

Dennis Hallahan, MD, 4511 Forest Park, Room 202, 362-9700. (1)

Radiation Sensitizers: The overarching hypothesis of this research is that interruption of the signaling will improve cancer response to therapy. Inhibitors of these molecular targets are presently in development at pharmaceutical companies. We study the efficacy of

specific inhibitors when combined with radiotherapy in mouse models of human cancer. (2) Radiation Protection of normal tissue: We study the mechanisms of cell death in normal tissues during cancer therapy. In particular, we have found that a signal transduction pathway required for radiation induced apoptosis in normal tissues involves glycogen synthase kinase 3beta. GSK-3beta regulates the apoptosis machinery within normal tissues. Cancer cells do not require GSK-3beta or apoptotic machinery to respond to cancer therapy. In contrast, injuries in normal tissues such as the brain and intestine require GSK-3 signaling. We have found that inhibitors of GSK-3beta prevent injury in normal tissues. These inhibitors prevent injury to the brain and improve neurocognitive function and reduce injury in the intestine of animal models. Presently, we are studying the mechanisms by which GSK-3 inhibition prevents program cell death in normal tissues. We are also studying new drugs intended for clinical trials. (3) Targeted Drug Delivery to Cancer: We have identified several peptides and over a dozen monoclonal antibodies that bind to cancer following treatment with ionizing radiation. Using this strategy, drug delivery can be targeted specifically to cancer and guided by use of a beam of radiation therapy. These targeting ligands have been conjugated to the drug delivery systems, including liposomes and nanoparticles to improve the specificity of drug delivery of cancer. We collaborate extensively with pharmaceutical companies to target drug delivery to mouse models of human cancer. (4) Immunotherapy: We characterize the immunological response of antibodies targeted by radiation. These monoclonal antibodies bind to radiation inducible neo-antigens. These antibodies can activate immune response. In addition, therapeutic agents are conjugated to the antibodies to provide cancer specific drug delivery. Identification of radiation inducible neo-antigens involves the co-precipitation of antigens from cancer by use of monoclonal antibodies. Antigens are then identified by use of proteomic technology. Humanization of these mouse monoclonal antibodies is performed with the goal of bringing antibodies into clinical trials.

Jeff Michalski, MD, Radiation Oncology, Clinical Division, 362-8566.

Broad range of opportunities for investigation in: (1) prognostic factors and therapy outcome in a variety of patients with cancer; (2) three-dimensional treatment conformal and intensity-modulated radiation therapy in the treatment of patients with head and neck, lung, pancreas, rectal or prostate cancer.

Faculty — Radiation Oncology: See Appendix

Department of Radiology

The Edward Mallinckrodt Institute of Radiology (more commonly known as Mallinckrodt Institute of Radiology or MIR) serves as the [Department of Radiology](#) for [Washington University in St. Louis School of Medicine](#), helping to guide the consulting physician in the discovery, treatment and, ultimately, the healing of disease.

Established in 1930, MIR is one of the largest and most scientifically sophisticated radiology centers worldwide.

Internationally recognized for its groundbreaking research, the Institute continues to pioneer new radiological techniques for better patient care.

Milestones

- development of the first diagnostic test for gallbladder disease
- design and construction of the first cross-sectional X-ray laminagraph
- collaboration on design and installation of the first cyclotron located in a U.S. medical center
- development of positron emission tomography (PET)
- installation of one of the world's first computed tomography (CT) and magnetic resonance (MR) scanners
- interfacing of a minicomputer with a gamma camera, improving accuracy and efficiency of nuclear medicine procedures
- establishment of the first mobile mammography van west of the Mississippi River
- integration of CT and MR scans with three-dimensional technology
application of organic chemistry to the preparation of radiopharmaceuticals used in medical imaging
- measurement of cerebral blood flow and metabolism
- establishment of one of the largest, most comprehensive interventional radiology services in the United States
- application of PET for measuring metabolic activity in relation to cardiac blood flow
- early adoption of sequential PET/MR imaging

The Institute occupies more than 400,000 total square feet, comprising its own 12-story building, with satellite facilities in Barnes-Jewish and St. Louis Children's hospitals; the Clinical Sciences Research and East buildings; the Scott Avenue Imaging Center; the Center for Advanced Medicine; and the Knight Emergency and Trauma Center; and the South County Siteman Cancer Center. The department provides diagnostic radiology, nuclear medicine and radiation physics services for all hospitals in the Washington University Medical Center, Barnes-Jewish West County and Barnes-Jewish St. Peters hospitals. The Institute provides diagnostic radiology for the Washington University Orthopedics and Barnes-

Jewish Hospital Outpatient Orthopedic center.

MIR clinical facilities are on the second floor of the Institute (general diagnostic radiology); third floor (neuroradiology); fourth floor (gastrointestinal and genitourinary radiology, and ultrasonography); and the fifth floor (MRI). A comprehensive interventional radiology center occupies the eighth floor. Nuclear medicine is on the ninth floor of the Barnes-Jewish Hospital West Pavilion. Orthopedic imaging and musculoskeletal radiology services are on the sixth floor of the Center for Advanced Medicine. The Breast Health Center, on the fifth floor of the Center for Advanced Medicine, is a multidisciplinary facility that provides a full range of breast imaging services and interventional procedures. In the north wing of St. Louis Children's Hospital is a complete pediatric radiology facility, offering ultrasound, nuclear medicine, CT and MRI and interventional radiology.

The Institute has 102 examination rooms used for diagnostic radiology. Clinical and research equipment includes two PET/CT scanners, 13 CT scanners, two PET scanners, 1 PET/MR scanner, 15 MR scanners (including an 11.7-Tesla research scanner), 12 high-end ultrasound machines plus seven portable units, nine interventional radiology systems, five digital chest units, 10 computer radiography units, two neurointerventional radiology systems and six mammography units. In addition, as part of the department's community outreach effort, the Institute cosponsors with the Alvin J. Siteman Cancer Center a mobile mammography van that provides screening services at corporate and public sites in the St. Louis area.

MIR has approximately 200,000 square feet devoted to research, with facilities in the Clinical Sciences Research Building (radiological sciences), in the East Building (electronic radiology), in the Scott Avenue Imaging Center (neurological PET, molecular pharmacology, biomedical MR imaging, optical imaging and cardiovascular imaging), and in the Center for Clinical Imaging Research (a bioimaging facility for basic and translational inpatient and outpatient clinical research).

Administrative, teaching and support functions occupy the sixth floor and the ninth through the twelfth floors of the Institute.

For more information

Please visit the [Department of Radiology website](#) for more information.

MD Courses — Radiology

Michelle Miller-Thomas, MD, Coordinator of Radiology Medical Student Education; 362-5949, thomasm@mir.wustl.edu

Second year

Course master: Michelle Miller-Thomas, MD, 362-5949, thomasm@mir.wustl.edu

Eight hours of lecture are devoted to an introduction to radiology. The majority of the course is devoted to diagnostic radiology, including conventional radiography, computed tomography, ultrasound, nuclear medicine and magnetic resonance imaging. The economics of imaging and radiation biology are introduced. The course also includes review of individual teaching file cases at small group sessions and online.

Third year

M90 701 GENERAL RADIOLOGY CLERKSHIP

Coursemasters: Matthew Parsons, MD, 362-5950, parsonsm@mir.wustl.edu, Michael Friedman, MD, 362-2978, friedmanm@mir.wustl.edu

Contact Person: Melissa Varner, Radiology Staff Library, 362-5139,
varnerm@mir.wustl.edu

This four-week introductory radiology elective will be offered to third-year medical students. Each student will rotate through four of the following radiology services: Emergency Department, Pediatric Radiology, Cardiothoracic Imaging, Breast Imaging, Abdominal Imaging, Musculoskeletal Radiology, Neuroradiology, Nuclear Medicine and Interventional Radiology. The primary course objective is to familiarize students with the scope of diagnostic and interventional radiology, including the consulting role radiologists provide to primary care and specialty providers, risks/benefits and cost effectiveness of radiologic examinations, and guidelines for ordering common studies.

Students will report each morning for a service conference. These conferences are both case-based and didactic. Students will have a predominantly observational role in conferences, as they are principally designed for radiology resident teaching. Students will then spend mornings in the reading rooms with residents, fellows and attending radiology faculty. This time will consist of interactive teaching based on daily clinical cases. Each student will keep a log of cases they see to facilitate reading and to provide a vehicle for follow-up of interesting cases. Students will present one case of interest to their peers each Friday at 3 p.m. during the clerkship. These brief (5 to 10 minutes) presentations will be evaluated by a resident or attending radiologist.

Monday through Thursday at 3 p.m., students will meet with a designated radiology resident who will present either a didactic or case-based lecture appropriate for third-year medical student teaching.

Students will select two of their four presented cases for submission to a digital teaching file. Reading lists, references and textbooks will be provided. The first and final days of the elective are mandatory. No high honors will be awarded if a student is absent for more than

five days of the rotation.

The course will accommodate four to 10 students each month. The course will not be offered if enrollment falls below four.

Fourth year

Electives

M90 801 GENERAL RADIOLOGY

Instructor(s): Michael Friedman, MD, 362-2978 and Matthew Parsons, MD, 362-5950

Enrollment limit per period: 5

Valid start weeks for 4-week blocks are: Weeks 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This four week introductory radiology elective allows students to rotate through four of the following radiology services; Emergency Radiology, Mammography, Pediatrics, Chest, Abdominal Imaging, Musculoskeletal, Neuroradiology, Interventional Radiology and Nuclear Medicine. The primary course objective is to familiarize students with the scope of diagnostic and interventional radiology including the consulting role radiologists provide to primary care and specialty providers, risks/benefits and cost effectiveness of radiologic examinations, and guidelines for ordering common studies as well as specific disease entities and their radiologic appearance and work-up.

Students spend the majority of the day in the radiology reading rooms with residents, fellows, and faculty for interactive teaching based on daily clinical cases. Students will attend morning case-based conferences and noon didactic conferences with the residents. The students will have an observational role in conferences and in the clinical setting. At 3:00 p.m., students will convene with a radiology resident for a didactic lecture on a scheduled topic in radiology. An image-based quiz will be given in the final week of the elective covering topics presented in the daily student didactic lectures. Fridays at 3:00 p.m., students present an

interesting case from the week in Power-Point format. Two Power-Point presentations will be submitted at the end of the rotation for grading.

Students will keep a logbook of interesting cases seen daily in order to provide a foundation for further reading, as well as an opportunity for clinical or radiologic follow up of cases seen in the reading room. This log will be submitted to the Coursemaster at the end of the elective.

Students taking this elective for a second time who have a special interest in a particular area of radiology pertinent to their intended career choice may tailor their experience to focus on one or more services if desired (i.e. 4th year student going into neurosurgery may spend up to 2 full weeks in neuroradiology). This will be considered on a case by case basis by the Coursemaster. These returning students will be expected to keep a log of cases seen but will be exempt from attending the daily afternoon teaching sessions. Returning 4th year students will be required to present 4 weekly presentations with the other students in the course and take the end of rotation quiz. Please see the separate course listings for Nuclear Medicine and Interventional Radiology.

Reading lists, references and text books will be provided. The first and final days of the elective are mandatory. Grades are based on daily attendance, logbook, end of rotation quiz, and Power-Point presentations. No honors will be awarded if a student is absent for more than 5 days of the rotation.

Student time distribution: Inpatient 40%, Outpatient 30%,
Conferences/ Lectures 30%; Subspecialty Care 100%

Major teaching responsibility: Radiology Faculty, Fellows, and Residents

Patients seen/weekly: N/A

On call/weekend responsibility: None

Location: Radiology Staff Library (First floor Mallinckrodt Tower, Room 117)

Elective Contact: Missi Varner, 362-5139

Other Information: Students meet in Mini-Scarpellino, 1st Floor Mallinckrodt Institute of Radiology Building, 8:00 a.m. first day of

elective.

M90 820 CLINICAL NUCLEAR MEDICINE

Instructor(s): Akash Sharma, MD, 362-2809

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This four-week elective will be offered to third and fourth year medical students. The clinical service in Nuclear Medicine is divided into five subsections: outpatient general Nuclear Medicine, inpatient general Nuclear Medicine, PET, Pediatric, and Cardiac Nuclear Medicine. The recommended schedule will be to spend week 1 and 3 on the North Campus, where the emphasis will be on outpatient general and Pediatric Nuclear Medicine with some focused time spent in the PET reading room. Week 2 will be split between the inpatient general Nuclear Medicine and Cardiac services. Week 4 schedule will be determined after a preferences discussion with the student.

The primary objective of this rotation is to provide exposure to the full range of clinical nuclear medicine. Under direct supervision of the clinical staff, the student will be able to participate in the planning and interpreting of imaging studies for patients referred to the Division. Opportunity also exists to explore instrumentation techniques, including dedicated computer applications in Nuclear Medicine.

In addition to the clinical experience, the student will attend the daily morning conference, held in the Miller Conference Room in 956 West Pavilion, from 8:30-9:30 a.m. From 12-1:00 p.m., the student will be excused to attend the daily department-wide conference. The student is not expected to do any formal presentations but may participate by preparing a case for the Friday follow-up conference. The student will also be excused to attend any conferences within the Department of Radiology, e.g. the 3:00 p.m. medical student didactic lectures, if desired.

Students may keep a log of interesting cases to use as a guide for additional reading, or for discussions with the Coursemaster or the

other staff attendings.

A textbook will be provided. The first and final days of the elective are mandatory. No honors will be awarded if a student is absent for more than 5 days of the rotation.

Student time distribution: Inpatient 25%, Outpatient 50%,

Conferences/ Lectures 25%; Subspecialty Care 100%

Major teaching responsibility: Attendings, fellows and residents

Patients seen/weekly: ~200

On call/weekend responsibility: None

Location: 956 West Pavilion

Elective Contact: Akash Sharma, M.D., 362-2809

Other Information: Students report to 956 West Pavilion, 8:00 a.m. first day of elective.

M90 830 INTERVENTIONAL RADIOLOGY

Instructor(s): Robert Pallow, MD, 362-7877

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41

Students will be exposed to all clinical and procedural aspects of interventional radiology including: patient evaluation and consultation, preparation of patients for procedures, performance of a wide range of vascular and non-vascular procedures, post-procedure patient management, and longitudinal patient follow-up.

Students will actively participate in interventional procedures.

Students will attend the departmental noon conference (daily) and section conferences including didactic lectures, morbidity and mortality conference, and case conferences (3-4 times per week).

Student time distribution: Inpatient 60%, Outpatient 30%,

Conferences 10%

Major teaching responsibility: Attending Interventional radiology physicians will provide the majority of teaching. Fellows and residents will provide additional teaching.

Patients seen/weekly: Approximately 150 patients per week are seen in consultation or for procedures in the south campus Interventional facility

On call/weekend responsibility: None

Location: Mallinckrodt Institute of Radiology

Elective Contact: Robert Pallow, MD, 362-7877

Other Information: Students should contact Dr. Pallow to discuss meeting location and time for first day of elective.

Research — Radiology

(M90 900)

Interested students should contact the appropriate individual in each division regarding the types of research projects available.

Tom Conturo, MD, PhD, 2nd Floor East Building, Rm 2120, 362-8421.

Magnetic resonance (MR) imaging is a noninvasive means of providing images of the human body at high spatial resolution and contrast sensitivity. The contrast can be manipulated to depend on different properties of tissue water, enabling the study of a variety of biological processes. In some cases, endogenous or exogenous paramagnetic MR contrast agents are used to alter the MRI contrast by perturbing the tissue water environment. Recently, new MRI hardware has also enabled techniques having high temporal resolution. Using the unique contrast properties of MRI and the higher spatial/temporal resolution, non-invasive techniques can be devised to study neuronal activity, tissue perfusion, water mobility (diffusion), and neuronal fiber pathways in the human brain. The goals of Dr. Conturo's research lab are to develop and apply MR imaging techniques for quantitative imaging of cerebral perfusion,

brain function, water diffusion, and neuronal fiber pathways. These techniques utilize the MR signal effects of exogenous bolus-injected contrast agents, endogenous hemoglobin, and microscopic water diffusion. Long-term goals are to apply these methodologies toward imaging and understanding tissue structure, function, and physiology in the brain and other organs in normal and abnormal conditions. The approaches that are used in this laboratory cover a broad range of areas, including MRI physics, MRI pulse sequence development, theoretical derivations, computer simulations, image-processing, computer graphics, custom contrast agent design and synthesis, phantom studies, animal models, human studies, clinical patient studies, and comparison with other imaging modalities.

Farrokh Dehdashti, MD, Nuclear Medicine PET Facility, 10th Floor Mallinckrodt Institute of Radiology, 362-1474. Positron emission tomography (PET) is an imaging technique that produces images reflective of biochemical processes of normal and abnormal tissues. PET is complementary to anatomic imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI). The ability of PET to quantify fundamental processes, such as blood flow, oxygen metabolism, glucose metabolism, and receptor density, makes this technique very desirable to both investigators and clinicians. Dr. Dehdashti's research utilizes the conventional PET radiopharmaceutical, F-18 fluorodeoxyglucose (FDG), as well as a variety of unique PET radiopharmaceuticals such as Cu-64-diacetyl-bis[N4-methylthiosemicarbazone (Cu-64 ATSM), a hypoxic imaging tracer, and 18F-labeled 3'-deoxy-3'-fluorothymidine (FLT), a proliferative imaging tracer. Below is a partial list of the research projects relating to PET: (1) PET assessment of progesterone receptors in patients with newly diagnosed breast cancer with a new progesterone-receptor imaging tracer, 21-[18F]Fluoro-16,17-[(R)-1'-furylmethylidene)dioxy]-19-norpregn-4-ene-3,20 dione (FFNP); (2) assessment of cell proliferation with a new tracer, N-(4-(6,7-dimethoxy-3,4-dihydroisoquinolin-2(1H)-yl)butyl)-2 (2-[18F]-fluoroethoxy)-5-methylbenzamide ([18F]3c), also called [18F]ISO-1 by imaging sigma receptors in patients with various solid cancers; (3)

PET assessment of tumor hypoxia using ^{64}Cu -ATSM in patients with cervical cancer (the major goal of this project is to predict prognosis); (4) FDG-PET/CT study in cervical cancer to evaluate the change in tumor FDG heterogeneity and SUVmax during chemoradiation and whether these changes are predictive of response to therapy; (5) PET using ^{18}F]FHBG (9-[4-fluoro-3-hydroxymethyl-butyl]guanine), analog of Penciclovir, an acycloguanosine derivative and antiviral drug, for possible tracking of GvHD in patients who were prior recipients of unrelated allogeneic bone marrow transplant for any hematologic malignancy, (6), FLT-PET/CT to assess tumor cell proliferation in patient must have histologically or cytologically confirmed ER+ stage IV or metastatic invasive breast cancer.

Rob J. Gropler, MD, Room 1307 East Building, 747-3878.

Cardiovascular Imaging Research. The research in the Cardiovascular Imaging Laboratory is designed to better understand the relationship between myocardial perfusion, intermediary metabolism and mechanical function in both normal and abnormal cardiac states. The research involves the integration of several imaging techniques with diverse strengths such as PET, MRI, CT and echocardiography. The success of the research requires several paths of investigation to be pursued in parallel. For example, in order to image the biologic processes of interest requires continued technical developments for each of the imaging methods listed above. There are ongoing efforts to permit more accurate PET measurements of myocardial substrate metabolism. They include the development of novel tracers of extracted substrates, the development of acquisition schemes to assess endogenous substrate metabolism, and the validation of mathematical approaches to correlate the tracer kinetics with the underlying metabolic processes. These studies are being pursued in small and large animal models and then in humans. Another example includes the current efforts to develop approaches to image the coronary arteries non-invasively by MRI using novel contrast agents and acquisition schemes. In addition, techniques are being developed to permit MR guided interventions on the coronary arteries. This

undertaking includes the development of novel guide-wire tracking and catheter tracking schemes using both passive and active approaches. Finally, to permit assessments of myocardial oxygenation and thus, perfusion, techniques are being developed to permit BOLD imaging the myocardium. Another path of the research is to determine how this perfusional-metabolic-functional relation is altered by normal life changes and then determine how disease states alter the relationship. For example, both PET and echocardiography are being used to characterize the age and gender related changes on myocardial perfusion, substrate metabolism and function. To study the relationship in disease states, similar studies are being performed in patients with diabetes and obesity. A third path to determine the mechanisms responsible for these changes in this metabolic-functional relation and identify potential interventions that may reverse or ameliorate them. In this regard, similar imaging studies are being performed to determine the importance of nitric oxide and the PPAR α system in defining this metabolic-functional relation.

Stephen M. Moerlein, PharmD, PhD, 1st Floor East Building, 362-8466. Research interests lie in the general area of labeled tracer development for nuclear medicine imaging, especially positron-emission tomography (PET). Developmental effort begins with synthesis of target structures, preclinical screening that involves in vitro biochemistry and pharmacological testing, and ex vivo biodistribution studies in small animals. Promising tracers are then examined by in vivo imaging of animal subjects and tracer kinetic modeling. The final step in the transition of a radiochemical into a labeled drug takes into account radiation dosimetry, pharmaceutical quality, and the development of automated production and GMP production processes to streamline delivery to human subjects. Each of these aspects of radiopharmaceutical development are investigated, with a primary emphasis in novel agents for evaluation of pathological processes in neurology and oncology.

Marc Raichle, MD, 2nd Floor East Building, 362-6907. We use functional imaging techniques, both positron emission tomography

and functional magnetic resonance imaging, to study the normal organization of the human brain and the effect of selected diseases. The research focuses on both the methodology (imaging and experimental) and specific questions in cognitive neuroscience.

Faculty — Radiology: See Appendix

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 allows students opportunities to participate in the care of surgical patients, both in- and outpatient; spend time in the operating rooms; and attend seminars, teaching conferences and didactic sessions on a regular basis. In the fourth year, students may select “subinternship” electives within the Division of General Surgery, which includes a variety of general surgical specialties. In addition to the general surgery subinternships, electives are

available in pediatric surgery, transplant surgery, vascular surgery, cardiovascular and thoracic surgery, urologic surgery, and plastic and reconstructive surgery.

For more information

Please visit the [Department of Surgery website](#) for more information.

MD Courses — Surgery

Third year

M95 790 INTEGRATED SURGICAL DISCIPLINES CLERKSHIP

During the 12-week surgery clerkship, students are assigned to three four-week rotations, one of which is a required four-week general surgery rotation at Barnes-Jewish Hospital, with alternative rotation sites available at St. Louis Connect Care and the Veterans Administration Medical Center. In addition to the general surgery rotation, each student selects two four-week elective rotations from a variety of surgical specialties and/or related disciplines, such as critical care/anesthesia or musculoskeletal. The 12-week clerkship focuses on the diagnosis, care and management of surgical patients. The student is an active participant in the daily care of patients on each service and attends clinics, rounds, operating rooms, call nights and teaching conferences. Central to the 12-week clerkship are small-group didactic sessions with assigned faculty members and a lecture/workshop series that covers a wide range of surgical topics and specialties, as well as provides opportunity for practice of basic clinical skills in simulated settings.

Fourth year

There is ample opportunity for fourth-year students to participate in elective rotations within each division of the Department of Surgery. Many of the fourth-year surgery electives are structured to allow the student to participate as a "subintern," facilitating experiences in preoperative, intraoperative and postoperative patient management. Generally, the minimum duration of a fourth-year elective rotation in the Department of Surgery is four weeks. Research electives are also available.

Electives

M95 814 ACTING INTERNSHIP, TRAUMA SERVICE

Instructor(s): Stephen Eaton, MD; John Kirby, MD; Douglas Schuerer, MD; Robert Southard, MD; and Kareem Husain, MD Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 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. Note: If a student desires to work more closely with a "specific attending," he/she must make special arrangements with the faculty member prior to beginning this elective. If you have any questions regarding this notice, please call Doug Brown in the Surgical Education Office (362-8029).

Student time distribution: Inpatient 80%, Outpatient 10%, Conferences/ Lectures 10%; Primary Care 20%, Subspecialty Care 80%

Major teaching responsibility: Attendings, residents and fellows

Patients seen/weekly: 30

On call/weekend responsibility: Yes

Location: 1411 Queeny Tower

Elective Contact: Jo Ann Thaller, 362-5345

Other Information: This is NOT a “preceptor” elective. However, students may elect to make prior arrangements to work more closely with particular attendings on this service (based on availability).

M95 818 SURGICAL NIGHT FLOAT & ER SUBINTERNSHIP

Instructor(s): John Kirby, MD; and L. Michael Brunt, MD

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 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.

Student time distribution: Inpatient 50%, Outpatient 50%,

Conferences/ Lectures TBD; Primary Care 100%

Major teaching responsibility: John Kirby, M.D., and Surgical Residents

Patients seen/weekly: 20-30 each week

On call/weekend responsibility: No weekend call, rotation is nighttime based Tuesday through Friday for Floor two-week component and Tuesday, Wednesday, and Friday for ED two-week component

Location: ER

Elective Contact: Doug Brown, 362-8029

Other Information: Student should contact instructor prior to first day of elective.

M95 820 CARDIOTHORACIC SURGERY

Instructor(s): Sunil Prasad, MD; Michael Avidan, MBBCH; Umar Boston, MD; Stephen Broderick, MD; Traves Crabtree, MD; Ralph Damiano, MD; Charl De Wet, MD; Pirooz Eghtesady, MD, PhD; Dan Kreisel, MD, PhD; Sasha Krupnick, MD; Jennifer Lawton, MD; Bryan Meyers, MD; Marc Moon, MD; Michael K. Pasque, MD; G. Alexander Patterson, MD; Varun Puri, MD; Stephano Schena, MD; and Scott Silvestry, MD.

Enrollment limit per period: 3

Valid start weeks for 4-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, repair of congenital heart defects, 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 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.

Student time distribution: Inpatient 80%, Outpatient 10%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 20

On call/weekend responsibility: One in three, no weekend call

Location: 3106G Queeny Tower

Elective Contact: Hersh Maniar, M.D. (Secretary, Leslie Wiley at 362-7431)

Other Information: Students should contact Leslie Wiley at 362-7431 prior to the first day of elective. Students should report to 3106G Queeny Tower, 9:30 a.m. first day of elective.

M95 830 PLASTIC RECONSTRUCTIVE SURGERY

Instructor(s): Kamlesh Patel, MD

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 need to be approved prior to scheduling and confirming the research rotation. Student will perform a 10-15 minute case presentation.

Student time distribution: Inpatient 70%, Outpatient 20%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 12

On call/weekend responsibility: One day per week, one weekend per month.

Location: 11th Floor Northwest Tower

Elective Contact: Sue Grimm, 747-0541

Other Information: Sue will e-mail the student a schedule approximately 10 days before the start date. The student will meet with Dr. Patel @ 6:30 a.m. on the first day of the rotation unless other arrangements have been made.

M95 832 PLASTIC SURGERY EXTERNSHIP (Visiting Students Only)

Instructor(s): Kamlesh Patel, MD, 747-0541

Enrollment limit per period: Varies

Flexible start days for 3 to 4-week blocks are available beginning July 1, through December 31. Certain rotation dates/weeks may be limited depending on the number of students requesting rotations. Students rotate on four different Plastic Surgery Services for one week each to maximize exposure to all faculty. If the student has transportation, they will travel to Barnes West County office on two days. Services include: breast reconstruction, hand, nerve, cosmetic and general reconstruction. Participation in conferences is expected. Student will perform a 10-15 minute case presentation.

Student time distribution: Inpatient 70%, Outpatient 20%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings and residents

Patients seen/weekly: 12

On call/weekend responsibility: one day per week, one weekend per month

Location: 11th Floor Northwest Tower

Elective Contact: Sue Grimm, (314) 747-0541

Other Information: Sue will email the student a schedule approximately 10 days before the start date. The student will meet with Dr. Patel @ 6:30 a.m. on the first day of the rotation unless other arrangements have been made.

M95 850 UROLOGY

Instructor(s): Gerald Andriole, MD, 362-8212

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 non-surgical aspects of patient care on the private and ward services under the supervision of the attending staff and house staff. Clinical conferences are held three days per week.

Student time distribution: Inpatient 65%, Outpatient 25%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Several attendings, chief resident and resident staff

Patients seen/weekly: >20

On call/weekend responsibility: One day per week

Location: Wohl Hospital

Elective Contact: Sally Wahlbrink, 362-8212

Other Information: Students should contact Dr. Andriole's office at 362-8212 prior to first day for room assignment.

M95 862 ACTING INTERNSHIP, COLON AND RECTAL SURGERY

Instructor(s): Steve Hunt, MD; Elisa Birnbaum, MD; Matthew Mutch, M.D.; Paul Wise, MD; Matthew Silviera, MD; and Sekhar Dharmarajan, MD; 747-6156

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 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 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," he/she must make special arrangements with the Colorectal Surgery Office prior to beginning this elective.

Student time distribution: Inpatient 75%, Outpatient 20%,
Conferences/ Lectures 5%; Subspecialty Care 100%

Major teaching responsibility: Steven Hunt, M.D., and colorectal fellows

Patients seen/weekly: 25-50

On call/weekend responsibility: Every fifth night or negotiable

Location: 14102 Queeny Tower, South Campus

Elective Contact: Emily Stroisch, 454-7182

Other Information: This is NOT a "preceptor" elective. However, students may elect to make prior arrangements to work more closely with a specific attending on this elective (based on availability).

M95 863 ACTING INTERNSHIP, SURGICAL ONCOLOGY AND ENDOCRINE SURGERY

Instructor(s): Timothy Eberlein, MD; Rebecca Aft, MD; Amy Cyr, MD; William Gillanders, MD; Julie Margenthaler, MD; and Jeffrey Moley, MD.

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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, parathyroid and adrenal 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. Note: If a student desires to work more closely with a “specific attending,” he/she must make special arrangements with the faculty member prior to beginning this elective. If you have any questions regarding this notice, please call Doug Brown in the Surgical Education Office (362-8029).

Student time distribution: Inpatient 75%, Outpatient 15%,
Conferences/ Lectures 10%

Major teaching responsibility: Attendings, chief resident, and junior residents

Patients seen/weekly: 20-40 (varies)

On call/weekend responsibility: Every third or fourth night with a resident who will directly supervise

Location: 11th Floor Northwest Tower

Elective Contact: Doug Brown, 362-8029

Other Information: This is NOT a “preceptor” elective. However, students may elect to make prior arrangements to work more closely with a specific attending (based on availability).

M95 871 ACTING INTERNSHIP, VASCULAR SURGERY

Instructor(s): Patrick Geraghty, MD; Gregorio Sicard, MD; Brian Rubin, MD; M. Wayne Flye, MD; and Luis Sanchez, MD, 362-7841

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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 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 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. Notice: If a student desires to work more closely with a "specific attending," he/she must make special arrangements with the faculty member prior to beginning this elective. If you have any questions regarding this notice, please call Doug Brown in the Surgical Education Office (362-8029).

Student time distribution: Inpatient 70%, Outpatient 20%, Conferences/ Lectures 10%; Primary Care 10%, Subspecialty Care 90%

Major teaching responsibility: Attending, fellows, chief resident, and junior residents

Patients seen/weekly: 100+ (varies)

On call/weekend responsibility: Student's option

Location: 5103 Queeny Tower

Elective Contact: Students should contact Andrea Portlock in Dr. Geraghty's office prior to the start of this rotation at 362-6519

Other Information: This is NOT a "preceptor" elective. However, students may elect to make prior arrangements to work more closely with Dr. Sicard (362-7841) or other attendings on this service (based on availability).

M95 879 ACTING INTERNSHIP, HEPATOBILIARY PANCREATIC SURGERY

Instructor(s): Steven Strasberg, MD; William Hawkins, MD; Ryan Fields, MD; and David Linehan, MD, 362-7147

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This subinternship 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," he/she must make special arrangements with the faculty member prior to beginning this elective. If you have any questions regarding this notice, please call Doug Brown in the Surgical Education Office (362-8029).

Student time distribution: Inpatient 75%, Outpatient 15%,
Conferences/ Lectures 10%; Primary Care 100%

Major teaching responsibility: Attending, chief resident, fellow and junior residents

Patients seen/weekly: Varies

On call/weekend responsibility: Every third or fourth night with a resident who will directly supervise

Location: 11th Floor Northwest Tower

Elective Contact: Renee Bischoff, 362-7147

Other Information: This is NOT a "preceptor" elective. However, students may elect to make prior arrangements to work more closely with a specific attending on this service (based on availability).

M95 880 PEDIATRIC SURGERY

Instructor(s): Kate Bernabe, MD; Martin Keller, MD; Jacqueline Saito, MD; Pat Dillon, MD; Adam Vogel, MD and Brad Warner, MD.

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This subinternship 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.

Student time distribution: Inpatient 60%, Outpatient 30%,
Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 35

On call/weekend responsibility: Optional

Location: 5S40 St. Louis Children's Hospital

Elective Contact: Stacy Pokorny, 454-4169

Other Information: Students should page the fellow for when and where to report on the first day of the rotation. Contact Stacy Pokorny for fellow's pager information.

M95 880 PEDIATRIC SURGERY

Instructor(s): Kate Bernabe, MD; Martin Keller, MD; Jacqueline Saito, MD; Pat Dillon, MD; Brad Segura, MD and Brad Warner, MD.

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

The student will participate as a subintern in all aspects of pediatric surgical patient care and will be exposed to a wide variety of pediatric surgical cases. This includes the preoperative and postoperative evaluation of patients as well as the care of pediatric trauma patients. Daily rounds are made with both the resident and attending staff and active participation is expected in the pediatric surgery clinic and the operating room. Weekly conferences include Mortality and Morbidity, Radiology, Pathology and case presentations with the student expected to prepare a conference

presentation on a topic of interest.

Student time distribution: Inpatient 60%, Outpatient 30%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attendings

Patients seen/weekly: 35

On call/weekend responsibility: Optional

Location: 5S40 St. Louis Children's Hospital

Elective Contact: Stacy Pokorny, 454-4169

Other Information: Students should report at 6:00 a.m. on the first day of the rotation.

M95 891 ORGAN TRANSPLANTATION

Instructor(s): William Chapman, MD, 362-7792; Surendra Shenoy, MD,

PhD, 362-4338; Majella Doyle, MD, 362-2880; Yiing Lin, MD, 362-2840;

Jeffrey Lowell, MD, 362-2820; and Jason Wellen, MD, 362-2840

Enrollment limit per period: 2

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

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.

Student time distribution: Inpatient 80%, Outpatient 10%,

Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Full attending and resident staff

Patients seen/weekly: 40

On call/weekend responsibility: Yes

Location: Barnes-Jewish Hospital

Elective Contact: Dr. Shenoy's secretary, Hanah Paluga at 362-4338

Other Information: Student should contact instructor if interested in scheduling elective.

M95 893 ACTING INTERNSHIP, MINIMALLY INVASIVE SURGERY

Instructor(s): L. Michael Brunt, MD, 454-8877

Enrollment limit per period: 1

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

This subinternship elective in minimally invasive surgery is offered by L. Michael Brunt, MD, a member 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, inguinal hernia repair, ventral hernia repair and gastric bypass 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 Division of General Surgery and will function as an acting intern. Additionally, the student may also elect to participate in the laboratory of the Washington University Institute for Minimally Invasive Surgery one or two days per week. Notice: If a student desires to work more closely with a "specific attending," he/she must make special arrangements with the faculty member prior to beginning this elective. If you have

any questions regarding this notice, please call Doug Brown in the Surgical Education Office (362-8029).

Student time distribution: Inpatient/Operating Room 60%, Outpatient 30%, Conferences/ Lectures 10%; Subspecialty Care 100%

Major teaching responsibility: Attending and residents

Patients seen/weekly: ~25 (varies)

On call/weekend responsibility: One call weekend which consists of morning rounds and home call. No in-house call.

Location: 11th Floor Northwest Tower

Elective Contact: Student should contact Dr. Brunt at 454-8877 prior to the first day of the elective

Other Information: This is NOT a “preceptor” elective. However, students may elect to make prior arrangements to work more closely with Dr. Brunt on this elective (based on availability).

M10 820 CRITICAL CARE

Instructor(s): Heidi Atwell, DO, 314-362-1196, Course Master; Walter Boyle, MD; Grant Bochicchio, MD; Stephanie Bonne, MD; Anne Drewry, MD; Stephen Eaton, MD; Daniel Emmert, MD; Alex Evers, MD; Brian Fuller, MD; Thomas J. Graetz, MD; Richard Hotchkiss, MD; Kareem Husain, MD; Jacob Keeperman, MD; Paul Kerby, M; John Kirby, MD; Isaac Lynch, MD; John Mazuski, MD; Tiffany Osborn, MD; Patricia Penkoske, MD;. Adnan Sadiq, MD; Doug Schuerer, MD; Jessica Smith, MD; Robert Southard, MD; George Tseng, MD; Brian Wessman, M.D.; and Robert Winfield, MD.

Enrollment limit per period: 4

Valid start weeks for 4-week blocks are: Weeks 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, and 41.

Students on this rotation are integral members of the multidisciplinary intensivist-led critical care team in the Surgical Intensive Care Unit (SICU). Students learn an organ systems-based approach for evaluation and management of critically ill and injured patients, and application of evidence-based principles in delivery of state-of-the-art critical care. Emphasis is placed on critical care knowledge and techniques used at the bedside in the clinical management of serious traumatic and surgical conditions. Students

become familiar with resuscitation and cardiopulmonary support, including methods for non-invasive and invasive hemodynamic monitoring, and techniques for airway management and pulmonary support in respiratory failure. Basic knowledge and skills in the management of neurologic injuries, liver and/or renal failure, and life-threatening infections in the surgical patient are also taught, as is the importance of treatments to alleviate anxiety and pain, maintain fluid and electrolyte balance, and provide adequate nutrition. Practical experience is gained in placement of vascular access devices, interpretation of laboratory data, and use of guidelines, protocols and quality assurance tools in the management of critically ill patients.

Student time distribution: Inpatient 80%, Conferences/Lectures 20%;

Subspecialty Care 100%

Major teaching responsibility: ICU Attendings

Patients seen/weekly: 50

On call/weekend responsibility: Variable

Location: Barnes-Jewish Hospital, South Campus

Elective Contact: Barbara McKinney, 747-3581

Other Information: Students should meet in the 4400 Surgical Intensive Care Unit, 4th Floor of Barnes-Jewish Hospital, @, 7:30 a.m. on the first day of the elective.

Research — Surgery

(M95 900)

L. Michael Brunt, MD, 1160 Northwest Tower, Barnes-Jewish Hospital, 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, 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 the student prior to his/her 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. The student will be encouraged to design and complete his/her 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 multi-media strategies for peripheral nerve surgery education).

Faculty — Surgery: See Appendix

Policies

The information provided here is intended to assist university students, faculty and staff in locating university policies related to the educational mission. These policies, procedures and guidelines exist to assist Washington University students, faculty and administrators in doing the business of Washington University in St. Louis in ways that are effective, consistent and compliant and to provide a safe, effective and supportive environment in which to learn, teach and work.

For further policies not listed in this section, see Appendix.

Washington University Policies

Organized here are the university-wide policies, procedures and guidelines available to assist School of Medicine students, faculty, staff and administrators in doing the business of Washington University in St. Louis in ways that are effective, consistent and compliant. Additional university-wide policies are available on the [Washington University website](#).

Non-Discrimination Statement

Washington University encourages and gives full consideration to all applicants for admission, financial aid, and employment. The University does not discriminate in access to, or treatment or employment in, its programs and activities on the basis of race, color, age, religion, sex, sexual orientation, gender identity or expression, national origin, veteran status, disability or genetic information. Inquiries about compliance should be addressed to the University's Vice Chancellor for Human Resources, Washington University, Campus Box 1184, One Brookings Drive, St. Louis, MO 63130. The School of Medicine is committed to recruiting, enrolling and educating a diverse student body.

Sexual Harassment Policy: See Appendix

Washington University's Sexual Harassment Policy is available on the Human Resources website.

Drug and Alcohol Policy: See Appendix

Washington University's Drug and Alcohol Policy is available on the Human Resources Website.

Discriminatory Harassment Policy: See Appendix

Washington University's Discriminatory Harassment Policy is available on the Human Resources website.

HIPAA Policies: see

<http://informationsecurity.wustl.edu>

Washington University's Health Insurance Portability and Accountability Act (HIPAA) Policies are available on the Information Security & HIPAA Privacy website.

Computer Use Policies: See Appendix

Washington University's [Computer Use Policy](#) is available in the Compliance and Policies section of the university's website.

Academic Integrity Policy for Graduate Students: See Appendix

The [Academic Integrity Policy for Graduate Students Policy](#) is available on the Graduate School of Arts & Sciences website.

Disability Resource Center: See <http://cornerstone.wustl.edu/disabilityresources.aspx>

Learn about [disability resources at Washington University](#) on the Cornerstone Center for Advanced Learning website.

Policy Governing Alcohol Service

at Events Sponsored by Graduate Student Organizations: See Appendix

The [Policy on Alcohol Service at Graduate Student Events](#) is available on the Professional and Graduate Student Coordinating Committee website.

Policy on Consensual Faculty-Student Relationships: See Appendix

The [Policy on Consensual Faculty-Student Relationships](#) is available on the Compliance and Policies section of the Washington University website.

University Judicial Code: See Appendix

The [University Judicial Code](#) is available in the Policies section of the Washington University website.

Washington University School of

Medicine Policies

Washington University School of Medicine is committed to providing a safe, professional and supportive environment in which to learn. The policies organized here pertain to professionalism, appropriate conduct and student rights. They exist to protect students and employees as they conduct their daily responsibilities.

Policies Related to Professionalism and Conduct

[Research Integrity Policy](#)

[Policy Against Abusive Conduct](#)

[Guidelines for Professional Conduct in Teacher/Learner Relationships and Policy Against Medical Student Mistreatment](#)

[Tobacco-Free Policy](#)

Research Integrity Policy

[<< Back to Policies Related to Professionalism and Conduct](#)

Allegations of breach of research integrity policy are the primary responsibility of the Research Integrity Committee of the School of

Medicine. Complaints regarding students enrolled for the M.D. degree will be directed promptly to that committee. The Research Integrity Committee will promptly investigate the charges and report its conclusions and recommendations to the Dean, who will refer the issue to CAPES as a breach of professional integrity if further action is warranted.

For further information, visit the [Research Integrity Policy](#) posted on the Washington University website.

Policy Against Abusive Conduct: See Appendix

<< Back to [Policies Related to Professionalism and Conduct](#)

Please visit the Human Resources website for the [Policy Against Abusive Conduct](#).

Guidelines for Professional Conduct in Teacher/Learner Relationships and Policy Against Medical Student Mistreatment

<< Back to [Policies Related to Professionalism and Conduct](#)

Washington University School of Medicine Guidelines for Professional Conduct in Teacher/Learner Relationships and Policy

I. Preamble

The goal of the Washington University Medical Center is to provide patient care, medical education, and biomedical research of the highest quality. Accomplishing this goal depends in part on an atmosphere of mutual respect and collegiality among all those who work and study here. The current document focuses on the special issues presented by the teacher/learner relationship, and applies to all years of the medical school curriculum.

II. The teacher and learner relationship

Effective learning is possible only in an environment where students can trust their teachers to treat them fairly and with respect. The teacher may be a faculty member, resident, student, or other member of the health care team. One manner in which the teacher/learner relationship is unique is that students may be vulnerable, depending on many of their teachers for evaluations and recommendations. In addition, medical education includes mastering not just pathophysiology but also the essentials of professional behavior, as set forth in our Guiding Principles of Professionalism.

We also recognize that students learn professional behavior primarily by observing the actions of their teacher role models. Unprofessional, disrespectful or abusive behavior by teachers is antithetical to standards of professional conduct that medical students are expected to master. These behaviors by teachers may also be self-perpetuating, as students come to believe that such behavior is appropriate when they assume the role of teacher. As we strive to create an environment of mutual respect, all faculty, staff and students are expected to abide by the Policy Against Abusive Conduct.

Behaving in ways that embody the ideal student-teacher relationship

fosters respectful behavior, minimizes the likelihood of student mistreatment, and optimizes the educational experience for students. The following practices are examples of ways in which teachers and learners can encourage a positive learning environment conducive to the exchange of ideas among all who participate in the learning process:

A. Teachers

1. Be prepared and on time.
2. Provide learners with most current materials.
3. Treat students fairly, respectfully, and without bias related to their race, color, age, religion, sex, sexual orientation, gender identity or expression, national origin, veteran status, disability or genetic information.
4. Give students timely, constructive and accurate feedback.
5. Distinguish between the Socratic method, where insightful questions are a stimulus to learning and discovery, and over-aggressive questioning, where detailed questions are repeatedly presented with the endpoint of embarrassment or humiliation of the student.

B. Learners

1. Treat teachers, peers, patients and members of the health care team fairly, respectfully, and without bias related to their race, color, age, religion, sex, sexual orientation, gender identity or expression, national origin, veteran status, disability or genetic information.
2. Treat fellow students as colleagues, not competitors.
3. Take responsibility for maximizing your educational experience by addressing conflicts and discomforts which may impede your learning.
4. Be an enthusiastic learner.
5. Be trustworthy and honest.
6. Know your limitations and ask for help when needed. Put

the patients welfare first and ahead of your educational needs

7. Know and understand your patients medical history, diagnoses, treatment and status.
8. Take the initiative to educate yourself about your patients illness.
9. Be compassionate.
10. Respect patients' privacy.
11. III. Student Mistreatment

The Association of American Medical Colleges (AAMC) has defined Mistreatment in previous Graduation Questionnaires as follows: Mistreatment arises when behavior shows disrespect for the dignity of others and unreasonably interferes with the learning process. It can take the form of physical punishment, sexual harassment, psychological cruelty, and discrimination based on race, religion, ethnicity, sex, age or sexual orientation. The behaviors listed below are provided as examples of potential mistreatment by the AAMC, recognizing that there are nuances to interpersonal engagement and interactions. Students who feel they may have been subjected to mistreatment are encouraged to follow the procedures outlined in Section IV of this policy. The goal of this process is to provide the best learning environment possible.

A. Examples of potential mistreatment

1. Publicly humiliated
2. Threatened with physical harm
3. Physically harmed (e.g., hit, slapped, kicked)
4. Required to perform personal services (e.g., shopping, babysitting)
5. Subjected to offensive sexist remarks/names
6. Denied opportunities for training or rewards based solely on gender, race, sexual orientation or ethnicity
7. Received lower evaluations or grades because of gender,

- race, sexual orientation or ethnicity rather than performance
8. Subjected to unwanted sexual advances
 9. Asked to exchange sexual favors for grades or other rewards
 10. Subjected to racially or ethnically offensive remarks/names
 11. Subjected to offensive remarks/names related to sexual orientation

IV. Steps for reporting student mistreatment

The University takes allegations of student mistreatment by faculty, residents, staff or other students very seriously and strongly encourages its faculty, staff, and students who are witness to such conduct to report it immediately to the Senior Associate Dean for Education, the Associate Dean for Student Affairs, or the Associate Dean for Medical Student Education. These individuals will offer guidance and support to the student and discuss informal and formal options to resolve the matter (See section VI. Additional Resources).

A. Informal procedures

If you feel comfortable dealing with the situation without assistance, you can communicate either orally or in writing with the person whose behavior is offensive. The most useful communication will have three parts:

1. A factual description of the incident(s) including date, time, place and specific action.
2. A description of the writers feelings, including any consequences of the incident.
A request that the conduct cease.
3. Frequently, such a communication will cause the offensive

behavior to stop, particularly where the person may not be aware that the conduct is offensive.

If you would like to proceed informally, but with the assistance of someone else, you may:

1. Ask the persons supervisor, e.g., department chair, dean, director, housing office representative, academic advisor or resident advisor, to speak to the person whose behavior was offensive. The purpose of such conversations is the cessation of offensive behavior. You should note that these individuals may be obligated to report the incident or conduct you disclose to the University for further investigation and action.
2. Consult with the one of the Advisors listed in Additional Resources and specifically charged with responding to mistreatment inquiries and complaints. These individuals are thoroughly familiar with WUSM policy mistreatment and are available to consult with victims, those accused of engaging in mistreatment, witnesses and supervisors of parties to a complaint. They can provide information about informal actions that might remedy the situation and discuss University policies and procedures for resolving complaints.
3. Ask the Advisor to mediate or arrange for mediation. Mediation is discussion and negotiation, with the help of a third party, designed to permit the parties to reach a mutually agreeable resolution of a dispute. If a person complaining of mistreatment seeks mediation, the person accused of mistreatment agrees and the Advisor concludes that the mediation would be consistent with the University's legal obligations in responding to and preventing discrimination or discriminatory harassment, the Advisor may mediate or arrange for mediation.

Should informal resolution be unsuccessful or inappropriate under the particular circumstances alleged, the student will be

referred to the applicable University policies and procedures for filing a formal complaint. The University will initiate an investigation into the allegations under the appropriate policy and take disciplinary action as contemplated by the applicable procedures. For example, if a student asserts that a faculty member has engaged in mistreatment in the form of sexual harassment, the University's Sexual Harassment Policy would be followed.

B. Confidentiality and anonymous reporting:

The University will strive to protect, to the greatest extent possible, the confidentiality of persons reporting mistreatment and of those accused of mistreatment. Because the University may have certain legal obligations, e.g. in response to allegations of sexual harassment, the University cannot guarantee complete confidentiality where it would conflict with the University's obligation to investigate meaningfully or, where warranted, take corrective action. Even when some disclosure of the University's information or sources is necessary, it will be limited to the extent possible. The University will keep confidential all records of complaints, responses and investigations, to the extent permitted by law.

If the student is not comfortable reporting to one of the individuals identified above, the student should choose an intermediary that can then directly communicate the incident with these individuals while maintaining anonymity. If the student insists on confidentiality or anonymity, the University may be limited in its ability to respond.

V. Monitoring system for tracking mistreatment

The clerkship surveys have questions regarding mistreatment. The Office of Medical Student Affairs will monitor these results regularly

for instances of mistreatment not reported directly by students. Anonymous reports of mistreatment in any clerkship will be passed on to the clerkship director and department chair.

VI. Additional resources

List of advisors

Senior Associate Dean for Education

Associate Dean for Medical Student Education

[Associate Dean for Medical Student Affairs](#)

Related policies

[Washington University Discrimination and Discriminatory harassment Policy](#)

[Washington University Sexual Assault Policy](#)

[Washington University Sexual Harassment Policy](#)

[Washington University School of Medicine Policy Against Abusive Conduct](#)

[WUSTL/Diversity Bias Report Form](#)

[Assessing Academic Achievement and Professionalism \(MD Program\)](#)

Tobacco-Free Policy: See Appendix

[<< Back to Policies Related to Professionalism and Conduct](#)

Please visit the Healthy Living website for the [Tobacco-Free Policy](#).

Policies Related to Student Rights, Procedures and Services

[Students with Disabilities Policy](#)

[Policy on Student Rights Under Family Educational Rights and Privacy Act \(FERPA\)](#)

[Student Academic Records and Transcripts](#)

[Bloodborne Pathogens Policy](#)

[Liability Insurance](#)

Students with Disabilities Policy

[<< Back to Policies Related to Student Rights, Procedures and Services](#)

It is the goal of Washington University to assist students with disabilities in removing the barriers their disabilities may pose and provide support in facing the challenge of pursuing an education at Washington University.

Washington University recognizes and accepts its professional, legal and moral responsibility to avoid discrimination in the acceptance and education of qualified students with disabilities and to provide reasonable accommodations to such students consistent with the principles embodied in the law. These guidelines apply to students seeking admittance as well as to those who become disabled while they are enrolled.

Washington University makes every effort to insure that all qualified applicants and students can participate in and take full advantage of all programs and opportunities offered within the University.

Washington University encourages and gives full consideration to all applicants for admission. Washington University does not discriminate in access to its programs and activities on the basis of age, sex, sexual orientation, race, disability, religion, color, or national origin.

All students in educational programs at the School of Medicine, those seeking admittance, as well as those who become disabled while they are enrolled, must possess those intellectual, ethical, physical, and emotional capabilities required to undertake the full curriculum and to achieve the levels of competence required by the faculty and the profession.

In this regard, we will be guided by the principles outlined below.

A. Responsibilities of the student

1. Disclosure of disability

It is the responsibility of a student who has a disability to disclose it and request accommodation from the Dean for Student Affairs or Program Director. The School encourages students with disabilities to identify themselves as early as possible in order to optimize the mobilization of resources and available accommodations.

2. Diagnosis of disability

Students who are in academic difficulty that might be a consequence of a disability are encouraged to avail themselves of diagnostic services that may lead to accommodations.

Furthermore, such students are encouraged to explore with the administration of their academic unit the possibility of a disability if the inquiry is relevant to educational performance and there is evidence of educational performance problems.

3. Documentation of disability and request for accommodation

The disability, its functional impact and requested accommodation(s) must be documented. If the student discloses a disability and requests accommodation, the School requires documentation of the disability from a qualified professional. The student is financially responsible, unless there are extraordinary and compelling circumstances, for the costs related to the documentation by an appropriately educated and trained professional. The information provided by the professional must be factual, objective and technically valid, and must establish clearly that the disability substantially limits one or more of the student's major life activities. The professional(s) who evaluate the student should identify options for management of the disability. Based on this information, the affected student then should request in writing the accommodations which he or she requests be made. The Dean for Student Affairs or Program Director and the student should work together to arrive at reasonable accommodations. The School may also require a second expert opinion for which the School may be financially responsible under extraordinary and compelling circumstances. The School reserves the right to request as much detailed information from the student and/or the professional(s) as is necessary to assess the scope of the disability and/or the reasonable accommodations.

B. Responsibilities of the school

1. Review of requests for accommodation

Requests for accommodations will usually be reviewed by the Dean for Student Affairs or Program Director. An ad hoc

assessment team may be convened which may include the Dean for Student Affairs, the educational Program Director (or curriculum supervisor), selected members of the Disabilities Oversight Committee (See Section B.5 below) and other consultants as appropriate to the individual circumstances. The assessment team usually should include: (1) individuals who understand the curriculum in question; (2) a person who is knowledgeable about the Americans with Disabilities Act; (3) a person with authority to authorize accommodations and cause them to be implemented.

2. Responsibilities for accommodation

The School of Medicine is responsible for the costs incurred in making accommodations which are not unduly burdensome or unreasonable. Accommodations may include but may not be limited to academic modifications which do not fundamentally alter the nature of the program, auxiliary services, modifications of the circumstances and methods of qualification examinations, classroom modifications and others. The School's responsibility to accommodate ends when a student with a disability: (1) refuses reasonable accommodations; (2) is unable, with reasonable accommodations, to fulfill the essential requirements of the program; (3) fulfills the essential requirements and graduates; or (4) transfers to another institution. The School is not required to provide an accommodation which fundamentally alters the nature of the program, is unduly burdensome or is unreasonable.

3. Confidentiality

Information pertaining to a student's disability and accommodations will be maintained in a file that is kept confidential and separate from the student's academic record. Appropriate faculty, staff and administrators may be informed regarding the disability, limitations, restrictions, and accommodations when they have a need to know such information.

4. Application of the CAPES policies

The policies and procedures of the School regarding promotion and retention are contained in the CAPES Policies for each academic unit. These policies and procedures govern the relationship between the School and all students, including those with disabilities. The School is not obligated to retain a student with a disability who poses a significant threat to the health or safety of others when there is no reasonable accommodation that either eliminates or sufficiently reduces that risk.

5. Disabilities Oversight Committee

There shall exist a standing Disabilities Oversight Committee composed of members designated by the Dean of the School of Medicine. The committee shall have the following responsibilities: periodic review of requests for accommodations and accommodations granted, provide recommendations regarding accommodations for disabilities, to serve as requested on disability appeals committee. This group serves as a resource regarding issues of significance to the institution and to students with disabilities.

C. Appeals

A student with a disability who believes that a request for accommodation has been improperly denied or who perceives that he or she has been discriminated against on the basis of a disability should direct his or her appeal to the Dean of the School of Medicine. As needed, the Dean of the School of Medicine may assemble an advisory group to review appeals and make recommendations. This group may include, but may not be limited to, the following: the chair of the committee that oversees academic evaluation and advancement of students for the particular academic unit, students, and/or representatives of the Disabilities Oversight Committee.

Policy on Student Rights Under Family Educational Rights and Privacy Act (FERPA)

<< Back to [Policies Related to Student Rights, Procedures and Services](#)

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. They are:

1. **The right to inspect and review the student's education records within 45 days of the day the University receives a request for access.** Students should submit to the registrar, dean, head of the academic department or other appropriate official, written requests that identify the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. **The right to request the amendment of the student's education records that the student believes are inaccurate or misleading.** Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when

notified of the right to a hearing.

3. **The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.** One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic, research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if that official needs to review an education record in order to fulfill his or her professional responsibility. Upon request, the University discloses education records without consent to officials of another school in which a student seeks or intends to enroll.
4. **The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA.**

The name and address of the Office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202-4605

Student Academic Records and Transcripts

<< Back to [Policies Related to Student Rights, Procedures and Services](#)

The Family Educational Rights and Privacy Act of 1974 (FERPA) provides current and former students of the University with specific rights of access to and control over their student record information. In compliance with the statute, appropriate federal regulations, and guidelines recommended by the American Association of University Registrars and Admission Officers, the University has adopted procedures that implement these rights.

A copy of the University policies regarding educational records and the release of student record information may be obtained [online](#).

Transcript requests may be made in person or by writing to the Registrar's Office. Faxes are accepted: (314) 362-4658. The written request must include your name, signature, date of birth and approximate dates of attendance.

Bloodborne Pathogens Policy

<< Back to [Policies Related to Student Rights, Procedures and Services](#)

In 1992, the Executive Faculty of the School of Medicine formally adopted a Medical Campus policy on Human Immunodeficiency

Virus (HIV) and Hepatitis B Virus (HBV) infections. This policy was updated in 2001 to include Hepatitis C Virus (HCV) infections. The purpose of the policy is to provide guidelines to prevent or reduce the transmission of these infectious agents between patients and health care workers (HCWs). It is an ethical and moral obligation for the student/employees to report BBP infections.

The policy deals with 1) the University's responsibilities to infected patients (including obligation to treat, confidentiality and appropriate serologic testing), 2) appropriate health and safety precautions and procedures for faculty, students and staff (including compliance with CDC guidelines, blood and body fluid precautions and handling of needles or sharp instruments), and 3) the University's responsibilities to faculty, staff, or students who are infected with HIV, HBV, or HCV infection – including admission to medical school, participation in clinical rotations, serologic testing confidentiality and medical treatment.

The policy makes a distinction between Category I activities – those involving no risk of transmission from infected HCWs to patients, such as routine history/physical examinations, minor surface suturing, elective phlebotomy; and Category II – procedures for which bloodborne virus transmission is theoretically possible but unlikely such as minor local procedures, central venous lines, other specialty procedures; and Category III – procedures for which there is definite risk of bloodborne virus transmission such as General Surgery, CT surgery, Neurosurgery, etc. and non-elective procedures performed in the Emergency Department.

In 2012 a committee was formed including representation from Administration, Legal – Risk Management, Infectious Disease, Occupational Health, and the Director of Student Health. The SHS Director meets with the infected student and discusses the need for restricted activities and proper follow-up.

Liability Insurance: See Educational Programs >
MD Program

Standards for Satisfactory Academic Progress for Financial Aid Eligibility

MD Students

Other School of Medicine Programs

Standards for Satisfactory Academic Progress for Financial Aid Eligibility — MD Students

<< Back to [Standards for Satisfactory Academic Progress for Financial
Aid Eligibility](#)

The following policy applies to students pursuing a medical degree.

Federal law and regulations require that all students receiving financial assistance from Federal Title IV funds maintain satisfactory

academic progress (SAP). This policy presents the standards adopted by the Washington University School of Medicine and applies to all MD students.

The School of Medicine at Washington University in St. Louis evaluates SAP annually, at the end of each spring term. If you are not maintaining progress, you will be notified by the Committee on Academic and Professional Evaluation of Students (CAPES) and the Director of Financial Aid and will be ineligible, or 'suspended', for federal aid for future terms unless you appeal your status and it is approved by CAPES and the Director of Financial Aid.

In order to be considered to be maintaining SAP, and thus eligible for financial aid, students must be satisfactorily progressing toward their academic objectives. Federal regulations require three measurements for determining SAP; qualitative, quantitative and timeframe.

The Maximum Time Frame of full-time enrollment for completion of each program is as follows:

- Four-year MD program: 6 years
- Five-year MD program: 7.5 years
- MA/MD program: 7.5 years (or nine years if a two-year MA is pursued)

Periods of non-enrollment are NOT counted in the measurement of satisfactory academic progress but all periods of attendance, regardless of whether the student received Title IV aid, are counted.

This policy is applied in the context of each individual student's enrollment status in order to accommodate the student who does not enroll on a full-time basis. For example, if a student enrolls in a four-year program, the full-time student would meet the 150 percent maximum after six years of full-time enrollment, and the half-time student is expected to complete in twelve years. If a student vacillates between full-time and half-time enrollment, that student

would have a maximum time frame between six and 12 years, and the maximum time frame for that student would be continuously adjusted.

If you reach a point where you cannot complete your program within the 150% maximum, students become ineligible for aid.

Quantitative/Qualitative Requirement:

Academic requirements for the MD degree include the satisfactory completion of the curriculum designated by the faculty. The progress of each student working toward an MD degree is monitored carefully by the Committee on Academic Evaluation of Students (CAES). Refer to the Assessing Academic Achievement section in the Bulletin under 'Policies' for more information.

A student failing to meet the standards of progress as determined by CAPES shall be placed on financial aid suspension. The student will be eligible for aid when they achieve SAP or the student may appeal. Students who choose to appeal must state the reasons for failing to meet SAP (e.g. injury/illness of the student, death in the family or other special circumstance) and what has changed in the student's situation so that he or she can now make SAP. If the student successfully appeals, the student will be placed on financial aid probation and may receive financial assistance for one semester. At the conclusion of this period, the student must have achieved compliance with each standard or be progressing per their individual academic plan to receive additional aid. A student who does not achieve compliance with each standard by the conclusion of the probationary period is suspended from financial aid eligibility.

The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

The Director of Student Financial Aid shall have primary responsibility for enforcement of this policy. The Office of Student Financial Aid shall ascertain at the time of each disbursement of

funds and prior to certification of a financial aid application that the student is in compliance with the policy.

Standards for Satisfactory Academic Progress for Financial Aid Eligibility — Other School of Medicine Programs

<< Back to [Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

The following policy applies to students pursuing graduate/professional training in the following programs:

- Applied Health Behavior Research Audiology and
- Communications Sciences
- Biology and Biomedical Sciences
- Biomedical Engineering
- Biostatistics
- Clinical Investigation
- Doctor of Philosophy
- Genetic Epidemiology
- Occupational Therapy
- Physical Therapy
- Population Health Sciences

Federal law and regulations require that all students receiving financial assistance from Federal Title IV funds maintain satisfactory academic progress (SAP). This policy presents the standards adopted by the Washington University School of Medicine and applies to all non-MD students.

The School of Medicine at Washington University in St. Louis evaluates SAP at the end of each semester for all non-MD students receiving financial aid. A student failing to meet the standards of progress as determined by the Committee on Academic and Professional Evaluation of Students (CAPES) shall be placed on financial aid probation and notified by CAPES and the Director of Financial Aid. While on probation the student may receive financial assistance for one semester, trimester, or equivalent period of time. At the conclusion of this period, the student must have achieved compliance with each standard. A student who does not achieve compliance and is not making SAP by the conclusion of the probationary period is suspended from federal aid eligibility. The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

In order to be considered to be maintaining SAP, and thus eligible for financial aid, students must be satisfactorily progressing toward their academic objectives. Federal regulations require three measurements for determining SAP; qualitative, quantitative and timeframe.

Maximum time frame

To maintain eligibility you must complete your program by attempting no more than 150% of the credits required to complete your program. For example, if your program requires 120 credits to complete your degree, you must be able to complete the program by attempting no more than 180 credits. This includes credits attempted without financial aid. Specific information for each program may be found in each program's Handbook or Bulletin.

Periods of non-enrollment are NOT counted in the measurement of satisfactory academic progress but all periods of attendance, regardless of whether the student received Title IV aid, are counted.

If you reach a point where you cannot complete your program within the 150% maximum, students become ineligible for aid.

Qualitative requirement

The minimum semester and cumulative GPAs needed to meet the SAP requirement are set by each program. The program's Bulletin or Handbook will help you determine your minimum GPA requirements.

If you are not achieving the minimum GPA requirements for your program at the end of each semester when the SAP review is performed, you are not considered to be making SAP.

Financial aid warning

A student failing to meet the standards of progress as determined by their Program at the end of each semester will be placed on financial aid warning for the following term. At the end of that term, the student must be meeting SAP to receive financial aid for future semesters. Any student not meeting SAP at the end of the warning period will be suspended from future financial aid. The student will be eligible for aid when they achieve SAP or the student may appeal. Students who choose to appeal must state the reasons for failing to meet SAP (e.g. injury/illness of the student, death in the family or other special circumstance) and what has changed in the student's situation so that he or she can now make SAP. If the student successfully appeals, the student will be placed on financial aid probation and may receive financial assistance for one semester. At the conclusion of this period, the student must have achieved compliance with each standard or be progressing per their individual academic plan to receive additional aid. A student who does not achieve compliance with each standard by the conclusion of the probationary period is suspended from financial aid eligibility.

The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

The Director of Student Financial Aid shall have primary responsibility for enforcement of this policy. The Office of Student Financial Aid shall ascertain at the time of each disbursement of

funds and prior to certification of a financial aid application that the student is in compliance with the policy.

Other Policies — School of Medicine

[Needle Stick/Human Blood and Body Fluid Exposure Policy](#)

[Pharmaceutical and Medical Device Industry Policy](#)

[Student Constitution and Bylaws](#)

Needle Stick/Human Blood and Body Fluid Exposure Policy

[<< Back to Other Policies](#)

All exposures to human blood and body fluids will be reported immediately to the Health Service. The Health Service maintains a 24 hour reporting system. During working hours, 8 a.m. – 4 p.m., the office can be reached at 362-3523 or 362-3528. After hours the Health Service can be contacted through a digital beeper at 871-2966.

Procedure

Cleanse wound immediately with soap and water. If a mucous membrane has been exposed, rinse with copious amounts of water.

1. Identify the source of exposure.
2. Call the Health Service for further instructions. Source patient will be evaluated for HIV, Hepatitis B and Hepatitis C. The responsibility of acquiring patient consent for testing will be the responsibility of the physician in charge of the case. The employee will notify the physician. All source patient charges will be the responsibility of the Health Service.
3. Complete the Injury/Exposure Report form
4. Employees and students will report to the Health Service for follow-up. Individuals will be evaluated for:
 1. HIV or Serum Sample Save
 2. Hepatitis B Vaccination
 3. HbsAB (+test in past eliminates further testing)
 4. HCV
 5. Td
 6. PEP Prophylaxis

Human Blood and Body Fluid Exposures

Procedure

1. Clean area with soap and water.
2. Call Employee Health (362-3528) or Student Health (362-3523) or after hours call the Digital Beeper (871-2966).
3. Keep source or patient available for HIV, HbsAg, and HCV testing.
4. Follow the instruction given by the Health Service. Complete an incident report.

Always wear Personal Protective Equipment (PPE)!

Pharmaceutical and Medical Device Industry Policy: See Appendix

<< Back to [Other Policies](#)

For the [Pharmaceutical and Medical Device Industry Policy](#), please visit the Faculty Practice Plan website.

Student Constitution and Bylaws: See Educational Programs

MD Program Policies

Provided here are policies related to students in the medical degree program. Included are policies covering professionalism, student evaluation, absences and leaves, payment and technical standards. Additional School of Medicine policies are available within the [Washington University School of Medicine](#) section.

Assessing Academic Achievement

and Professionalism

Committee on Academic and Professional Evaluation of Students
(CAPES)

The Academic and Professional Evaluation of Students

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Committee on Academic and
Professional Evaluation of
Students (CAPES)

Responsibility of the committee

Overall academic and professional evaluation of students at the Washington University School of Medicine will be made by the Committee on the Academic and Professional Evaluation of Students (CAPES). The deliberations of the CAPES are generally positive in approach and are committed to the ultimate aim of assisting students to successfully complete the courses of study required by the School. The principle that careful selection of students will minimize attrition from the School is strongly endorsed by the CAPES. The CAPES has several important roles, including but not limited to:

- A. At the annual end-of-year CAPES meeting, the Committee will vote to recommend promotion of students who have successfully completed all of the requirements of the current academic year to the studies of the subsequent year.
- B. Recommending to the Executive Faculty those students who have successfully completed all the prescribed requirements of the School and are qualified to receive the Doctor of Medicine degree;
- C. Requiring entry of a student into an individualized program of study (ISP);
- D. Deciding upon matters of disciplinary action, including instances of unprofessional behavior, brought to the CAPES; and
- E. Deciding upon matters of student status and remediation as contemplated by these procedures.

It is also the ultimate responsibility of the CAPES to decide whether each student meets the academic and ethical standards necessary to

enter the profession of medicine.

The rules governing operation of the CAPES apply to students in the following categories:

- A. Students who are engaged in the preclinical and clinical education requirements for the MD degree;
- B. Students in dual and joint degree programs including but not limited to the MD and MPHS, the MD/MSCI, the MA/MD and the MD/PhD (MSTP) programs taking the pre-clinical or clinical portion of their MD education.
- C. Students in all years of the Five Year MD program.

Membership of the CAPES

A. Appointed and ex officio membership

There will be 12 voting faculty members of the CAPES, and membership will be appointed for a four-year term by the Dean of the School of Medicine following nomination of suitable individuals by the department heads and Associate Deans.

A faculty member may be reappointed to serve on the CAPES. Membership will include both clinical and preclinical departments. In addition, the CAPES membership will include, in ex officio capacity, the Registrar (non-voting) and the Associate Dean for Student Affairs (non-voting). The Senior Associate Dean, the Associate Deans for Medical Student Education, Admissions and Diversity Programs and the Director of the Student Health Service may attend the CAPES meetings as non-voting participants.

B. Chair

A faculty member will be appointed by the Dean from within the

CAPES committee to serve as chair. The term of the chair will be four years. The chair may be reappointed.

C. Guests

1. A course master who is not a member of the CAPES but who has submitted a Fail/Incomplete grade for a student which is to be discussed at a meeting of the CAPES will be present at the meeting to provide information concerning the students performance. Alternatively, a course master may send a designated representative or may submit additional information in writing. In the event that a course master or designated representative is not present or sufficient information has not been forwarded, final action for that student will be deferred until adequate information concerning the students performance is available.
2. Similarly, when the committee is addressing issues of professionalism, the individual filing the professionalism concern form will be present for the meeting or in some instances may instead be allowed to submit information in writing. Any faculty, administrator or staff may be invited at the discretion of the chair.

Meeting frequency

The CAPES meetings must occur in a timely manner after final examinations or re-examinations (i.e., as soon as practical after grades are submitted to the Registrar). Generally grades will be submitted to the Registrar within 10 days of the completion of an examination. A meeting of the Committee also may be convened at any time such that timely review of a matter to be determined by CAPES and action thereupon is provided.

Quorum for the CAPES meetings

Seven voting members must be present to consider academic or disciplinary actions.

Procedures for making changes to this document

Major revisions in this document will be approved by the Academic Affairs Committee.

The Academic and Professional Evaluation of Students

<< Back to [Assessing Academic Achievement and Professionalism](#)

In order to continue their studies at the Washington University School of Medicine, students must demonstrate the ability to synthesize and apply knowledge and the capability of becoming a safe and effective physician. In addition, they must demonstrate the principles of professionalism including sound judgment, honesty and integrity, responsibility, a sensitivity and compassion for individual needs, and compliance with applicable laws, policies and regulations. Serious or repeated breaches of these principles will be referred to the CAPES for review. See [Guiding Principles of Professionalism](#).

Grading System

<< Back to [Assessing Academic Achievement and Professionalism](#)

A. First year

Courses in the first-year curriculum are evaluated on a Pass (P) or Fail (F) basis. For purposes of the final official grade records of the School of Medicine, grades used for the first year are:

- P = Pass, indicating satisfactory performance
- F = Fail, any grade of F remains on the students academic record. When the course is repeated or remediated the new grade will appear as a separate entry in addition to the failing grade.
- L = Successful audit
- NG = Course credit earned, students not graded
- W = Withdrawal from a course
- Z = Unsuccessful audit

Valid temporary grades include:

- E = Temporary grade, makeup of failed exam pending
- I = Incomplete, temporary grade pending completion of course requirements, replaced with an F if not removed within one year. In rare instances, the CAPES may grant an extension. Incomplete indicates that, because of a delay excused by the course master, the student has not completed the requirements to pass a course.

B. Second and subsequent years

For purposes of the final official grade records of the School of Medicine, the following grades are used for subsequent years:

- H = Honors, reflecting a truly outstanding performance
- HP = High Pass, awarded for excellent/very good work
- P = Pass, indicating satisfactory performance
- F = Fail, any grade of F remains on the students academic record. In clinical clerkships that have a subject examination, students must score at or above the 10th percentile of the national pool of students taking the examination to pass the clerkship. If a student fails a shelf examination for the second time in a third year clerkship an F is recorded on the permanent record.

When the course is repeated or remediated the new grade will appear as a separate entry in addition to the failing grade.

- Cr/NCr = Credit/No Credit for select second and fourth-year courses
- L = Successful audit
- NG = Course credit earned, students not graded
- W = Withdrawal from a course
- Z = Unsuccessful audit

Valid temporary grades include:

- E = Temporary grade, makeup of failed exam pending. Does not apply to block long courses in second year. In clinical clerkships that have a subject examination, students must score at or above the 10th percentile of the national pool of students taking the examination to pass the clerkship. If a student fails the subject examination once, the grade of E will be recorded. Upon successfully retaking the subject examination the new grade will replace the grade of E on the permanent academic record. If the shelf examination is failed a second time, the grade of F is recorded on the permanent academic record.
- I = Incomplete, temporary grade pending completion of course requirements, replaced with an F if not removed within one year. In rare instances, the CAPES may grant an extension.

Incomplete indicates that, because of a delay excused by the course master, the student has not completed the requirements to pass a course.

C. Grade reporting

Final grades will be submitted to the Registrar by course masters within 10 working days (Monday through Friday excluding university holidays) of the final examination or final class meeting for the first two years. For third and fourth years, grades are due within 10 working days of the receipt of standardized examination scores or the last day of the rotation if no examination is given. A web-based University system, WEBSTAC, provides timely access to grades for the first two years. Grades and evaluations of student clinical performance are submitted on a standardized form and are available for review in the Office of the Registrar throughout the academic year. Final grades for the clinical clerkships and electives are recorded in the University student information system at the end of the academic year and are subsequently available on WEBSTAC and appear on the transcript.

D. Grade point average, class ranking and grade distributions

The School of Medicine does not calculate grade point averages. Hours of credit appearing on the transcript reflect clock hours scheduled for the course or clinical rotation. For the purpose of residency applications only, students are placed in the upper, middle or lower third of the class according to a formula which considers weighting of courses and each academic year. This ranking is not recorded on the permanent academic record and therefore does not appear on transcripts. It may appear in the Medical Student Performance Evaluation (MSPE)/students deans letter. At the conclusion of the academic year, when all the official grades have been received, the official transcript, in addition to listing courses and grades achieved, gives the grade distribution in each course with

the exception of elective and selective courses.

E. Grade appeals

A student who wishes to appeal his/her grade with the course master should file his/her request for review by completing the grade appeal form which includes the basis for the appeal. This should be filed within 10 working days after the grade is posted. If reasons beyond the students control delay the resolution of the appeal past the deadline, the Registrar must be notified so that the final transcripts, grade distributions and class rankings for match can be held pending resolution of the matter. If this notice is not received by the Registrar prior to the deadline, the new grade cannot be accepted. Students participating in the residency match should also notify the office of career counseling that a grade appeal is in process. The course master will consider the appeal. He/she will indicate the resolution of the appeal on the grade appeal form and forward it to the Registrar and Associate Dean for Student Affairs. A copy of the grade appeal form is available in the Registrars Office and is also included in this document.

NO GRADE CHANGES ARE PERMITTED FOR THE ACADEMIC YEAR AFTER JULY 15.

F. Remediation

A. Occasionally, in order to remediate a failed course in the first or second year, students are permitted to complete equivalent coursework at other institutions with the permission of the responsible department and written notification to the Registrar.

B. When a students performance indicates review by the CAPES, with input from course master(s) concerned, the CAPES may invoke requirements for the remediation of individual courses that are different from those determined by individual course masters concerned. In such cases, the CAPES determination will

supersede the course masters as the CAPES is considering the students global academic performance and history. The CAPES may also require the student repeat an academic year or portion thereof if it is judged necessary given the academic history.

Individual Study Program

<< Back to [Assessing Academic Achievement and Professionalism](#)

The educational program is designed to assist the specialized needs of all medical students in an individualized and personalized manner. Tutorial assistance is available to any student at any time as detailed below. Occasionally students who have difficulty in handling the normal academic course load will enter an Individual Study Program (ISP), requiring five years to complete rather than four years.

The following rules govern students engaged in an ISP:

A. The intent of an ISP is to optimize the prospect that the student will successfully complete the curriculum. Entry into an ISP may occur in one of three ways: 1) a student may request an ISP, or after careful consideration of the students academic performance at intervals throughout the curriculum, the CAPES may either 2) recommend or 3) require entry into an ISP.

B. The specific program of any ISP (i.e. the content and sequences of courses) will be determined by the Associate Dean for Student Affairs with input from the student, relevant course

masters and the CAPES. The specific recommendations of the CAPES will generally be adopted. The plan for execution of an ISP, once established, will be recorded in the students file in the Registrars office and a copy provided to the student.

C. Unless extenuating circumstances exist, ISP students are required to take the examinations for a particular course in their usual temporal relationship to the coursework. Requests for exceptions due to unusual circumstances should be recorded in the students file in the Office of the Associate Dean for Student Affairs. Approval of such requests is considered according to the Washington University School of Medicine Guidelines for Exam Administration found in the Policies section of the School of Medicine website.

D. In the event that a single Fail or Incomplete grade is recorded for a student after entry into an ISP, the CAPES will again review the students record. The consequences may include remediation, repeat of the course, or dismissal from the School.

E. Students on an ISP who have not successfully completed and received a grade of Pass or above in all required courses of the first- and second-year curricula by the start of the second six-week period in the year of the clinical clerkship may be dismissed from the School.

Tutorial Assistance Program

<< Back to [Assessing Academic Achievement and Professionalism](#)

Students experiencing difficulty in any course may request tutorial assistance. Such requests should initially be directed toward the

course masters and thereafter to the Associate Dean for Student Affairs. Students who are repeating courses will be offered the opportunity for tutorial assistance. The CAPES may also require it. There is no charge to the student for tutorial assistance.

Indications for Review of Academic Performance

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General

Indications for Academic Review refers to guidelines used at the School in the event that a student fails a course or fails to complete a course in the requisite time.

A. In the event of any initial failure of a course offered at the School, the student will meet with the Associate Dean for Student Affairs to formulate a plan to remediate such failure, in coordination with the course master.

B. If the Registrar has recorded a Fail or Incomplete grade in two or more courses in a single year or cumulatively three courses between years, the students academic performance will be referred to the CAPES for review and determination of a course of action.

C. Refer to The Individual Study Program (ISP) section for additional guidelines pertaining to students engaged in an ISP.

D. When the performance of a student is referred to the CAPES for potential academic review, the following rules will apply:

1. No student may take more than three years to complete the coursework required for the first two years. Time periods included in a leave of absence are not counted in these three years. See the section entitled
2. Individualized Study Program for more information. In the absence of extenuating circumstances, or an approved leave of absence no student may take more than two academic years to complete the coursework required in any individual curricular year.
3. The maximum number of attempts to pass any individual course during enrollment in the School will be three.

E. Throughout the enrollment of a student, it is within the jurisdiction of the CAPES to terminate the enrollment of a student who has demonstrated serious academic failure or breaches of professionalism.

F. If a student enrolled in a joint or dual degree program is found in violation of the other programs academic or professional integrity policy or is found to have committed any disciplinary violations, including violations of the University Judicial Code, such matters may be brought to the attention of CAPES for review and further action. Notwithstanding decisions made by the other schools or programs, CAPES reserves the right to take further action against a student found in violation of such policies. If a student enrolled in a joint or dual degree program is not making satisfactory academic progress or is not meeting academic performance expectations of the other program or school such that the students status in that school or program may be impacted, CAPES reserves the right to determine whether any action should be taken with respect to the students status at WUSM.

G. It is the responsibility of students who feel that personal concerns, health problems, or any other factors may be

adversely affecting their academic performance to bring such matters to the attention of the Director of the Student Health Service or the Associate Dean for Student Affairs for possible accommodations.

First year

A. Failure of any examination that comprises a significant portion of the final grade (typically 20% or more) must be reported by the course master to the Associate Dean for Student Affairs. In the event of a failure of a single exam within the course, the course master may allow one attempt at remediation of this examination at a time prescribed by the course master. The scheduling of a remedial examination will be agreed upon by the course master and student but in general should not extend beyond 30 days after the end of the course. Days of recess for Winter Break or Spring Break will not be counted in the 30 days. A grade of E will be submitted by the course master if the remedial examination is not accomplished within the course dates. This grade will stand on the academic record until it is replaced with a valid final grade of Pass or Fail. Grades of E that are not resolved within 30 days will be replaced with a grade of Fail (F). In rare circumstances the Associate Dean for Student Affairs may approve an extension of this deadline. If the student successfully remediates the examination, and has otherwise passed the course, a Pass (P) will be recorded by the Registrar. A student may remediate only one examination in any course.

B. If a student has received a Fail/Incomplete grade in a single first-year course, the Associate Dean for Student Affairs will meet with the student to formulate a plan from the following options:

1. Enroll in and successfully complete, at the level designated by the course master, a summer course at a different institution, such course being

- completed and passed by the beginning of classes for the second year.
2. A student who, for a single course, fails the re-examination taken to remediate a failed course or fails to successfully complete an approved summer course will be referred for the CAPES to review and propose a recommended course of action. The CAPES may require such a student to enter an ISP or may be dismissed from the School. Alternatively, the CAPES may permit a second re-examination. If this second re-examination is failed, the student will be dismissed from the School.

C. A student for whom the Registrar has recorded a Fail/Incomplete grade in two or more courses during the first year will be referred to the CAPES for determination of a course of action. The Committee may decide to permit the student to take re-examinations, if a re-examination has not already been taken, in the courses for which Failed/Incomplete grades have been recorded. Such re-examinations will generally occur during the inter-academic year break. If such a re-examination is failed, the student may be required to enter an ISP or be dismissed from the School.

D. The Associate Dean for Student Affairs may also request that the CAPES review performance of a student who has demonstrated poor academic performance by failing two or more examinations.

In such instances, the CAPES may recommend a course of action.

E. All first year courses must be completed before the start of the second year curriculum in the next academic year.

Second year

A. The Associate Dean for Student Affairs will meet with students in the following categories regarding taking a re-examination, according to the schedule listed under the next section (B):

1. a student for whom an Incomplete or a final grade of Fail has been recorded in a single interval examination in a year-long course, OR
2. a student for whom a Fail or Incomplete grade has been recorded in one block-long course.

B. The schedule for re-examinations:

1. in year-long courses will generally be offered during the inter-academic year break, prior to entry into the third year.
2. for students who have failed one block-long course will be generally offered at a time determined by the course master and the Associate Dean for Student Affairs. All re-examinations must be offered to students and completed by them prior to the start of the next academic year.
3. for students who fail a re-examination of a single block-long course will be referred to the CAPES to determine a course of action. The CAPES may decide that the student must enter an ISP. Alternatively, a second re-examination may be offered. If the examination is failed for a third time, enrollment will be terminated.

C. Students in the second year for whom the Registrar has recorded Fail/Incomplete grades under the following categories will be referred to the CAPES for review and resolution of a recommended course of action:

1. one year-long course OR
2. two or more block-long courses OR

3. an interval examination in one year-long course and one block-long courses OR
4. two interval examinations in year-long courses OR
5. students for whom the Registrar has recorded a Fail/Incomplete grade in any re-examination.

D. At review by the CAPES for students referred to above, the Committee may decide to permit the student to take re-examinations, if a re-examination has not already been taken, in the courses for which Failed/Incomplete grades have been recorded. Such re-examinations will generally occur during the inter-academic year break. The CAPES may allow the student to defer beginning the clinical rotations so that re-examinations may be taken up to six weeks after the beginning of the usual cycle of clinical clerkships. Such extra time, used for study and preparation, will ordinarily mean that the student will not have the usual unscheduled time in the elective year. In the event that a Fail/Incomplete grade is recorded at a re-examination, the CAPES may require that a student enter an Individualized Study Program or that enrollment in the School of Medicine be terminated.

In the event that the CAPES decides not simply to permit re-examination, the CAPES may require that the student enter an Individualized Study Program as detailed previously, or that the student will be dismissed from the School.

E. No student will be permitted to begin clinical rotations of the third year until all first- and second- year courses have been successfully completed.

Cumulative academic review/academic warning

Prior to promotion to the clerkship year, the CAPES will review the cumulative academic record of each student brought forth by the Associate Dean for Student Affairs to determine whether the

students academic performance justifies advancement to the clinical phase of the medical education without warning. Typically, multiple remediated examinations and/or failing grades during the first two years of the curriculum would raise concerns about the students fund of knowledge and readiness to participate in clinical care of patients. Students with overall records indicating globally poor performance may be dismissed, may be required to repeat specific preclinical course work, may be advanced to the third year with academic warning or may be placed on probation.

Upon written notification of advancement with academic warning into the clerkship year, the student must meet with the Associate Dean for Student Affairs:

- A. to review the planned clerkship schedule in order to consider schedule changes to facilitate successful clinical experiences;
- B. to pursue available resources for academic intervention; and
- C. to address any additional problems that may arise. It is recommended that these students seek tutorial assistance through each clerkship course master.

A third-year student who has received an academic warning after the first two years and then fails any component of a clinical clerkship may be dismissed from the School.

Contingencies for continued enrollment on probationary status and for return to good standing will be specified by the CAPES in each individual case.

Third and subsequent years

- A. Regarding performances beyond the second year, the Associate Dean for Student Affairs will meet with a student for whom a single Fail/Incomplete/E grade has been entered regarding the requirements stipulated by the relevant course

master to remediate the academic encumbrance. Options will generally include a re-examination or repeating all or a portion of the course. If a Fail grade has been entered following the prescribed remediation, the student will be referred to the CAPES to determine a course of action. When such a student is referred to the CAPES, the CAPES may permit a re-examination or re-taking or repeating all or a portion of the course. If the course is failed a third time, the student will be dismissed from the School.

B. Any student who fails to achieve a passing grade (defined as greater than or equal to 10th percentile as reported by the NBME) on any two or more subject (shelf) examinations conducted as part of the evaluation of clerkships will be referred to the CAPES for review and course of action.

C. A student for whom the Registrar has recorded a single failing grade in the clinical clerkships or electives maybe referred to the CAPES for review and course of action.

D. A student who fails any clinical component of a clerkship or elective will have a Fail recorded on the Permanent Academic Record. At the discretion of the course master or CAPES, the student must repeat either the portion failed or the entire clerkship or elective in order to remove the academic encumbrance. The failing grade will remain on the academic record. If the course is remediated the second grade will also be recorded.

E. A failing grade for clinical clerkships will be recorded on the Permanent Academic Record when a student fails the subject examination (defined as scoring at less than the 10th percentile as reported by the NBME) for the second time. A failing grade will be recorded when a student fails any clinical portion of the clinical clerk/ship or elective. In both events, the failing grade remains on the Permanent Academic Record. When the course is remediated the new grade will also appear

on the Permanent Academic Record.

F. The Associate Dean for Student Affairs may also request that the CAPES review performance of a student who has demonstrated poor academic performance in two or more courses at interval evaluations conducted throughout the course when such performance has been reported to the Associate Dean. In such instances, the CAPES may determine a course of action.

G. For students referred to the CAPES, the Committee may endorse or amend the remediation recommendations of course masters from whom Fail/Incomplete grades have been entered. In the event that a student fails such a course of remediation, as defined by the course master and approved by the CAPES, the CAPES may require that the rotation be repeated or that enrollment of a student in the School be terminated. Students will generally be permitted three attempts to achieve a passing grade in any clerkship course. If three failing examination grades or final clerkship grades have been submitted for a course, the student will be dismissed from the School.

H. A student who advances to the clinical years with academic warning and who fails any component of a clerkship will be referred to the CAPES for action including possible dismissal from the School. See Cumulative Academic Review/Academic Warning.

Procedures Concerning Review of Academic Performance

Actions for Academic Review shall be referred to the CAPES for consideration by the Associate Dean for Student Affairs or Registrar.

A. The Associate Dean for Student Affairs will convene a meeting of the CAPES. He/she shall notify the student in writing of the course(s) for which Academic Review is scheduled and the date and time at which the CAPES will address the matter.

B. The Associate Dean for Student Affairs, the Registrar, the course master(s) or their designated representatives, shall present the matter to the CAPES in a closed and confidential CAPES meeting.

C. For students referred for course or examination failure, the CAPES meetings will have, in addition to the grade report forms for the course for which the student is referred to the CAPES, a complete record of the student's academic performance and the student file.

D. All students to be considered at a CAPES meeting will be asked to be available to appear before the Committee to provide additional information relevant to the concern. If the student fails to be available to appear at the meeting, the Committee may postpone the meeting or may conduct the meeting and impose sanctions without the student present. Failure of a student to appear or provide information requested by the CAPES may result in the committee's filing a professionalism concern form. Meetings may be rescheduled at the discretion of the CAPES Chair.

E. If there are extenuating circumstances or contributing factors that the student feels the CAPES should consider, it is the student's responsibility to bring them to the attention of CAPES in a timely manner before a determination is made regarding the student's status.

F. The student shall be permitted, upon request in advance of the CAPES meeting, to appear before the CAPES on his or her own behalf. At the student's request, he or she may be accompanied by a member of the faculty or staff of the School of Medicine for guidance and support. Alternatively, again following request, the student may be accompanied by a fellow student enrolled in the School of Medicine.

G. A record of the CAPES meeting shall be preserved for purposes of review by the School of Medicine's Appeals Committee, as necessary.

H. When a student is considered by CAPES, their entire academic and professionalism record will be considered in deliberations regarding student status.

I. Action taken by the CAPES for poor academic performance may include dismissal. Sanctions short of dismissal from the school include but are not limited to warning, probation, defined penalty, and suspension. Additional consequences may include a program of remediation or additional oversight. The CAPES may also rule that the Dean's letter/MSPE should include a citation regarding the matter. The CAPES decision shall be by simple majority vote unless the vote is for dismissal, in which case, a three-fourths majority will be required. The decision of the CAPES shall be communicated, in writing, to the student by the Registrar's office.

J. After the meeting, the Associate Dean for Student Affairs will inform the student verbally of the decision of the CAPES. The Registrar will inform the student in writing of the result within ten working days.

Indications for Review of Professional Integrity

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Matters involving possible breaches of professional integrity shall be brought to the attention of the Associate Dean for Student Affairs. The individual(s) raising the questions of possible misconduct shall present them in writing to the Associate Dean for Student Affairs by completing a Professionalism Concern Form providing other detailed written information as necessary. Individuals submitting such forms are reminded of the need for confidentiality regarding all matters of misconduct.

Behaviors inappropriate to the medical profession shall include, but are not limited to breaches of personal confidence and trust including cheating or unauthorized use of materials during examinations; abuse, misrepresentations or other seriously improper conduct in relation to patients or colleagues including breaches of confidentiality; other misconduct in violation of University policies or the University Student Judicial Code; illegality; substance abuse; failure of judgment including that related to non-compliance in the treatment of any personal medical condition; and misrepresentation or failure in personal actions or in meeting obligations, so as to raise serious unresolved doubts about the integrity of the student to enter the practice of medicine. See the [Guiding Principles of Professionalism](#) link under the Policies section on the School of Medicine website.

Procedures Concerning Review of Professional Integrity

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At the discretion of the Associate Dean for Student Affairs, in cases of serious or repeated breaches of professionalism raising concern about a pattern of behavior, the Associate Dean for Student Affairs will convene a meeting with the Associate Dean for Admissions, the Associate Dean for Medical Student Education or the Senior Associate Dean for Medical Education to review the complaint(s) and to decide whether further action is necessary.

If further inquiry is deemed necessary, the Associate Dean for Student Affairs and either the Associate Dean for Medical Student Education or Admissions, or the Senior Associate Dean for Medical Education will discuss the complaint with the student. If the two Associate Deans deem that further action is warranted, the Associate Dean for Student Affairs will follow the procedures below:

A. The Associate Dean for Student Affairs will convene a meeting of the CAPES. If the person bringing the complaint is a member of CAPES, he or she will not vote but may participate in the discussion. If the person bringing the complaint is not a member of CAPES, he or she will be asked to present the complaint and will then be excused. The CAPES chairperson will be responsible for overseeing the procedure of the meeting. The Registrar will attend the meeting to record the minutes. The CAPES shall, whenever possible, convene within one to two weeks after the initial meeting between the student and the Associate Dean for Student Affairs.

B. The purpose of the CAPES meeting is to provide fair and prompt review of the inquiry. The Committee is not positioned

in an adversarial role against the student, but simply serves to review the evidence as presented and determine its decision regarding disciplinary action, if necessary.

C. Prior to the meeting, the Associate Dean for Student Affairs will forward information concerning the matter to the Committee. In addition, the Associate Dean for Student Affairs will inform the student in writing regarding the time, date and place of the meeting. A copy of the complaint will be provided to the student. Such notification shall also state that the proceedings are confidential, and that the student may bring a faculty member, staff member or fellow student of the School of Medicine for guidance and support. If this person is not a fact witness to the complaint he/she may not address the committee.

D. Any student to be considered at a CAPES meeting will be asked to be available to appear before the Committee to provide additional information relevant to the concern. If the student fails to be available for the meeting, the Committee may postpone the meeting or may conduct the meeting and impose sanctions without the student present. Failure of a student to appear or provide information requested by the CAPES may result in the committee's drawing adverse conclusions. Meetings may be rescheduled at the discretion of the CAPES Chair.

E. The CAPES will consider evidence which tends to prove or disprove the alleged conduct. If the CAPES finds that the student engaged in misconduct, it may consider additional evidence of prior conduct, evidence as to the charged student's character, the student's entire academic and disciplinary record, or any other evidence which could assist the CAPES in determining an appropriate sanction. The Chair of the CAPES will rule on whether or not evidence or testimony will be considered. The CAPES has neither the advantages nor limitations inherent in a court of law.

F. During the meeting the student will have access to the written evidence presented and may present evidence and fact witness(es) on his or her own behalf. The student should be prepared to discuss the circumstances of the complaint after which the CAPES will excuse the student from the room.

G. The decision as to whether the student committed the alleged act will be made solely on the basis of evidence and testimony presented at the meeting. Innocence of the student will be presumed. A CAPES member must find in favor of the student unless the member is persuaded that it is more likely than not that the student engaged in the misconduct alleged.

H. Action taken by the CAPES for breaches of professional integrity may include dismissal. Sanctions short of dismissal from the School include but are not limited to advancement with academic warning, other warning, probation, defined penalty, suspension, fine and restitution. Additional consequences may include a program of remediation or additional oversight. The CAPES may also rule that the MSPE/ Deans letter should include a citation regarding the matter. Contingencies for continued enrollment on probationary status and for return to good standing will be specified by the CAPES in each individual case.

I. A simple majority will prevail, except when the motion is to dismiss from the School where three-fourths majority will be required.

J. After the meeting and decision of the CAPES, the Associate Dean for Student Affairs will inform the student verbally of the result. The Registrar will inform the student in writing of the result within ten working days.

K. The record of such proceedings will be held confidentially with access restricted to Committee members, the student involved, and relevant members of the Administration.

L. The University does not tolerate retaliation against individuals who bring forward complaints or who participate in the CAPES process.

M. Unless it is determined by the Associate Dean for Student Affairs that extraordinary circumstances exist, the student will be permitted to continue in the usual academic activities during the CAPES proceedings. However, if there is a reasonable basis for believing that the continued presence of the student on campus or in clinical rotations poses a substantial threat to the student, to patients or to the rights of others to engage in their normal University functions and activities, the procedure outlined under section B of Leave of Absence Policy applies.

N. Should a student be referred to the CAPES for an issue(s) involving both academic performance and professionalism concerns, the procedures for Professionalism Concerns will be followed.

Appeals Process for the CAPES Decisions

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The School of Medicine has the right and responsibility to assure that each student, during the time of enrollment, demonstrates levels of academic achievement and ethical stature appropriate to the practice of medicine. The School must also ensure provision of fairness in discharging those rights and responsibilities.

Within 14 working days of the date on which an academic or disciplinary decision is rendered by the CAPES, the student may

request, in writing to the Registrar, that the School of Medicines Appeals Committee review the record of the CAPES decision to determine that the appropriate CAPES procedures were followed or that the Appeals Committee request that the CAPES consider additional, new relevant information which was not previously presented to the CAPES for good cause. The letter to the Registrar should include the basis for the appeal as well as any new relevant information and an explanation as to why it was not timely presented to the CAPES.

An Appeals Committee, composed of faculty members appointed by the Dean of the School of Medicine, shall be created to review appeal of decisions by the CAPES. Members of the CAPES Committee may not be appointed to the Appeals Committee. A quorum of this committee shall consist of five members.

The Appeals Committee shall review the record of the CAPES decision solely to determine whether the pertinent CAPES procedures were followed and whether all relevant information was considered by the CAPES. If the appeal is based on a contention that all relevant information was not presented to the CAPES, the written appeal must provide the Appeals Committee with adequate reason why the student did not present this information at the CAPES meeting in question. In all cases, the Appeals Committee shall not substitute its judgment of the facts or its opinions of the merit of matter for those of the CAPES.

On all appeals the Appeals Committee may either (1) remand the matter to the CAPES for reconsideration with its explanation for the remand, or (2) deny the appeal. If the matter is remanded to the CAPES, all documents, minutes of the Appeals Committee meeting, and information submitted by or for the student in support of the appeal will be made available to the CAPES. The Appeals Committee shall provide its decision in writing to the Dean, the student, the CAPES, the Associate Dean for Student Affairs and the Registrar. The Associate Dean for Student Affairs shall determine whether the student may continue his or her curriculum pending the Appeals

Committee review of a CAPES decision.

Within 10 working days of the date of an Appeals Committee's decision or referral back to the CAPES, the student may request, in writing, that the Dean of the School of Medicine review the decision of the Appeals Committee. The decision of the Dean shall be final.

Glossary: Academic Performance and Professional Integrity

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The following definitions are applied when the indicated terms are used in relation to the foregoing rules concerning review of academic performance and professional integrity:

Academic Warning, Advancement with

A supervised status that may be imposed if a student's cumulative academic review indicates that special oversight is warranted. See section on Cumulative Academic Review/Academic Warning for additional information.

Action, Disciplinary

An action, including counseling and penalties, taken by the School of Medicine, after consideration of the disciplinary problem.

Administrative Withdrawal

Termination of a student's enrollment from or eligibility to return to

the School of Medicine by the University where the student has:

A. failed to register and has not sought a leave of absence; or

B. not returned from an approved leave of absence within the designated period of time and where an extension of the leave of absence has not been timely requested and approved by the CAPES.

Dismissal, Academic

Involuntary separation of a student from the School of Medicine because he/she has not met the academic requirements.

Dismissal, Disciplinary

Involuntary separation of a student from the School of Medicine as a result of action taken because of misconduct.

Good Standing

As a record or transcript notation, it signifies that the student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing as well as good citizenship and replaces such terms previously used as honorable dismissal, honorable withdrawal, withdrawn, voluntary withdrawal, eligible to return and clear record.

Grade, Incomplete

Indicates there is still a possibility of credit after further work. Used when the instructor is not prepared to give a final mark for the term in view either of sickness of the student or some justifiable delay in the completion of certain work. It is accompanied by a note that explains the circumstances and indicates how and when the incomplete may be resolved. A definitive mark for the term is recorded on the official transcript when the work is completed and

the incomplete grade is removed. In case the work is not completed within the time allowed, the recorded grade will be changed to fail.

Permanent Academic Record

The all-inclusive abstract of academic achievement. This is also commonly referred to as the official educational record or official transcript.

Probation

Probation status may be for academic and for disciplinary reasons. Academic probation is the result of unsatisfactory scholarship. It is not a penalty but a warning and provides an opportunity to improve. Usually the student is required to make regular specified improvement in his record in order to avoid dismissal.

Disciplinary probation is the middle status between good standing and suspension or dismissal. The student remains enrolled but under stated conditions according to school policies. Disciplinary probation covers a stated trial period during which it is determined whether the student is returned to good standing having met the stated requirements or dismissed from enrollment at the end of the period for failure to meet the stated requirements.

Professionalism Concern Form

A form completed by a member of the University community to communicate an instance of unprofessional behavior to the Associate Dean for Student Affairs. Serious or repeated instances of unprofessional behavior may be referred to the CAPES by the Associate Dean for Student Affairs.

Suspension

Suspension is an involuntary separation of the student from the

school but it differs from dismissal from enrollment in that it implies and states a time limit when return will be possible. Thus, suspension may extend for a specified time, until a specified date or until a stated condition is met.

Withdrawal

A release from enrollment. A student may request that they be allowed to withdraw from enrollment. Such requests are directed to the Registrar or the Associate Dean for Student Affairs. When a student has requested withdrawal status, the school, by action of the CAPES, will determine whether the withdrawal will be annotated with good standing or not in good standing in the official academic record. Such annotations may be accompanied by explanations in the official educational record.

Policies

A comprehensive listing of University and School of Medicine policies can be found online in the Bulletin of the School of Medicine and in the Policies section of the Schools website.

Forms

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Grade Appeal form and Professional Concern form are available in the Registrar's Office, McDonnell Medical Sciences Building, Room 100, 4565 McKinley Ave. St. Louis, MO 63110.

Policies Related to Evaluation

[United States Medical Licensing Exam \(USMLE\)](#)

United States Medical Licensing Exam (USMLE)

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Students who matriculated prior to 2014 and who anticipate practicing clinical medicine are required to take the USMLE Step 1 and 2 examinations. Beginning with the class matriculating in 2014, all students are required to take the USMLE Step 1, Step 2CK and Step 2 CS prior to graduation.

The USMLE is designed to “assess a physician’s ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills, that are important in health and disease and that constitute the basis of safe and effective patient care.” The USMLE represents a single uniform examination for medical licensure in the United States, and as such, is a minimum requirement for obtaining a medical license.

The USMLE consists of four separate examinations. “Step 1 assesses whether you understand and can apply important concepts of the sciences basic to the practice of medicine, with special emphasis on principles and mechanisms underlying health, disease, and modes of therapy. Step 1 ensures mastery of not only the sciences that provide a foundation for the safe and competent practice of medicine in the present, but also the scientific principles required for maintenance of competence through lifelong learning.” Step 1 is taken after completing the second year at WUSM.

Step 2 consists of two separate examinations, Step 2 CK (Clinical

Knowledge) and Step 2 CS (Clinical Skills) which are taken at different times. “Step 2 assesses whether you can apply medical knowledge, skills, and understanding of clinical science essential for the provision of patient care under supervision and includes emphasis on health promotion and disease prevention. Step 2 ensures that due attention is devoted to principles of clinical sciences and basic patient-centered skills that provide the foundation for the safe and competent practice of medicine.” Step 2 exams are taken after completing the third year but prior to graduation from WUSM.

“Step 3 assesses whether you can apply medical knowledge and understanding of biomedical and clinical science essential for the unsupervised practice of medicine, with emphasis on patient management in ambulatory settings. Step 3 provides a final assessment of physicians assuming independent responsibility for delivering general medical care.” Step 3 is taken following graduation and during internship/residency training.

Further information can be obtained from the USMLE Bulletin of Information published by the National Board of Medical Examiners, and is available, along with application forms and information, at <http://www.usmle.org>.

Guidelines for Exam Administration

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Following are general guidelines for exams administered in the undergraduate medical curriculum. Additional requirements may be posed by the individual course master.

Expectations for Students

- Take the exam during the originally scheduled time, excepting extenuating circumstances. Students are required to take all examinations at the specified time. A student may be excused from this rule for extenuating circumstances at the discretion of the Associate Dean for Student Affairs. Extenuating circumstances are normally defined as sudden personal illness. Doctor appointments of a routine nature or vacation time are not considered to be extenuating circumstances for which students can be exempted from the regularly scheduled exam date. Such occasions will be promptly reported to the Associate Dean for Student Affairs. In the event of inability to attend a scheduled examination due to sudden illness the student is required to inform the course master prior to the examination and to be evaluated by the Student Health Service. In the event that the student cannot reach the relevant course master, the student should contact the Associate Dean for Student Affairs.
- Students are expected to be punctual and should be assembled in the designated exam area before the official start time of the exam. Tardiness will not be excused except in extenuating circumstances. For purposes of the exam, “tardiness” will be defined by the course master or exam proctor.
- Not share study materials, exchange information, collaborate or communicate with others during the exam.
- Turn off and leave cell phones and other electronic devices in their bags.
- Hand their exam to the proctor prior to leaving the room.

Any student needing accommodation for exams should review the school’s Students with Disability Policy in advance of exams.

Students needing accommodations should meet with the Associate Dean for Student Affairs in advance of exams to discuss his or her request. The Associate Dean for Student Affairs will inform course

masters of approved exam accommodations.

Expectations for Faculty

- Exams should be proctored by the course master or a designee appointed by the course master comfortable with proctoring and exam administration guidelines. Exams will not be proctored by Office of Medical Education/Office of Medical Student Education Staff. NBME subject exams are proctored by the Office of Student Affairs.
- Administration should be fair to all students.
- If the faculty member answers a substantive question or clarifies an issue, the same should be communicated to ALL students, including those in separate rooms or at different times.
- Reasonable adjustments should be offered to students who require special accommodations, including a separate testing room or additional time. Course masters are notified of these students through the Associate Dean for Student Affairs.
- If a student behaves inappropriately, the course master should notify the Associate Dean for Student Affairs immediately (see below for examples of inappropriate behaviors).
- All requirements of students should be communicated to all students PRIOR to the start of the exam.

*Not applicable to take-home exams

Cheating

The following examples are intended to be representative of behaviors that constitute cheating in the context of an exam. This is not intended to be an all-inclusive list.

- Looking at or copying from another student's test paper.
- Collaborating with another student during the test without

authorization.

- Using lecture notes or textbooks during an exam without authorization.
- Possessing crib notes during an exam.
- Using signals/signs to obtain answers from others.
- Utilizing a calculator, cell/smart phone, computer, or any other device or learning aid without authorization. This includes storing, receiving, and/or accessing course matter stored on such devices.
- Obtaining assistance in answering questions on a take-home exam without authorization.
- Obtaining advance copies of exams or quizzes by any means.
- Having someone else take an exam in your place.
- Feigning illness or submitting misleading statements to avoid taking an exam at the scheduled time.
- Changing an answer on a graded test and claiming the question response was incorrectly marked wrong.

Policies Related to Absences and Leaves

[Absence Policy for MD Students on Clinical Clerkships](#)

[Absence Policy for MSTP Students on Clinical Clerkships](#)

[Absence Policy for MD Students on Fourth-Year Electives](#)

[Leave of Absence Policy](#)

[Policy on Student Status and Benefits During Research Years or Leave of Absence](#)

Absence Policy for MD Students on Clinical Clerkships

<< Back to [Policies Related to Absences and Leaves](#)

The profession of medicine requires the utmost commitment of time and energy to patient care and research activities. While the development of this commitment begins in the preclinical years, it is further practiced and developed during the clinical clerkship.

The clinical clerkship year at Washington University School of Medicine comprises 48 weeks of required core clinical experiences. All students on the clinical clerkships have a scheduled 2-week winter recess break, a 3-day spring break and a 2-week break between the end of the third-year clinical clerkships and the start of fourth-year elective rotations (or free time prior to graduation for MSTP students). During every clinical clerkship, each student is expected to participate fully in all activities of the clerkship up until the designated end time of the clerkship or the start time of a holiday break. This regularly requires participation beyond formal weekday hours to include evening and nighttime call and clinical responsibilities on weekends.

If a student is ill or has a personal emergency, (s)he should notify the clerkship course master's office and the resident supervising his/her clinical team the morning of the absence. If the absence extends beyond two consecutive days, the student should also notify the Office of Student Affairs.

It is recognized that a student may, on a very occasional basis, desire to be excused from clinical activities for professional or significant personal events. For the third year, the Curriculum Evaluation

Committee agreed upon the following guidelines regarding the maximum number of days of excused absences (including illness) from clerkships: Students may miss up to 5 days on a 12-week clerkship, 3 days on a 4- or 6-week clerkship, and 1 day for a 2-week clerkship without making up the missed time. Students must recognize that clerkship teaching, learning and evaluation are dependent on the student's presence and participation in every aspect of the clerkship. While students will not be graded down only because of an excused absence, time spent away from the clerkship may decrease learning and impede effective evaluation; students are encouraged to make up missed work on rotations in which this can result in meaningful learning and should discuss this option with the clerkship director. It is the responsibility of the student to directly contact the clinical clerkship course master in writing (by letter or e-mail) to obtain permission for any planned absences well in advance of the planned absence.

At the discretion of the course master, any student who misses portions of the clinical clerkship experiences due to planned and/or unplanned absences that exceed the maximum time may be required to utilize winter recess, spring break or free time at the end of the third year clinical clerkships to complete the 48 weeks of mandatory clinical clerkships.

Absence Policy for MSTP Students on Clinical Clerkships

<< [Back to Policies Related to Absences and Leaves](#)

MSTP students are allowed to miss up to three days of any four-week clerkship, and up to nine days of any 12-week clerkship for any

reason including interviews. This is a substantially more flexible policy than we have towards the M.D. students, in which we limit the number of days off to three in a four-week period, and five in a twelve-week period. We recognize that for some MSTP students entering competitive specialties with limited interview dates it may be necessary for them to plan far enough ahead in their training to schedule a month for either a very light elective or a free month to allow appropriate flexibility for interviews. The committee also agreed that the MSTP students should be encouraged to:

1. talk with Dr. Kathryn Diemer early for assistance in residency planning;
2. seriously consider coming out of lab a month earlier to allow flexibility for interviewing; and
3. delaying graduation by one year to increase flexibility. When absences are necessary on a clerkship, advanced discussion with the clerkship director will better allow placement on a team to allow maximum educational value. We believe this policy strikes an appropriate balance between increased flexibility for the MSTP students and assuring a meaningful educational experience on the core clerkships.

Absence Policy for MD Students on Fourth-Year Electives

<< [Back to Policies Related to Absences and Leaves](#)

The profession of medicine requires the utmost commitment of time and energy to patient care and research activities. While the development of this commitment begins in the preclinical years, it is further practiced and developed during the clinical clerkship and

elective years.

The elective year at Washington University School of Medicine encompasses a 44-week time block and requires students take a minimum of 36 weeks of elective experiences. All students have a scheduled two-week winter recess and a three-day spring break during the academic year. During each elective, each student is expected to participate fully in all activities of the elective up until the designated end time of the elective or the start time of a holiday break. This could require participation beyond formal weekday hours to include evening and nighttime call and clinical responsibilities on weekends.

If a student is ill or has a personal emergency, (s)he should notify the elective course master's office and the resident supervising his/her clinical team the morning of the absence. If the absence extends beyond two consecutive days, the student should also notify the Office of Student Affairs.

It is recognized that a student may, on a very occasional basis, desire to be excused from clinical activities for professional absences or significant personal events. For the fourth year, the Curriculum Evaluation Committee agreed upon the following guidelines regarding the maximum number of days of excused absences (including illness) from electives: During interview season, students will be allowed to miss up to five days in a four-week rotation; any additional days off would require approval by the Associate Dean for Medical Student Education and the elective course master. Days off in excess of three days are to be used for residency interviews.

The rest of the elective year follows the third-year absence policy: Students may miss up to five days on a twelve-week rotation, three days on a four-week rotation, and one day for a two-week rotation without making up the missed time. Students must recognize that elective teaching, learning and evaluation are dependent on the student's presence and participation in every aspect of the elective. While students will not be graded down because of an excused

absence alone, time spent away from the elective may decrease learning and impede effective evaluation. Because of these meaningful learning experiences, students are encouraged to make up missed work on rotations and should discuss this option with the course master. It is the responsibility of the student to directly contact the course master in writing (by letter or e-mail) to obtain permission for any planned absences well in advance of the planned absence.

At the discretion of the course master, any student who misses portions of the elective experience due to planned and/or unplanned absences that exceed the maximum time may be required to utilize winter recess, spring break or free time to complete the elective.

The required fourth-year Capstone course has a separate absence policy. Please refer to the course syllabus for details.

Leave of Absence Policy

<< Back to [Policies Related to Absences and Leaves](#)

I. A student may request a leave of absence for academic or personal reasons by submitting a statement in writing to the Office of Student Affairs. Such a statement should include indication of the beginning and anticipated ending dates and a brief statement of the reason (academic or personal). Requests for leave of absence must be approved by the Associate Dean for Student Affairs. Leaves of absence shall be granted for no more than one year, but in unusual cases may be renewed by the CAPES for additional years after discussion with the Associate Dean for Student Affairs. Students requiring a personal leave of absence for medical reasons must

submit a supporting letter from the Director of the Student Health Service. A written statement of medical clearance will be required before the student may return from such a leave.

II. If there is a reasonable basis for believing that the continued presence of the student on campus or in clinical rotations poses a substantial threat to the student, to patients or to the rights of others to engage in their normal University functions and activities. The following procedure applies:

A. The Chancellor or his designate may impose an involuntary leave of absence when there is evidence that a student has committed an offense under these rules or the University's Judicial Code and there is evidence that the continued presence of the student on the University campus or as a participant in a clinical rotation poses a substantial threat to himself or herself, to patients or to the rights of others to continue their normal University function and activities.

B. Imposition of the involuntary leave of absence may result in denial of access to the campus, prohibition of class attendance and/or prohibition of participation in clinical rotations.

C. If an involuntary leave of absence is imposed, the suspending authority shall prepare a written notice of the imposition and shall have the notice mailed certified or personally presented to the student. The written notice shall include a brief statement of the reasons therefore, and a brief statement of the procedures provided for resolving cases of involuntary leave of absence under these rules.

D. The student shall be given an opportunity to appear personally before the suspending authority within five (5) business days from the date of service of the notice of imposition of the involuntary leave of absence. If the student asks to appear personally before the suspending authority, only the following issues shall be considered:

1. Whether the suspending authority's information concerning the student's conduct is reliable; and
2. Whether under all the circumstances, there is a reasonable basis for believing that the continued presence of the student on campus or in clinical rotations poses a substantial threat to the student, to patients or to the rights of others to engage in their normal University functions and activities.

E. Within one week of the date of imposition of the involuntary leave of absence, the suspending authority shall either file a statement of charges against the student with the University Judicial Board, and shall have the statement or charges served, by mail or personal service, upon the student and the dean of the school or college or director of the program in which the student is enrolled or initiate proceedings under these rules to convene a Disciplinary Committee.

F. A temporary suspension shall end when

1. rescinded by the suspending authority, or
2. upon the failure of the suspending authority to promptly file a statement of charges with the University Judicial Board or a Disciplinary Committee, or
3. when the case is heard and decided by the University Judicial Board, or the Disciplinary Committee.

Return of students from involuntary leave of absence requires clearance of both the Director of the Student Health Service and the Associate Dean for Student Affairs.

III. Students receiving financial aid should be advised that at the end of sixty (60) days or more leave of absence, the grace period for loan repayment during a leave of absence may be exhausted. In such cases there will be an obligation for the student to start payments. According to the Federal rules under which loans are made, the use

of a grace period during a leave of absence will generally mean that the schedule for loan repayment may be changed. Students who are receiving financial assistance should consult with the Financial Aid Office to determine the implications of a Leave of Absence for their financial aid.

IV. A student returning from a leave of absence of one year duration or less will maintain the same tuition rate. Students returning after more than one year leave of absence will assume the tuition rate of the class they are rejoining. Appeals of this policy should be submitted in writing to the registrar. Please refer to the section on Registration, Payment of Financial Obligations, Withdrawal and Refund Policy regarding policies on the effect of a leave of absence on tuition and other financially related matters.

Policy on Student Status and Benefits During Research Years or Leave of Absence

<< Back to [Policies Related to Absences and Leaves](#)

MD/PhD

Student status is maintained while in the research phase of the MD/PhD program. Students are registered in the graduate school during the research years. Both student health and disability coverage are provided by the Division of Biology and Biomedical Sciences.

MA/MD

Student status is maintained while in the research phase of the MA/MD program. Students are registered in the graduate school during the research year. Both student health and disability coverage are provided.

Five-Year MD Program

Research Year Here

Student status is maintained throughout the approved research year. In exceptional circumstances, a second research year may be permitted. The student may receive a stipend, but may not be considered an employee of the university. Students are registered in the School of Medicine. Both disability and student health coverage are required and are payable by the student. Outside funding often covers such fees.

Research Year Away

Student status is maintained throughout the approved research year. Students are registered in the School of Medicine. Both disability and student health coverage are optional with proof of like coverage. The cost of either elected coverage is payable by the student. Outside funding often allows these costs.

Leave of Absence

Leave of Absence Year Here

Student status is not maintained during the leave of absence though benefits of student health coverage and disability insurance are optional throughout an approved leave. Costs are payable by the MD program students. MD/MA and MD/PhD students may request support for these costs from the Division of Biology and Biomedical Sciences if funds are available. The Office of Financial Aid should be consulted for information regarding loan repayment and grace

periods when on a leave of absence.

Leave of Absence Year Away

Same as Leave of Absence Year Here.

A student returning from a leave of absence of one year duration or less will maintain the same tuition rate. Students returning after more than one year leave of absence will assume the tuition rate of the class they are rejoining. Appeals of this policy should be submitted in writing to the registrar.

Other Policies — MD Program

[Guiding Principles of Professionalism](#)

[Technical Standards Statement](#)

[Dress Code](#)

[Duty Hour Policy for Medical Students](#)

[Payment of Financial Obligations, Withdrawal and Refunds Policy](#)

Guiding Principles of Professionalism

A. Preamble

Medicine is one of the oldest of the learned professions. A professional is one who is in command of a specialized body of knowledge and skills, and is given specific rights not typically allowed to the public. Along with those rights, the professional has specific responsibilities or duties not generally expected of the public.

The singularity of medicine is that it deals with human health. Patients are potentially at their most vulnerable when establishing a relationship with a physician. That the patient's relationship with his/her physician involves a dependency that encompasses life and death adds further to the uniqueness of this relationship.

The label of professional is not a right but must be earned. The special contract physicians have with society has professionalism as its foundation. Professionalism consists of fundamentally important qualities including altruism, compassion and empathy, respect for patients and health care workers, commitment to ongoing excellence, honesty, trustworthiness, integrity, accountability, recognition of limits, collaboration, and duty to society.

Professional development is an on-going process at all levels of training and practice. The purpose of this document is to outline those elements of professionalism expected of our medical students. It is not meant to be all encompassing, providing exact guidelines for all possible situations. Rather, four broad categories of professional behaviors are described below, with specific principles cited for each in bold print, and examples provided for some of the principles in regular text. While this document was developed with medical students in mind, it is generally applicable to all medical professionals.

B. Professional responsibility

1. Students have a responsibility to actively participate in their education and to work to improve the educational environment for future students.
2. Students should have a willingness to pursue life-long, self-directed learning, which is an essential attribute of any professional.
3. Students should act responsibly in their personal and academic lives with regard to meeting deadlines, financial obligations and other comparable responsibilities.
4. Preparation for class and during clinical rotations sets a good example for peers, maximizes every student's learning opportunity, and demonstrates respect for the teachers and peers.
 1. Respecting one's peers in a classroom or in the hospital setting includes behaviors such as arriving on time, exhibiting respectful body language, listening attentively, turning off cell phones and allowing all present to engage in discussion.
5. Students should report to the appropriate supervisor potentially serious errors that others have committed.
6. Students should contribute to their community.
 1. Students are encouraged to participate in the first- and second-year teaching groups.
 2. These provide a service to the larger St. Louis community, while teaching students how to communicate with people of diverse backgrounds.
 3. Students are encouraged to serve at the Saturday Neighborhood Health Clinic and other community service and teaching activities.
7. Students should be aware of the larger social and economic context in which disease occurs, and take advantage of opportunities to deepen their knowledge about this topic.

C. Competence and self-improvement

1. In order to function at the expected level, students should

attend to their own physical and emotional health.

1. The experience of being a medical student can be physically and emotionally challenging. Students need to be able to identify when they are overwhelmed to the point where they may not be able to function appropriately. Students are encouraged to seek educational assistance and/or the emotional support of others in these instances.
2. Recognizing and admitting errors in patient care are key to being a good physician.
 1. Students should view mistakes as part of learning. Assuming responsibility for mistakes is critical for professional development.
 2. Developing productive strategies for dealing with mistakes and non-confrontational ways of correcting them is essential.
3. Feedback, advice and criticism from residents, fellows and faculty fosters personal and professional development, and should be taken in the context of mentoring.
 1. Students should assume that opinions of their faculty/residents/fellows that may seem unclear are usually solidly founded, and accept feedback regarding their performance openly and maturely from individuals more experienced than they.
 2. Students should provide suggestions and examples for improving the mentoring environment by forthrightly evaluating their instructors.
4. Students should identify and correct errors in patient care as soon as possible or notify those who can correct it.
5. Students should balance personal and professional interests.
 1. Students should not over-commit.
 2. Students should communicate schedule conflicts to course directors, lecturers, and/or house staff.

D. Respect for others and professional relationships

1. Students should conduct themselves with manners and consideration of all others, and be respectful of others' time.
2. While individual effort is important in developing a medical knowledge base, much of what students learn in medical school will depend on a collaborative effort with their peers.
 1. From the first day of medical school, students should encourage each other and collaborate with their peers when appropriate in the learning environments of lectures, small group discussions, and lab sessions. In doing so, they are laying the foundation for the truly collaborative nature of medicine.
 2. During the clinical years, students should understand that their peers are a valuable resource. Likewise, a student should assist peers in patient care responsibilities.
 3. In all cases, students should respect the work and learning opportunities of their classmates and they should share educational opportunities with their peers. Professional behaviors include listening to other's presentations, and encouraging others' opportunities to present, ask/answer questions, admit patients, participate in surgical cases/procedures, or perform duties.
3. Respect for the ethnic and cultural diversity of classmates provides for a more nurturing environment for all.
 1. Students should be aware that their classmates come from a wide variety of religious and ethnic backgrounds and that they will have differing lifestyles and viewpoints. This diversity is an important resource in our community, contributing to personal and professional growth of all.
 2. Students should be sensitive to the importance of these issues and should seek opportunities to enhance appreciation of multiple cultures through dialog, educational opportunities, etc.
4. Students should be supportive of peers during difficult times

in their personal and professional lives.

1. Students must appreciate that their peers may have issues in their personal or professional lives (e.g. family, medical, academic, or administrative problems) that may affect their interactions with others. In these circumstances, students should make every attempt to be sympathetic and to offer their support to those students.
5. Participation and teamwork enhances the educational experience.
1. The learning process is a partnership between students and faculty. Students should actively participate in this partnership by providing feedback to professors by way of evaluations and surveys.
 2. Contributing to the overall functioning of the team maximizes both learning and patient care in the clinical setting.
6. Understanding the appropriate venues for feedback to house staff/fellows/faculty is critical to successfully resolving conflicts .
1. Students should be aware of the hierarchy of the team, and appropriate mechanisms for handling disagreement with faculty/residents/fellows. Conflicts can be translated into productive outcomes if handled appropriately.
 2. www.universitycompliance.wustl.edu/codeofconduct
7. Maintaining a professional relationship with teachers (including faculty/residents/fellows and TAs) is important, especially during times when these teachers are in a position to grade or evaluate the student.
1. Students should avoid behaviors that could potentially be construed as attempting to influence the faculty, for example running personal errands.
 2. The University has specific codes and regulations regarding romantic relationships between a student and a teacher, including faculty/resident/fellows

(www.wustl.edu/policies/consent.html)

Students engaged in such relationships should review these codes and avoid any situation that can cause potential conflict of interest in the academic setting.

8. Patients should be treated as individuals in the context of their family, culture and community. Personal bias should be subordinated when possible to further the therapeutic relationship.
 1. Use of offensive language or gestures is unacceptable.
 2. At times, some religious beliefs will require the use of alternative care approaches.
 3. Students, like practicing physicians, should not refuse to participate in the care of a patient with a communicable disease unless this represents a meaningful threat to the student's own health. In contrast, a student who is verbally or physically threatened by a patient may ask to be excused from care of that patient.
9. Students should treat hospital staff with appreciation and respect as they are vital members of the health care team.

E. Honesty and integrity

1. Student work should be original.
 1. Only authorized resources should be used during examinations, quizzes or graded course work. WUSM has a zero tolerance policy for plagiarism. [link to University's definition]
 2. When students are aware that a classmate has submitted work that is not their own (cheated), they should discuss this situation with the Course Master and/or the Associate Dean for Student Affairs.
2. Students must respect patients' rights and maintain confidentiality, in accordance with HIPAA guidelines.
 1. Students should be ever aware that patients are ill and have the right to refuse care, particularly when poorly provided.

2. Patient information should only be discussed with appropriate people at appropriate times.
3. Patient records should not be photocopied carelessly or removed from appropriate areas.
4. Patient information should be disposed of appropriately to prevent careless transmission of patient information.
3. Students should clearly communicate their abilities and level of training to patients.
 1. If a student does not know the answer to a patient's question, it is his/her responsibility to admit this lack of knowledge.
 2. Even if other members of the health care team introduce students to patients as "doctor," the student should never do so as it leads to a false perception of expertise on the patient's part.
 3. Students should always be truthful with the house staff and other medical staff in terms of patient care and never compromise patient care as a consequence of personal gain.
4. Students should not participate in any aspect of patient care if under the influence of a substance that may compromise his/her judgment or otherwise cause the patient harm. Likewise, students should report any member of the health care team who may be participating in patient care while under the influence of a judgment-impairing substance.
5. Any student who is impaired by physical or psychological illness should excuse him/herself from patient care responsibilities, and should also respect recommendations to do so from colleagues or supervisors.
6. Although students are often tired or under stress, they should attempt to maintain an appropriate level of composure at all times.
7. Students should be appropriately attired for all patient care duties.
8. Students should carefully consider their participation in benefits provided by pharmaceutical companies or other

medically-related businesses.

9. Students should respect the laws of federal, state and local governments in both professional and private life.

Washington University School of Medicine Professionalism Concern Form

Please see Appendix B in the “Rules Governing Review of Student Performance” booklet.

Technical Standards Statement

<< Back to [Other Policies — MD Program](#)

Graduates of Washington University with a Doctor of Medicine degree are expected to have broad competence in the basic skills that underlie the general practice of medicine and surgery. All graduates must be able to take a history, examine a person, synthesize the findings into a diagnosis and plan of evaluation and treatment independently. Thus, medical students must possess the requisite sensory, motor, communicative and cognitive capabilities to accomplish these requirements in a reliable manner in order to be competent and safe medical practitioners.

Dress Code

<< Back to [Other Policies — MD Program](#)

While Washington University School of Medicine does not have a written dress code, it is expected that all students will dress in attire that is appropriate for a professional.

Appropriate attire in the clinical setting is especially important, not only because the student will be part of the team representing the medical profession to patients, but also because the student will be representing the School of Medicine.

Appropriate attire for male students on the clinical services includes man-tailored shirt and tie, trousers or slacks and closed toe shoes. Appropriate attire for female students includes a dress, a blouse, tailored shirt or sweater, slacks or skirt, and closed-toe shoes. Both men and women should wear a short white jacket with the appropriate identification card clearly visible.

Duty Hour Policy for Medical Students

<< Back to [Other Policies — MD Program](#)

* This policy applies to fourth-year students as well.

Clerkship directors and directors of other clinical rotations are responsible for monitoring and ensuring that duty hours are adjusted as necessary. Duty hours are defined as all clinical and academic activities related to medical student education including patient care (both inpatient and outpatient), administrative duties (completion of paperwork, dictation of charts, etc.), the provision for transfer of patient care (check-in, check-out, etc.), time spent in-

house while on call, and scheduled academic activities (i.e., required academic conferences). Time spent reading, doing write ups, etc, after leaving the hospital (or after having been told you can leave) does not count toward duty hours. Student duty hours are set taking into account the effects of fatigue and sleep deprivation on learning and patient care.

- Students must not be scheduled for more than 80 clinical duty hours during a seven-day week, averaged over a four-week period.
- Students must have a minimum average of four 24-hour periods off over four weeks.
- Students must not be on overnight call more frequently than every third night.
- Students cannot be on call for more than 24 successive hours, with an added period of up to 4 hours for continuity, educational debriefing, and didactic activities. No new patients should be assigned to students after the 24-hour call limit.
- All WUSM third- and fourth-year students will have all official Washington University holidays off, regardless of whether the students' team is on-call or post-call the day of the holiday. On the work day directly preceding the holiday, students will be dismissed by 5 p.m., and will not be assigned call duties, or regular clinical duties, until the day following the holiday at the time set forth by the clerkship director, chief resident, or fourth-year elective course master.
- Students are strongly encouraged to discuss issues pertaining to days off with the resident at the beginning of the clerkship, or fourth-year elective, and to contact the respective clerkship director, elective course master, or resident, in writing (by letter or email) to obtain permission for any planned absences well in advance of the planned absence.
- Individual clerkship directors and directors of clinical rotations may choose to implement duty hour guidelines that are more restrictive than the above. However, duty hours may not exceed the above regulations.

- If you encounter a duty hour violation, please discuss first with the clerkship director or elective coursemaster. If the issue is not resolved to satisfaction, you may approach Deans Michael Awad, Lisa Moscoso, or Alison Whelan.

Registration, Payment of Financial Obligations, Withdrawal and Funds Policy

<< Back to [Other Policies — MD Program](#)

For the convenience of our students, the Washington University billing system provides a central financial account against which most student expenses incurred at the University will be posted, including but not limited to tuition, dormitory charges, parking, library fines, etc. This policy, when referring to tuition and other charges, includes any and all charges posted to this account.

All payments of tuition and other University charges are due and payable on the dates specified in the published calendars of the programs in the School of Medicine. Failure of a student to register when required and pay tuition and other charges incurred on or before the date specified in the published calendar will result in a late fee of \$50 to be added to the amount due. The late fee will be imposed seven days after the due date if full payment has not been received. Tuition and other charges are usually payable twice a year, at registration time and again at the middle of the academic year as listed on the schedule on the academic calendar.

Any payment due from the student and not paid by the specified date will accrue interest at the usury rate in effect on the first

business day of the month in which the payment is due. This fee will be imposed on any accounts not paid in full within 30 days of the due date. Any amount not paid when due plus accrued interest thereon must be paid in full within three months of the due date to avoid suspension from classes.

If a student fails to settle such unpaid amounts within three months of the original due date, the School will not release the student's academic record, grade reports or transcript pending settlement of the unpaid account. A student who has not satisfied all of his/her delinquent financial obligations to Washington University (tuition, Olin Residence Hall rental, parking, etc.) one month before the end of the end of the academic year will not be allowed to progress to the next academic year, or be issued a diploma. Federal financial aid funds for the next academic year cannot be disbursed until all prior year balances are paid in full.

Students who rely on financial aid funds to meet their obligations should submit their applications for processing according to application deadlines published by the Office of Financial Aid. Deadlines allow for receipt of financial aid funds by payment due dates if applications are filed by the deadline. The Office of Student Financial Aid will assist students with loan applications and financial planning upon request.

A student who withdraws or takes a leave of absence from the School will receive a pro rata refund of tuition and appropriate fees. The refund will be based on the ratio of the class days enrolled (from the first day of classes to the termination date) to the total number of class days in the term for which tuition and fees were paid. It is understood that the date on which a student formally notifies the Registrar's Office in writing of the decision to withdraw or take a leave of absence from the School of Medicine shall be regarded as the termination date, with no retroactive clause to be accepted. A prospective date will be accepted, however. If tuition and fees were paid entirely or in part by financial aid from the School, the refund will be applied first to the total repayment of the accounts from

which financial aid was drawn, with any remaining refund balance given to the student. Financial aid received in excess of the costs of tuition and fees must be refunded by the student to the School on the same pro rata basis as calculated for the tuition refund outlined above – per “Return of Title IV” Federal guidelines. Examples of the application of the refund policy may be requested from the Registrar’s Office.

Applied Health Behavior Research Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid
Eligibility

For additional policies, please visit the [Applied Health Behavior Research website](#).

Audiology and Communication Sciences Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid
Eligibility

For additional policies, please visit the [Program in Audiology and Communication Sciences website](#).

Biology and Biomedical Sciences Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid Eligibility

For additional policies, please visit the [Division of Biology and Biomedical Sciences website](#).

Biomedical Engineering Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid Eligibility

For additional policies, please visit the [Biomedical Engineering website](#).

Biostatistics Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid Eligibility

For additional policies, please visit the [Division of Biostatistics website](#).

Clinical Investigation Policies: See Appendix

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

For additional policies, please visit the [Clinical Research Training Center website](#).

Doctor of Philosophy Policies: See Appendix

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#)

For additional policies, please visit the [Division of Biology and Biomedical Sciences website](#).

Genetic Epidemiology Policies: See Appendix

[Standards for Satisfactory Academic Progress for Financial Aid](#)

Eligibility

For additional policies, please visit the [Genetic Epidemiology website](#).

Occupational Therapy Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid
Eligibility

For additional policies, please visit the Program in [Occupational Therapy website](#).

Physical Therapy Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid
Eligibility

For additional policies, please visit the [Program in Physical Therapy website](#).

Population Health Sciences Policies: See Appendix

Standards for Satisfactory Academic Progress for Financial Aid Eligibility

For additional policies, please visit the [Master of Population Health Sciences website](#).

People

Washington University Medical Center is one of the nation's biggest academic medical centers and among the largest employers in the St. Louis metropolitan area.

By the numbers

Total Students: 1,360

- MD, MD/PhD, MA/MD: 602
- Applied Health Behavior: 17
- Audiology and Communication Sciences: 71
- Clinical Investigation: 85
- Genetic Epidemiology: 31
- Occupational Therapy: 282
- Physical Therapy: 259
- Population Health Sciences: 13
- Faculty: 1,983

Non-faculty Assistants and Others: 134

Staff: 6,796

Total Employees: 8,913

Affiliated Private Practice Faculty: 1,336

Fellows and Trainees: 854

House Staff: 1,125

Leadership

Please visit the [About](#) section for [Officers of the School of Medicine](#) and other leadership groups of the school and university.

Faculty: See Appendix

The All Faculty listing in the Bulletin of the School of Medicine is drawn from the Washington University Human Resources Management System (HRMS) and provides academic appointments and education details. To update or change a faculty member's Bulletin listing, please contact the HRMS representative for your department, division or program.

For faculty contact information, please visit the [Washington University online directory](#).

Select first letter of Last Name:

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
T | U | V | W | X | Y | Z

-OR-

SEARCH BOX HERE

"A" names here...

Medical Students: See Appendix

Alphabetical listing

Note: This may not be a complete listing. Some students may have elected to withhold directory information.

Select first letter of Last Name:

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
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Summary of Students in the School of Medicine

2013-14

Doctor of Medicine and Doctor of Philosophy

Graduating Class: 21

Third-Year Class: 8

Eighth-Year Research: 1

Seventh-Year Research: 1

Sixth-Year Research: 6

Fifth-Year Research: 18
Fourth-Year Research: 21
Third-Year Research: 19
Second-Year Research: 25
First-Year Research: 25
Second-Year Class: 27
First-Year Class: 18

Doctor of Medicine and Master of Arts

Graduating Class: 5
Trainees: 4

Doctor of Medicine and Master of Science in Clinical Investigation

Graduating Class: 4

Doctor of Medicine

Graduating Class: 88
Five-Year Research Program: 3
Third-Year Class: 112
Second-Year Class: 124
First-Year Class: 123

Doctor of Physical Therapy

Graduating Class: 80
Second-Year Class: 79
First-Year Class: 81
Part-Time Students: 19 (Post Professional)

Doctor of Occupational Therapy

Graduating Class: 26

Third-Year Class: 24

Second-Year Class: 15

First-Year Class: 15

Doctor of Audiology

Graduating Class: 12

Third-Year Class: 11

Second-Year Class: 14

First-Year Class: 15

Master of Science in Occupational Therapy

Graduating Class: 60

Second-Year Class: 71

First-Year Class: 71

Master of Science in Population Health Sciences

Second-Year Class: 3

First-Year Class: 10

Master of Science in Genetic Epidemiology

Certificate/SCND: 3

Master of Science in Biostatistics

Second-Year Class: 17

First-Year Class: 11

Master of Science in Deaf Education

Graduating Class: 8

First-Year Class: 11

Master of Science in Clinical Investigation

Graduating Class: 30

First-Year Class: 19

Certificate: 5

SCND: 31

Master of Science in Applied Behavior Research

Graduating Class: 30

First-Year Class: 14

Certificate: 2

SCND: 1

Total: 1,411

Staff

For an online staff directory, visit the [Washington University School of Medicine Directory](#).

Washington University Directories

For access to online directories for Washington University,

Washington University Physicians and BJC HealthCare, please visit the [Washington University School of Medicine website's Directories page](#).

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(<http://bulletin.med.wustl.edu/admission/financial-assistance-graduate-and-professional-programs/>)

The Ability to finance a graduate/professional education at Washington University School of Medicine does not influence the student selection process. As all students accepted for admission have proven scholastic ability, financial assistance is awarded solely on the basis of documented financial need which cannot be met by student and family resources.

Accepted students interested in applying for financial aid will receive electronic communication from the Financial Aid Office providing instructions for completing the FAFSA and additional forms necessary for a financial aid award to be determined. Everyone applying for financial aid must complete a Free Application for Federal Student Aid (FAFSA) and designate Washington University School of Medicine, School Code #G24620, as a recipient. Financial aid application documents and detailed instructions will be made available after January 1.

The financial aid application materials solicit information about the applicant and their spouse, if married, including a detailed description of resources and liabilities. The School expects the applicant to complete and submit the financial aid documents within two weeks from the date the applicant receives them. Specific items will always be outlined on your individual student portal, Netpartnerstudent.wustl.edu, to which access is granted after students are accepted by their program and their information is forward to the Financial Aid Office.

Once all documentation has been received and evaluated, an award package is determined for that student. He or she will then be notified via email once the award is available to view online. All awards must be accepted online using the student portal. Financial aid awards are credited toward payment of tuition and fees on the student's WebSTAC account. If there is an excess of funds on a student's account after tuition and other charges, the Registrar's Office will issue a student refund check.

Students may reapply for financial assistance in succeeding years if they remain in good academic and personal standing, and if there is continued financial need. Awards made to a student may vary from year to year, depending upon the student's needs and upon the availability of funds. Students are responsible for filing applications for renewal of awards in the spring of each year.

The financial aid committee holds that students receiving assistance have an obligation to notify the committee in writing if their financial situation changes, for example, through employment or receipt of a scholarship not anticipated at the time the application was submitted.

All scholarship funding is awarded by a student's specific program and not through the Financial Aid Office. The Financial Aid Office applies all program scholarships to a student's financial aid award and awards Federal and Institutional program-specific loans when applicable.

Standards for Satisfactory Academic Progress for Financial Aid

Eligibility: Other School of Medicine Programs

(<http://bulletin.med.wustl.edu/policies/washington-university-school-of-medicine/standards-for-satisfactory-academic-progress-for-financial-aid-eligibility/non-md-students/>)

The following policy applies to students pursuing graduate/professional training in the following programs:

- Applied Health Behavior Research Audiology and Communications Sciences
- Biology and Biomedical Sciences
- Biomedical Engineering
- Biostatistics
- Clinical Investigation
- Doctor of Philosophy
- Genetic Epidemiology
- Occupational Therapy
- Physical Therapy
- Population Health Sciences

Federal law and regulations require that all students receiving financial assistance from Federal Title IV funds maintain satisfactory academic progress (SAP). This policy presents the standards adopted by the Washington University School of Medicine and applies to all non-MD students.

The School of Medicine at Washington University in St. Louis evaluates SAP at the end of each semester for all non-MD students receiving financial aid. A student failing to meet the standards of progress as determined by the Committee on Academic and Professional Evaluation of Students (CAPES) shall be placed on financial aid probation and notified by CAPES and the Director of Financial Aid. While on probation the student may receive financial assistance for one semester, trimester, or equivalent period of time. At the conclusion of this period, the student must have achieved compliance with each standard. A student who does not achieve compliance and is not making SAP by the conclusion of the probationary period is suspended from federal aid eligibility. The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

In order to be considered to be maintaining SAP, and thus eligible for financial aid, students must be satisfactorily progressing toward their academic objectives. Federal regulations require three measurements for determining SAP; qualitative, quantitative and timeframe.

Maximum Time Frame:

To maintain eligibility you must complete your program by attempting no more than 150% of the credits required to complete your program. For example, if your program requires 120 credits to complete your degree, you must be able to complete the program by attempting no more than 180 credits. This includes credits attempted without financial aid. Specific information for each program may be found in each program's Handbook or Bulletin.

Periods of non-enrollment are NOT counted in the measurement of satisfactory academic progress but all periods of attendance, regardless of whether the student received Title IV aid, are counted.

If you reach a point where you cannot complete your program within the 150% maximum, students become ineligible for aid.

Qualitative Requirement:

The minimum semester and cumulative GPAs needed to meet the SAP requirement are set by each program. The program's Bulletin or Handbook will help you determine your minimum GPA requirements. If you are not achieving the minimum GPA requirements for your program at the end of each semester when the SAP review is performed, you are not considered to be making SAP.

Financial Aid Warning:

A student failing to meet the standards of progress as determined by their Program at the end of each semester will be placed on financial aid warning for the following term. At the end of that term, the student

must be meeting SAP to receive financial aid for future semesters. Any student not meeting SAP at the end of the warning period will be suspended from future financial aid. The student will be eligible for aid when they achieve SAP or the student may appeal. Students who choose to appeal must state the reasons for failing to meet SAP (e.g. injury/illness of the student, death in the family or other special circumstance) and what has changed in the student's situation so that he or she can now make SAP. If the student successfully appeals, the student will be placed on financial aid probation and may receive financial assistance for one semester. At the conclusion of this period, the student must have achieved compliance with each standard or be progressing per their individual academic plan to receive additional aid. A student who does not achieve compliance with each standard by the conclusion of the probationary period is suspended from financial aid eligibility.

The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

The Director of Student Financial Aid shall have primary responsibility for enforcement of this policy. The Office of Student Financial Aid shall ascertain at the time of each disbursement of funds and prior to certification of a financial aid application that the student is in compliance with the policy.

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Policies — Washington University

SEXUAL HARASSMENT

- **Introduction and Policy Statement**
- **What is Sexual Harassment?**
- **Confidentiality**
- **Seeking Advice; Making a Complaint**
- **Protection of Rights**
- **Obligations of Vigilance and Reporting**
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Appendix: Title IX Coordinator/Sexual Harassment Coordinator and Advisors

Introduction and Policy Statement

Washington University is committed to having a positive learning and working environment for its students, faculty and staff and will not tolerate sexual harassment.

Sexual harassment is an attack on the dignity of individuals and the integrity of the University as an institution of learning. Academic freedom can exist only when every person is free to pursue ideas in a non-threatening, non-coercive atmosphere of mutual respect. Sexual harassment is reprehensible and threatening to the careers, educational experience and wellbeing of all members of our community.

Sexual harassment is a form of discrimination that violates University policy. It is also illegal under state and federal law.

This policy applies to all members of the Washington University community. It allocates responsibilities for helping to ensure that University policy is fairly applied, explains the process by which complaints of sexual harassment may be brought forward and provides sanctions for sexual harassment, which may range from reprimands to termination or dismissal, depending upon the severity of the offense. If you believe you have been sexually harassed, Sections IV and V describe options about what you can do and where you can get help. If you believe you have been falsely accused of sexual harassment, the procedures described below are also available to you. Those charged with implementation of this Policy will, whenever appropriate, encourage and assist individuals who believe they may have been sexually harassed to pursue the assorted means outlined in the policy for securing the cessation of unwelcome and offensive conduct.

What is Sexual Harassment?

For the purposes of this statement, Washington University has adapted the Equal Employment Opportunity Commission (EEOC) definition of sexual harassment for an academic community: Sexual harassment is defined as any unwelcome sexual advance, request for sexual favor or other unwelcome verbal or physical conduct of a sexual nature, including sexual violence, whether committed on or off campus, when:

1. submission to such conduct is made, either explicitly or implicitly, a term or condition of an individual's employment or academic advancement;
2. submission to or rejection of such conduct by an individual is used as the basis or threatened to be used as the basis for employment or academic decisions or assessments affecting an individual; or

3. such conduct has the purpose or effect of unreasonably interfering with an individual's work or educational performance or creating an intimidating or hostile environment for work or learning. Such conduct will typically be directed against a particular individual or individuals and will either be abusive or severely humiliating or will persist despite the objection of the person targeted by the speech or conduct.

Sexual violence is a prohibited form of sexual harassment and includes physical sexual acts perpetrated against a person's will or where it would be apparent to a reasonable observer that a person is incapable of giving consent due to the victim's use of drugs and/or alcohol or due to an intellectual or other disability.

Sexual harassment includes but is not limited to situations where one person has authority over another. In such situations, sexual harassment is particularly serious because it may unfairly exploit the power inherent in a faculty member's or supervisor's position.

Sexual harassment can be verbal, visual, physical or communicated in writing or electronically. Some conduct obviously constitutes sexual harassment -- such as a threat that a grade or promotion will depend on submission to a sexual advance. But whether particular conduct constitutes sexual harassment will often depend upon the specific context of the situation, including the participants' reasonable understanding of the situation, their past dealings with each other, the nature of their professional relationship (e.g., supervisor-subordinate, colleague, etc.) and the specific setting. The inquiry can be particularly complex in an academic community, where the free and open exchange of ideas and viewpoints preserved by the concept of academic freedom may sometimes prove distasteful, disturbing or offensive to some.

Examples of conduct which may constitute sexual harassment include but are not limited to:

- requests for sexual favors
- hugging, rubbing, touching, patting, pinching or brushing another's body
- inappropriate whistling or staring
- veiled suggestions of sexual activities
- requests for private meetings outside of class or business hours for other than legitimate mentoring purposes
- use in the classroom of sexual jokes, stories or images in no way germane to the subject of the class
- remarks about a person's body or sexual relationships, activities or experience
- use of inappropriate body images to advertise events
- sexual violence, including but not limited to rape, sexual assault, sexual battery, and sexual coercion

Members of the University community can expect to be free from sexual harassment and thus all members of the University community should guard against it. The fact that someone did not intend to sexually harass an individual is generally not considered a sufficient defense to a complaint of sexual harassment, although the reasonableness or the accuser's perceptions may be considered. In most cases, it is the effect and characteristics of the behavior on the complainant and whether a reasonable person similarly situated would find the conduct offensive that determine whether the behavior constitutes sexual harassment.

Confidentiality

The University will strive to protect, to the greatest extent possible, the confidentiality of persons reporting harassment and of those accused of harassment. Because the University has a legal obligation to address sexual harassment, however, the University cannot guarantee complete confidentiality where it would conflict with the University's obligation to investigate meaningfully or, where warranted, take corrective

action. Even when some disclosure of the University's information or sources is necessary, it will be limited to the extent possible. The University will, to the extent permitted by law, keep confidential all records of complaints, responses and investigations. The records maintained by the Sexual Harassment Response Coordinator shall be available only to the Coordinator and, to the extent necessary, to administrators and other supervisors charged with responding to allegations of harassment. Allegations of sexual harassment shall not be placed in student records or personnel files unless, after appropriate investigation, such allegations have been sustained. Records of allegations maintained by the Coordinator which do not lead to formal hearings or personnel actions will be discarded after five years unless there are additional, more recent complaints against the same person. Any records maintained by the Coordinator concerning an allegation about which an accused person was not given reasonably timely notice and an opportunity to respond shall not be used to justify or enhance a sanction, other than an oral or written warning, imposed for a different instance of harassment.

If you want to discuss possible harassment in a more confidential setting or clarify your feelings about whether and how you wish to proceed, you may want to consult a social worker, therapist or member of the clergy, who is permitted, by law, to assure greater confidentiality. Clergy and counseling resources on campus are listed in Bearings, Ternion, and the University's Safety and Security brochure available at www.police.wustl.edu. In addition, any member of the University community may contact the Student Counseling Services at 935-5980 for a confidential discussion and, if desired, referral to off-campus resources.

Seeking Advice; Making a Complaint

If you believe that you have been sexually harassed, you have a number of response options, both formal and informal. Some people may wish to pursue informal means instead of or before making a formal complaint; others will not. If an informal procedure is ineffective, the formal procedures will remain open to you. You should select the route you feel most appropriate for your circumstances. However you wish to proceed, you may consult at any time with the University's Title IX Sexual Harassment Response Coordinator or Advisors (listed in the Appendix), whose responsibilities include assisting students, faculty and staff with sexual harassment issues, be they general or specific, formal or informal. You may wish to work with the Coordinator or Advisors to select an approach.

Informal Procedures

If you feel comfortable dealing with the situation without assistance, you can:

1. Clearly say "no" to the person whose behavior is unwelcome.
2. Communicate either orally or in writing with the person whose behavior is unwelcome.

The most useful communication will have three parts:

- A factual description of the incident(s) including date, time, place and specific action.
- A description of the writer's feelings, including any consequences of the incident.
- A request that the conduct cease.

Frequently, such a communication will cause the unwelcome behavior to stop, particularly where the person may not be aware that the conduct is unwelcome or offensive.

If you would like to proceed informally, but with the assistance of someone else, you may:

1. Ask the person's supervisor, e.g., department chair, dean, director, housing office representative, academic advisor or resident advisor, to speak to the person whose behavior was unwelcome. The purpose of such conversations is the cessation of unwelcome behavior.

2. Consult with the Coordinator or one of the Sexual Harassment Response Advisors listed in the Appendix and specifically charged with responding to sexual harassment inquiries and complaints.
3. These individuals are thoroughly familiar with University policy on sexual harassment and are available to consult with victims of sexual harassment, those charged with sexual harassment, witnesses and supervisors of parties to a complaint. They can provide information about informal actions that might remedy the situation and discuss University policy on sexual harassment and procedures for resolving complaints.
4. With the exception of allegations of sexual violence, ask the Coordinator to mediate or arrange for mediation. Mediation is discussion and negotiation, with the help of a third party, designed to permit the parties to reach a mutually agreeable resolution of a dispute. If a person complaining of sexual harassment seeks mediation, the person accused of harassment agrees and the Coordinator concludes that the mediation would be consistent with the University's legal obligations in responding to and preventing sexual harassment, the Coordinator may mediate or arrange for mediation.

Formal Procedures

Whether or not you have attempted to resolve a sexual harassment claim through informal means, you may initiate a formal sexual harassment grievance proceeding by filing a written complaint. This process may lead to a formal hearing at which evidence will be considered and witnesses heard. If this is the course you wish to take, the Coordinator can assist you in filing a complaint.

Complaints, prepared with or without the assistance of the Coordinator, can be filed with the following Committees, with a copy to the Coordinator for your campus:

Complaints against faculty or staff:

- Discrimination, Discriminatory or Sexual Harassment Grievance Committee (complaints by faculty and administrators)
- Discriminatory Harassment and Title IX Grievance Committee (complaints by students)
- Human Resources Advisory Committee (complaints by staff)

All of these committees may be contacted at:

c/o Office of Human Resources
North Brookings Hall, Room 126
Campus Box 1184
935-5990

Hearing procedures are set forth in the Washington University Discrimination and Sexual Harassment Hearing Procedures. These procedures may be obtained from the Office of Human Resources or from any Sexual Harassment Response Coordinator or Advisor.

Note that complaints against a student or student groups alleging sexual violence are governed by the University Sexual Assault Investigation Board policy available on line at: <http://www.wustl.edu/policies/sexualassault.html>

Complaints against students or student groups:

Office of the Judicial Administrator
Residential Life Center
South 40 House
Campus Box 1250

935-4174
935-7776 (fax)

Hearing procedures for complaints alleging sexual harassment that does not involve sexual violence are set forth in the University Judicial Code, which can be found in the Washington University Faculty Information Handbook and online: <http://www.wustl.edu/policies/judicial.html>. These procedures may also be obtained from the University Judicial Administrator or from the Title IX Sexual Harassment Response Coordinator or Advisors. The procedures for complaints against students alleging sexual violence are set forth in the University Sexual Assault Investigation Board policy, available on line at: <http://www.wustl.edu/policies/sexualassault.html>

Whether or not you choose to file a complaint, the University may be required, or may otherwise deem it necessary and protective of the University community, to commence its own investigation and hearing procedure.

Inquiries regarding Title IX may be referred to the:

University's Title IX Sexual Harassment Response Coordinator
Jessica Kennedy
Ann W. Olin Women's Building, Room 308
Campus Box 1167
jwkennedy@wustl.edu

or to the:

United States Department of Education
Office of Civil Rights
400 Maryland Avenue, S.W.
Washington, DC 20202-1100
www.ed.gov

Protection of Rights

The University will not tolerate retaliation or discrimination against persons who report or charge sexual harassment or against those who testify, assist or participate in any investigation, proceeding or hearing involving a complaint of sexual harassment. In this context, retaliation means speech or conduct that adversely affects another's terms or conditions of employment or education and is motivated by an intent to harm the targeted person because of his or her participation in the filing or investigation of an allegation of sexual harassment. Any such retaliation -- or any encouragement of another to retaliate -- is a serious violation of University policy and law; independent of whether the particular claim of sexual harassment is substantiated. If you believe you have been subjected to retaliation in violation of this rule, you may use the procedures described above to complain and seek redress.

The University seeks to protect the rights of all persons, accusers and accused, to fair procedures. Accusations of sexual harassment typically have injurious far-reaching effects on the careers and lives of accused individuals. Allegations of sexual harassment must be made in good faith and not out of malice. Knowingly making a false or frivolous allegation of sexual harassment, whether in a formal or informal context, will be treated as a serious offense under this policy and, where it applies, the University Judicial Code. If you believe you have been falsely accused of sexual harassment you may use the procedures of this policy or the University Judicial Code, where applicable, to seek redress. See Section IV.

Obligations of Vigilance and Reporting

The University can respond to specific instances and allegations of harassment only if it is aware of them. The University therefore encourages anyone who believes that he or she has experienced sexual harassment to promptly come forward with inquiries, reports or complaints and to seek assistance from the University. In addition, any University employee who becomes aware of instances or allegations of sexual harassment by or against a person under his or her supervisory authority must report it to those charged with responding to such allegations and reports: the appropriate dean, director or department head or other similar administrator or to the Sexual Harassment Response Coordinator or one of the Advisors. It shall be the responsibility of these individuals to respond to allegations and reports of sexual harassment or refer them to other University officials for such response.

Any dean, director or department head or other similar administrator who becomes aware of information indicating a significant likelihood of sexual harassment must report such information to the Title IX Sexual Harassment Response Coordinator. These administrators must respond not only when they receive a specific complaint or report alleging improper activity, but also when such matters come to their attention informally. Unconfirmed or disputed allegations should be clearly labeled as such and reports should indicate any steps already taken to investigate or otherwise respond. Administrators may wish to consult with the Coordinator or any of the Advisors prior to investigating or otherwise responding to any situation involving alleged harassment.

Possible Sanctions

Possible sanctions for a person found guilty of behavior in violation of this policy include but are not limited to the following:

- oral or written reprimand, placed in the personnel file
- required attendance at a sexual harassment sensitivity program
- an apology to the victim
- oral or written warning
- loss of salary or benefit, such as sabbatical or research or travel funding
- transfer or change of job, class or residential assignment or location (i.e., removing the person from being in a position to retaliate or further harass the victim.)
- fine
- demotion
- suspension, probation, termination, dismissal or expulsion

While counseling is not considered a sanction, it may be offered or required in combination with sanctions. Where alcohol is involved in the sexual harassment, such counseling may include an alcohol abuse program.

If students or student groups are guilty of sexual harassment, any of the sanctions set forth in the University Judicial Code may also be invoked.

Education

The best way to deal with sexual harassment is to prevent it. Education is essential to eliminating sexual harassment. To this end, Washington University has developed an ongoing training program. Please call a Sexual Harassment Response Coordinator or Advisor to find out more about these programs, what sexual harassment is, how to respond to it and what to do when someone asks for advice about sexual harassment.

Approved by the Washington University Senate Council, October 19, 1995.

Approved by the Washington University Senate, April 22, 1996.

Revision approved by the Washington University Senate, April 28, 1997.
 Revision approved by the Washington University Faculty Senate Council, November 15, 2011; modified per Title IX Dear Colleague Letter clarifications.
 Policy updated to be consistent with the University Sexual Assault Investigation Board policy, January 25, 2013.

(This policy supersedes prior University Policies on Sexual Harassment).

Appendix: Title IX Coordinator/Sexual Harassment Coordinator and Advisors

(as of July 2014)

Danforth Campus

Name	Complaints Handled	Contact Number
Coordinator:		
Apryle Cotton	Faculty, staff and others	935-8095

School of Medicine Campus

Name	Complaints Handled	Contact Number
Coordinator:		
Legail Chandler	Faculty, staff and others	362-4900

Title IX Coordinator on both campuses

Name	Complaints Handled	Contact Number
Coordinator:		
Jessica Kennedy	Faculty, staff and students	935-3118

DRUG AND ALCOHOL POLICY

Introduction and Policy Statement

Washington University is committed to maintaining a safe and healthful environment for members of the University community by promoting a drug-free environment as well as one free of the abuse of alcohol. Violations of this policy will be handled according to existing policies and procedures concerning the conduct of faculty, staff and students.

This policy is adopted in accordance with the Drug-Free Workplace Act and the Drug-Free Schools and Communities Act.

Standards of Conduct

Washington University strictly prohibits the unlawful manufacture, sale, distribution, dispensation, possession or use of controlled substances or alcohol on University property or as a part of any University activity. All faculty, staff and students must comply with this policy as a condition of their employment or enrollment. Faculty and staff members are prohibited from reporting to work under the influence of alcohol, chemicals, or drugs, including legally obtained prescription drugs, which impair one's ability to perform normal work activities. All faculty and staff members must notify their immediate supervisor(s) within five (5) days of any criminal drug statute conviction for a violation occurring in the workplace or in the conduct of University business.

Violations

Violations of the standards of conduct will be dealt with on a case-by-case basis following the policies and procedures applicable to, as appropriate, faculty, staff or students. Sanctions may include, among other things, reprimand, warning, suspension, probation, expulsion or termination. Referral to an appropriate assistance or rehabilitation program also may be appropriate. Referral for prosecution will occur for serious violations.

The Drug-Free Workplace Act requires the University: (1) within 10 days after receiving notice that an employee has been convicted of any criminal drug statute violation occurring in the workplace or in the conduct of University business, to notify appropriate government agencies of such conviction; and (2) within 30 days after receiving such notice, to take appropriate personnel action against such employee up to and including termination and/or to require the employee to satisfactorily participate in a drug abuse assistance or rehabilitation program.

Drug and Alcohol Counseling, Treatment or Rehabilitation or Re-Entry Programs

Early recognition and treatment of drug or alcohol abuse are important for successful rehabilitation, and for reduced personal, family and social disruption. Washington University encourages the earliest possible diagnosis and treatment for drug and alcohol abuse, however, the decision to seek diagnosis and accept treatment for drug or alcohol abuse is the responsibility of the individual.

The University encourages faculty, staff and students to seek assistance in dealing with a substance abuse problem, or those problems of a family member, by contacting available resources. University resources include Student Health Services (Danforth Campus, 314-935-6666); Student and Employee Health (School of Medicine, 314-362-3523), the Psychological Service Center (314-935-6555), the Department of Psychiatry (314-362-7002), and the Employee Assistance Program (1-800-765-9124).

Numerous non-University counseling programs exist in the St. Louis metropolitan area. Many programs advertise extensively in local media. Consultation with one's personal physician is advised prior to self-referral to such non-University programs. For further information regarding referral to such programs, contact Student Health Services, the School of Medicine Student and Employee Health, or your private physician.

Health Risks

Drugs: A detailed description of the health risks associated with abuse of controlled substances is provided in the chart, Drug Uses and Effects, published by the U.S. Department of Justice's Drug Enforcement Administration as found in [Appendix A](#) (pdf).

Alcohol: Abuse of alcohol can produce severe health risks, including death. Alcohol consumption causes a number of marked changes in behavior. Even low doses significantly impair the judgment and coordination required to drive a car safely, increasing the likelihood that the driver will be involved in an accident. Low-to-moderate doses of alcohol also increase the incidence of a variety of aggressive acts, including spouse and

child abuse. Moderate-to-high doses of alcohol cause marked impairments in higher mental functions, severely altering a person's ability to learn and remember information. Very high doses cause respiratory depression and death. If combined with other depressants of the central nervous system, much lower doses of alcohol will produce the effects just described.

Repeated use of alcohol can lead to dependence. Sudden cessation of alcohol intake is likely to produce withdrawal symptoms, including severe anxiety, tremors, hallucinations, and convulsions. Alcohol withdrawal can be life threatening. Long-term consumption of large quantities of alcohol, particularly when combined with poor nutrition, can also lead to permanent damage to vital organs such as the brain and the liver.

Women who drink alcohol during pregnancy may give birth to infants with fetal alcohol syndrome. These infants have irreversible physical abnormalities and mental retardation. In addition, research indicated that children of alcoholic parents are at greater risk than other youngsters of becoming alcoholics.

Legal Sanctions

Drugs: The manufacture, possession, sale, distribution, and use of controlled substances are prohibited by federal, state and local law; punishments range from fines to life imprisonment.

Section 195.214 of the Missouri statutes makes it a class A felony to distribute or deliver controlled substances on or near University property. Persons convicted of this offense can be sentenced to imprisonment for not less than 10 years.

The Federal Controlled Substances Act prohibits the knowing, intentional, and unauthorized manufacture, distribution, or dispensing of any controlled substance or the possession of any controlled substance with intent to manufacture, distribute, or dispense. A detailed description of the penalties associated with illegal drug trafficking is provided in the chart, Federal Trafficking Penalties, published by the U.S. Department of Justice's Drug Enforcement Administration as found in [Appendix B](#) (pdf).

Alcohol: Missouri's Liquor Control Law makes it illegal, among other things, for a person under the age of 21 years to purchase, attempt to purchase, or possess any intoxicating liquor (R.S.Mo. Section 311.325). Violation of this provision can result in a fine between \$50 and \$1000 and/or imprisonment for a maximum term of one year. County and municipality ordinances contain similar prohibitions and sanctions.

Loss of Workers' Compensation Benefits

The Missouri Workers' Compensation Act requires the forfeiture of benefits or compensation otherwise payable to an employee when the use of alcohol or non-prescribed controlled drugs is the proximate cause of the employee's injury. At a minimum, the Act provides for a reduction in benefits or compensation when the employee is injured while using alcohol or non-prescribed controlled drugs.

Testing Requirement for Commercial Drivers Licenses (CDLs)

To meet requirements of the U.S. Department of Transportation (DOT), the University has established a drug and alcohol testing program for its employees who are drivers of its commercial motor vehicles requiring commercial drivers licenses (CDLs), and who perform safety-sensitive functions, e.g., operate a vehicle requiring the display of hazardous material placards. This drug and alcohol testing program also applies to applicants selected for hire for designated safety-sensitive positions. Participation in the drug and alcohol testing program is a condition of employment for these positions.

This program requires pre-employment drug testing as well as DOT mandated random testing of current employees who are required to have CDLs.

Questions regarding this requirement may be directed to the Designated Employee Representative for this program or to Human Resources.

Accidents Involving University-Owned Vehicles

The University reserves the right to require that an employee undergo immediate drug and/or alcohol testing if the employee is involved in a vehicular accident while driving a University-owned vehicle.

Inspections

When the University has reasonable grounds to suspect that an employee unlawfully manufactured, distributed, possessed or used controlled substances, alcohol or drug paraphernalia on University property or at any of its activities, the University reserves the right to inspect the employee's locker, desk, or other University property under the control of the employee.

The School of Medicine maintains additional requirements. For information see the School of Medicine Human Resources web site, Drug & Alcohol Policy, (<http://medschoolhr.wustl.edu/Policies/Documents/WUSM%20Drug%20and%20Alcohol%20Policy.pdf>) or contact the Executive Director for Human Resources at 362-4900.

Updated April 2012

DISCRIMINATION AND DISCRIMINATORY HARASSMENT

- **Policy Statement**
- **What is Discriminatory Harassment?**
- **Confidentiality**
- **Seeking Advice; Making a Complaint**
- **Protection of Rights**
- **A Statement Regarding Title IX**

Appendix: Discrimination and Discriminatory Harassment Coordinators and Advisors

Policy Statement

Washington University is committed to having a positive learning and working environment for its students, faculty, and staff. University policy prohibits discrimination on the basis of race, color, age, religion, gender, sexual orientation, gender identity or expression, national origin, veteran status, disability or genetic information. Harassment based on any of these classifications is a form of discrimination and also violates University policy and will not be tolerated. In some circumstances such discriminatory harassment may also violate federal, state or local law.

In 1996, the University adopted a new Policy on Sexual Harassment. Since that time, allegations of discrimination or discriminatory harassment on bases other than sex have been handled in a similar manner. This Policy confirms that allegations of any sort of discrimination or discriminatory harassment are subject to the same policies and procedures described in the Policy on Sexual Harassment. That Policy applies to all members of the Washington University community. It allocates responsibilities for helping to ensure that University policy is fairly applied, explains the processes by which complaints of discrimination or harassment may be brought forward, and provides sanctions, which may range from reprimands to termination or dismissal, depending on the severity of the offense. School of Medicine students and employees may, alternatively, rely on the School's Abusive Conduct Policy.

In an academic community, the free and open exchange of ideas and viewpoints reflected in the concept of academic freedom may sometimes prove distasteful, disturbing or offensive to some. Indeed, the examination and challenging of assumptions, beliefs or viewpoints that is intrinsic to education may sometimes be disturbing to the individual. Neither the Policy on Sexual Harassment nor this Policy is

intended to compromise Washington University's traditional commitment to academic freedom or to education that encourages students to challenge their own views of themselves and the world.

This Policy is published in many places, including the Record, and the Faculty Information Handbook. It may also be found

at <http://hr.wustl.edu/policies/Pages/DiscriminationAndDiscriminatoryHarassment.aspx> or obtained from the Danforth or Medical School Human Resources office.

What is Discriminatory Harassment?

Discriminatory harassment is unwelcome and objectively offensive conduct that (a) has the purpose or effect of unreasonably interfering with an individual's work or educational environment, (b) is directed at a particular individual or individuals because of the individual's/individuals' race, color, age, religion, gender, sexual orientation, gender identity or expression, national origin, veteran status, disability or genetic information, and (c) is abusive or severely humiliating. Some conduct obviously constitutes harassment, such as a statement that all members of a disfavored group will be required to work in the basement because their supervisor does not, on the basis of their group membership, want to be near them. Whether particular conduct constitutes harassment often depends on the specific context of the situation, including the participants' reasonable understanding of the situation, their past dealings with each other, the nature of their professional relationship (for example, supervisor-subordinate, colleague), and the specific setting.

Confidentiality

The University will strive to protect, to the greatest extent possible, the confidentiality of persons reporting harassment and of those accused of harassment. Because the University has an obligation to address harassment, however, the University cannot guarantee complete confidentiality where it would conflict with the University's obligation to investigate meaningfully or, where warranted, take corrective action. Even when some disclosure of the University's information or sources is necessary, it will be limited to the extent possible. The University will, to the extent permitted by law, keep confidential all records of complaints, responses and investigations. The records maintained by the Harassment Response Coordinator shall be available only to the Coordinator and, to the extent necessary, to administrators and other supervisors charged with responding to allegations of harassment. Allegations of harassment shall not be placed in student records or personnel files unless, after appropriate investigation, such allegations have been sustained. Records of allegations maintained by the Coordinator, which do not lead to formal hearings, or personnel actions will be discarded after five years unless there are additional, more recent complaints against the same person. Any records maintained by the Coordinator concerning an allegation about which an accused person was not given reasonably timely notice and an opportunity to respond shall not be used to justify or enhance a sanction, other than an oral or written warning, imposed for a different instance of harassment.

If you want to discuss possible discrimination or harassment in a more confidential setting or clarify your feelings about whether and how you wish to proceed, you may want to consult a social worker, therapist or member of the clergy, who is permitted, by law, to assure greater confidentiality. Clergy and counseling resources on campus are listed in Safety and Security on the Danforth Campus. In addition, any member of the University community may contact the Student Counseling Services at 935-5980 for a confidential discussion and, if desired, referral to off-campus resources.

Seeking Advice; Making a Complaint

If you believe that you have been discriminated against or harassed, you have a number of response options, both formal and informal. Some people may wish to pursue informal means instead of or before making a formal complaint; others will not. If an informal procedure is ineffective, the formal procedures will remain open to you. You should select the route you feel most appropriate for your circumstances. However you wish to proceed, you may consult at any time with the Danforth or Medical Center Discrimination and Discriminatory Harassment Response Coordinator or Advisors (listed in the Appendix), whose responsibilities include assisting students, faculty and staff with harassment issues, be they general or specific, formal or informal. You may wish to work with the Coordinator or Advisors to select an approach.

Informal Procedures

If you feel comfortable dealing with the situation without assistance, you can communicate either orally or in writing with the person whose behavior is offensive. The most useful communication will have three parts:

1. A factual description of the incident(s) including date, time, place and specific action.
2. A description of the writer's feelings, including any consequences of the incident.
3. A request that the conduct cease.

Frequently, such a communication will cause the offensive behavior to stop, particularly where the person may not be aware that the conduct is offensive.

If you would like to proceed informally, but with the assistance of someone else, you may:

1. Ask the person's supervisor, e.g., department chair, dean, director, housing office representative, academic advisor or resident advisor, to speak to the person whose behavior was offensive. The purpose of such conversations is the cessation of offensive behavior. You should note that these individuals may be obligated to report the incident or conduct you disclose to the University for further investigation and action.
2. Consult with the Coordinator or one of the Advisors listed in the Appendix and specifically charged with responding to discrimination and harassment inquiries and complaints. These individuals are thoroughly familiar with University policy on discrimination and harassment and are available to consult with victims, those accused of engaging in discrimination or harassment, witnesses and supervisors of parties to a complaint. They can provide information about informal actions that might remedy the situation and discuss University policy on discrimination and harassment and procedures for resolving complaints.
3. Ask the Coordinator to mediate or arrange for mediation. Mediation is discussion and negotiation, with the help of a third party, designed to permit the parties to reach a mutually agreeable resolution of a dispute. If a person complaining of discrimination or discriminatory harassment seeks mediation, the person accused of discrimination or discriminatory harassment agrees and the Coordinator concludes that the mediation would be consistent with the University's legal obligations in responding to and preventing discrimination or discriminatory harassment, the Coordinator may mediate or arrange for mediation.

Formal Procedures

Whether or not you have attempted to resolve a discrimination or discriminatory harassment claim through informal means, you may initiate a formal discrimination or discriminatory harassment grievance proceeding by filing a written complaint. This process may lead to a formal investigation and hearing at which evidence will be considered and witnesses heard. If this is the course you wish to take, the Coordinator can assist you in filing a complaint.

Complaints, prepared with or without the assistance of the Coordinator, can be filed with the Vice Chancellor for Human Resources, who will then forward it to the appropriate Committee below, generally within seven days of receipt of the Complaint, with a copy to the Coordinator.

Once the Complaint is forwarded to the appropriate Committee, the Committee will begin its investigation and hearing to determine whether it is more likely than not that the Respondent has violated this Discrimination and Discriminatory Harassment Policy and to make recommendations to the University administration regarding sanctions or disciplinary action.

Complaints against faculty or staff:

- Discrimination, Discriminatory or Sexual Harassment Grievance Committee (faculty and administrators)
- Discrimination and Title IX Grievance Committee (students)
- Human Resources Advisory Committee (staff)

All of these committees may be contacted at the following address:
c/o Office of Human Resources
North Brookings Hall, Room 126
Campus Box 1184
(314) 935-5990

Additional investigation and hearing procedures are set out in the Washington University Discrimination and Sexual Harassment Hearing Procedures. These procedures may be obtained from the Office of Human Resources, or from the Discrimination and Discriminatory Harassment Response Coordinator or any of the Advisors.

Complaints against students or student groups:

Director of Judicial Programs
Residential Life Center
South 40 House
Campus Box 1250
(314) 935-4174

Additional investigation and hearing procedures are set out in the University Judicial Code and Washington University Faculty Information Handbook. These procedures may also be obtained from the University Judicial Administrator or from the Discrimination and Discriminatory Harassment Response Coordinator or Advisors.

Whether or not you choose to file a complaint, the University may be required, or may otherwise deem it necessary and protective of the academic community, to commence its own investigation.

Absent special circumstances, the University will conclude its investigation and hearing of the complaint and issue a written decision notifying the parties of its decision within 60 days of the initial submission of the Complaint.

The parties may seek a review of the Committee's decision and recommendation by submitting a request for review to the Vice Chancellor for Human Resources within fourteen days of the Committee's issuance of the written decision, who will then forward it to the appropriate appeal officer for review pursuant to the additional hearing procedures referenced above.

Protection of Rights

The University will not tolerate retaliation or discrimination against persons who report or charge discrimination or discriminatory harassment or against those who testify, assist or participate in any investigation, proceeding or hearing involving a complaint of discrimination or discriminatory harassment. In this context, retaliation means speech or conduct that adversely affects another's terms or conditions of employment or education and is motivated by an intent to harm the targeted person because of his or her participation in the filing or investigation of an allegation of discrimination or discriminatory harassment. Any such retaliation -- or any encouragement of another to retaliate -- is a serious violation of University policy and law, independent of whether the particular claim of discrimination or discriminatory harassment is substantiated. If you believe you have been subjected to retaliation in violation of this rule, you may use the procedures described above to complain and seek redress.

The University seeks to protect the rights of all persons, accusers and accused, to fair procedures. Accusations of discrimination or discriminatory harassment typically have injurious far-reaching effects on the careers and lives of accused individuals. Allegations of harassment must be made in good faith and not out of malice. Knowingly making a false or frivolous allegation of discrimination or discriminatory harassment, whether in a formal or informal context, will be treated as a serious offense under this policy and, where it applies, the University Judicial Code. If you believe you have been falsely accused of discrimination or discriminatory harassment you may use the procedures of this policy or the University Judicial Code, where applicable, to seek redress.

A Statement Regarding Title IX

Title IX of the Education Amendments of 1972 prohibits discrimination (including sexual harassment and sexual violence) based on sex in the University's educational programs and activities. Title IX also prohibits retaliation for asserting claims of sex discrimination. The University has designated the Discrimination and Discriminatory Harassment Coordinator and Advisors identified below to coordinate our compliance with and response to inquiries concerning Title IX. You may also submit a complaint or inquiry regarding Title IX by contacting the United States Department of Education's Office of Civil Rights at 400 Maryland Avenue, S.W. Washington, DC 20202-1100 or by visiting www2.ed.gov or calling 1-800-421-3481.

At any point before, during or after an investigation and regardless of the Committee's final decision, the Title IX Coordinator may determine that interim or remedial measures directed at the parties, witnesses or a broader University population are necessary and appropriate to prevent and/or respond to sexual harassment or sexual violence.

Approved by the Washington University Faculty Senate Council, November 25, 2002
 Approved by the Washington University Faculty Senate, December 19, 2002
 Approved by the Washington University Faculty Senate Council, November 29, 2007
 Approved by the Washington University Faculty Senate, December 12, 2007
 Updated September 2009 (compliance with Genetic Information Nondiscrimination Act, H.R. 493)
 Updated July 2013 (consistent with Title IX)

Appendix
 Updated July 2004
 Updated September 2005
 Updated August 2008
 Updated October 2010

Appendix: Discrimination and Discriminatory Harassment Coordinators and Advisors

(as of July 2014)

Danforth Campus

Name	Complaints Handled	Contact Number
<i>Coordinator:</i>		
Apryle Cotton	Faculty, staff and others	935-8095

School of Medicine Campus

Name	Complaints Handled	Contact Number
<i>Coordinator:</i>		

Legail Chandler	Faculty, staff and others	362-4900
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Title IX Coordinator on both campuses

Name	Complaints Handled	Contact Number
<i>Coordinator:</i>		
Jessica Kennedy	Faculty, staff and students	935-3118

HIPAA Policies

Patients

Centered on your privacy

Washington University health care providers respect the confidentiality of our patient’s health information by observing the highest standards of ethics and integrity.

What is HIPAA?

“HIPAA” stands for the Health Insurance Portability and Accountability Act of 1996. The HIPAA Privacy Rule, Security Rule, and Breach Notification Rule were implemented to protect the privacy of an individual’s health information and govern the way certain health care providers and health plans, also known as “covered entities” collect, maintain, use and disclosure protected health information.

Our [Notice of Privacy Practices](#) describes your rights under HIPAA and how Washington University may use and disclose your protected health information. If you have not reviewed our [Notice of Privacy Practices](#), please download a copy to read.

The Washington University HIPAA Privacy Office works with all members of our workforce including faculty, staff, and students to help them understand their responsibilities to protect the confidentiality of our patient’s health information. We do this through policy and procedure, training, and auditing and monitoring. In addition, the Washington University HIPAA Privacy Office responds to and investigates concerns related to compliance with the HIPAA regulations.

Privacy and security policies

Washington University, Washington University Physicians, our affiliated clinical practices, and our employee benefit plan have adopted policies and procedures for the use and disclosure of PHI.

Training

All members of the Washington University workforce, including our students and volunteers, who interact with patients or who use and disclose PHI are required to complete HIPAA training. Classroom and online refresher courses are also available. HIPAA Hints are posted throughout the medical school campus to reinforce our policies and procedures.

Compliance

The HIPAA Privacy Office is responsible for monitoring compliance with HIPAA. In addition, each department has identified an individual to act as the Privacy Liaison for the department to assist with ongoing compliance with HIPAA.

Notice of Privacy Practices

Statement of Policy

Washington University and its member organizations (collectively, “Washington University” or “WU”) are committed to ensuring that Individuals are aware of their rights and responsibilities concerning their Protected Health Information (“PHI”). The commitment includes compliance with all applicable laws, regulations and WU policies to protect the privacy of PHI. To help strengthen that commitment, WU has adopted this Policy on Notice of Privacy Practices (Notice) in order to clearly define the rights of Individuals and the obligations of WU related to protecting the privacy of Individuals.

Scope of Policy

The Notice applies to all Individuals receiving Health Care services other than inmates. Each Individual has a right to receive the Notice, which contains information concerning the Uses and Disclosures of PHI. WU will provide a Joint Notice of Privacy Practices, along with BJH

and SLCH as an Organized Health Care Arrangement (OHCA), when services are provided at BJH and SLCH. A Notice specific to WU is also available for distribution in other settings.

The Notice is available in a summary format and a long format.

Policy

1. When Should a Notice be Provided.

a) **Direct Treatment Relationships:** For Direct Treatment Relationships with Individuals, Notices will be provided to Individuals receiving services (i) no later than the date of the first service delivery, (including services delivered electronically), (ii) by posting the Notice in a clear and prominent location at the physical service delivery site of WU where it is reasonably expected to enable Individuals seeking services to read the Notice, and (iii) by making such Notice available to Individuals at the service delivery site to take with them upon request.

i) **For Telephone Registration or Central Scheduling of Individuals or Telephone Triage of Patients:** Prior to receiving any PHI from Individuals, WU will first ask the Individual if he or she has received the Notice or been informed of WU's privacy practices.

- If yes, proceed to assist the Individual.
- If no, inform the Individual that he or she has a right to receive the Notice and advise the Individual of the availability of the Notice on the WU Web site and offer to provide the Individual with a copy of the Notice either by mail or e-mail. If the Individual would like to proceed with registration regardless of his or her receipt of the Notice, continue with the registration or triage process.

ii) **Second Contact with Individuals:** Individuals who have already received a Notice will not need to be provided a Notice again unless he or she requests a copy of such Notice.

b) Group Health Plans:

i) For WU Group Health Plans, Notices will be provided (1) no later than the compliance date for the Health Plan to Individuals covered by the Health Plan; (2) after the compliance date, at the time of enrollment to Individuals who are new enrollees; and (3) within 60 days of a material revision to the Notice to Individuals then covered by the plan.

ii) At least every three years, WU Group Health Plans will notify Individuals then covered by the Plan of the availability of the Notice and how to obtain the Notice.

iii) WU Group Health Plans will, at a minimum, provide Notice to the named insured of a policy under which coverage is provided to the named insured and one or more dependents.

2. Which Notice Should be Provided

a) For services provided at BJH or SLCH by WU physicians and other WU providers, the Joint Notice of Privacy Practices should be provided.

b) For service provided by WU physicians and other WU providers that do not involve BJH or SLCH, the WU Notice of Privacy Practice should be provided.

3. How Must the Notice be Provided to an Individual

WU will consider the needs of Individuals in providing the Notice and will comply with applicable laws concerning non-English speaking Individuals or Individuals who may not be able to read a written Notice.

a) Electronic Services: If the only service delivered to an Individual is electronic, WU will first deliver the Notice in response to an Individual's first request for services. An Individual who receives an electronic notice retains the right to obtain a paper copy of the Notice from WU.

b) Web Notice. WU will post a Notice on its Web site and make the Notice available electronically through its Web site. Individuals may still receive a paper copy of the Notice even if he or she has received an electronic Notice.

c) E-Mail Notices. To provide Notices by electronic mail ("E-mail"), an Individual must first agree to accept the Notice electronically. If WU knows that the E-mail transmission failed, a paper copy of the Notice will be provided to the Individual. E-mail notices will comply with the timing of Notices as set forth in paragraph (1), (a), (i) and (ii) above.

4. Content of Notice

WU will provide a Notice written in plain, understandable language and containing the following:

a) Header. A Header at the top of the Notice that states, in bold type:

“THIS NOTICE DESCRIBES HOW MEDICAL INFORMATION ABOUT YOU MAY BE USED AND DISCLOSED AND HOW YOU CAN GET ACCESS TO THIS INFORMATION. PLEASE REVIEW IT CAREFULLY.”

b) Uses and Disclosures. Several descriptions of the required and permitted Uses and Disclosures of the PHI including:

i) a description, of sufficient detail, together with at least one example, of the types of Uses and Disclosures permitted for Treatment, Payment, and Health Care Operations;

ii) a description, of sufficient detail, of all the types of Uses and Disclosures, together with each of the purposes, that the WU member organization is permitted or required to make without the Individual’s written consent or Authorization;

iii) a description of any more stringent law than the Privacy Regulations governing any particular Use or Disclosure of PHI;

iv) a statement that any other Uses or Disclosures will be made only with the Individual’s written Authorization, and that the Individual may revoke such Authorization in writing (except to the extent the WU member organization has taken action in reliance on the Authorization or if the Authorization was obtained as a condition of obtaining insurance). (See WU HIPAA Policy on Authorization Required to Use or Disclose Protected Health Information.); and

v) a statement that the WU Group Health Plan is permitted to Disclose PHI to the plan sponsor without Authorization.

c) Contacting Individuals. If WU provides reminders or other Information to Individuals, including fund raising events, a statement that Individuals may be contacted for appointment reminders, for information on other health services, or for raising funds for WU.

d) Individual Rights. A list of an Individual’s rights with respect to PHI (See related policies on requests for amendment of PHI, accounting for Disclosures of PHI, access to one’s own PHI and requests to restrict communication of PHI) and a brief description of how an Individual may exercise such rights including:

i) the right to request restriction(s) on certain Uses and Disclosures, including a statement that the WU member organization is not required to agree to a requested restriction, unless the request is to restrict disclosure of health information to a health plan if the disclosure is not required by law and the health information to be restricted pertains solely to a health care

- item or service for which the patient has paid us for in full;
- ii) the right to receive confidential communications of PHI;
- iii) the right to inspect and to receive a copy PHI;
- iv) the right to amend PHI;
- v) the right to receive an accounting of Disclosures of PHI; and
- vi) the right to receive notification following a breach of unsecured PHI.

e) Washington University Duties.

- i) a statement that WU is required by law to protect and maintain the privacy of PHI, to provide Individuals with Notice of its legal duties, and to abide by the terms of such Notice and
- ii) a statement that WU reserves the right to change the terms of its Notice and apply the revised privacy practices to PHI previously created or received, and a statement of how it will provide Individuals with a new revised Notice.

f) Complaint.

- i) a statement that an Individual may file a complaint with WU and/or the Department of Health and Human Services (“HHS”) for suspected violation of his or her privacy rights including a description of the process to file a complaint and
- ii) a statement of assurance that an Individual will not be retaliated against for filing a complaint.

g) Washington University Contact Person. The name, title and telephone number(s) of the person(s) to contact at WU or its member organizations and/or its OHCA members, BJH and SLCH for further information.

h) Effective Date. The effective date of the Notice.

5. Notice Review and Revisions Procedure

WU will establish a process to review and revise the Notice if material changes are identified to the Uses or Disclosures of PHI, the Individual rights, WU’s legal duties, or other privacy practices concerning PHI.

6. Joint Notices

Because WU, BJH and SLCH have designated themselves as an OHCA, the Joint Notice will state that WU, when providing services at BJH or SLCH will abide by the terms of the Joint Notice concerning PHI. The Joint Notice will contain the required elements (above), will list the applicable WU member organizations and service delivery sites to which the Joint Notice applies, and will state that the participating member organizations will share PHI with each other, as necessary, to carry out Treatment, Payment, or Health Care Operations relating to the organized healthcare delivery arrangement.

7. Documentation

WU will retain a file copy of the Notices issued for at least a six-year period from and after April 14, 2003 to demonstrate compliance with the Notice requirement.

Creation Date: November 22, 2002

Effective Date: April 14, 2003

Last Revision Date: January 9, 2003; August 2013

Computer Use Policy

Contents

- [Introduction](#)
- [Principles and Guidelines](#)
- [Implementation](#)

Introduction

This document provides guidelines for appropriate use by students, faculty and staff of computer facilities and services at Washington University. It is not a comprehensive document covering all aspects of computer use. It offers principles to help guide members of the Washington University community, and specific policy statements that serve as a reference points. It will be modified as new questions and situations arise.

While the proliferation of computers and information technologies does not alter basic codes of behavior in academic life, it does place some issues in new contexts. Using these technologies enables people to do varied things-both good and bad-more easily. They are an enormously rich resource for innovation in the furtherance of Washington University's academic mission. They also offer new forums for the University's historic commitment to the expression and discussion of a wide diversity of ideas and opinions. But they increase the risks of actions, deliberate or not, that are harmful in various ways, including: (a) interference with the rights of others; (b) violation of the law; (c) interference with the mission of the University; or (d) endangering the integrity of the University's information computer network. The

guidelines that follow in the next section of this document seek to forge the link between established codes of conduct and use of new technologies. Computer networking has greatly expanded our ability to access and exchange information, requiring more vigilant efforts and perhaps more secure safeguards to protect individuals' rights of privacy. Property as well as privacy rights may be infringed whenever files or data belonging to others, however gained, are used without authorization; moreover, while freedom of inquiry and expression are fundamental principles of academic life, assaults upon the personal integrity of individual members of the University community and dissemination of offensive materials may undermine the foundations of that community. Other actions taken by individuals may, under some circumstances, jeopardize the integrity of the computer network and the ability of others to communicate using this system. Accordingly, the guidelines that follow seek to both preserve the freedom to inquire and share information and sustain the security and integrity of individuals within the community and the computer system itself.

While some of the guidelines therefore call for respectful and responsible use of the computer networks to protect the rights of individuals, others warn against actions that may violate the law: users within the community must understand the perils of illegal use, exchange, or display of copyrighted, deceptive, defamatory, or obscene materials on a web page or through other electronic communication channels. The community at large has rights and expectations that must be considered. When individuals misrepresent either themselves or the University, or when they act by computer in a manner unacceptable within the University or in the larger community, the integrity and mission of the University itself is endangered. Finally, the guidelines seek to protect the integrity of the University information systems themselves: the computing or networking resources need to be accessible and secure for appropriate uses consistent with the mission of the University; the usurpation of these resources for personal gain, commercial gain or without authorization is unacceptable. Moreover, even the individual right to privacy may, when personal files may need to be accessed for troubleshooting purposes, be overridden by authorized personnel to protect the integrity of the University's computer systems.

Principles and Guidelines

A. Respect the rights and sensibilities of others

1. Electronic mail should adhere to the same standards of conduct as any other form of mail. Respect others you contact electronically by avoiding distasteful, inflammatory, harassing or otherwise unacceptable comments. (In an academic community, the free and open exchange of ideas and viewpoints preserved by the concept of academic freedom may sometimes prove distasteful, disturbing or offensive to some. This policy is not intended to restrict such exchange.)
2. Others have a right to know who is contacting them.

3. Respect the privacy of others and their accounts. Do not access or intercept files or data of others without permission. Do not use the password of others or access files under false identity.
4. Distribution of excessive amounts of unsolicited mail is inappropriate.
5. While the University encourages respect for the rights and sensibilities of others, it cannot protect individuals against the existence or receipt of materials that may be offensive to them. Those who make use of electronic communications may come across or be recipients of material they find offensive or simply annoying.

B. Be aware of the legal implications of your computer use.

1. The Internet enables users to disseminate material worldwide. Thus the impact of dissemination on the internet is often far broader than that of a statement made on paper or in routine conversation. Keep in mind that a larger audience means a greater likelihood that someone may object with or without legal basis.
2. Much of what appears on the internet is protected by copyright law regardless of whether the copyright is expressly noted. Users should generally assume that material is copyrighted unless they know otherwise and not copy or disseminate copyrighted material without permission. Copyright protection also applies to much software, which is often licensed to the University with specific limitations on its use. Both individual users and the University may, in some circumstances, be held legally responsible for violations of copyright.
3. Many other state and federal laws, including those prohibiting deceptive advertising, use of others' trademarks, defamation, violations of privacy, and obscenity apply to network-based communications.
4. Because the internet is international, it can be argued that the (often more restrictive) laws of other countries may apply. This does not mean that members of the University community should be censored by extremely restrictive foreign laws, but in some situations the University must take into consideration whether violations of foreign laws may affect the activities of the University in those countries.

C. Respect the mission of the University in the larger community

1. The University makes internet resources available to students, faculty and staff to further the University's educational, research, medical, service and University-related activities and missions. Recognizing that the Internet is also an integral part of socialization and leisure among students living on campus, the network is available to students for purposes of non-academic communications and entertainment to the extent that such use does not compromise the network or the amount of bandwidth available for academic-related uses.

2. The University does not monitor the content of web pages, electronic mail or other on-line communications and is not responsible for the views expressed by individual users. Under certain circumstances, however, the University may be held liable if it fails to take reasonable remedial steps after it learns of illegal uses of its computer facilities. Use computer resources lawfully.
3. Remember that you are responsible for all activity involving your account. Keep your account secure and private. Do not use identifying data or common words as a password; your password should be difficult to crack or otherwise guess either by individuals or by sophisticated computer programs. [Review WUSTL password guidelines.](#)
4. The University is the custodian of a wide array of personal and financial data concerning its students, staff, faculty and patients, as well as the University itself. Respect the University obligations of confidentiality as well as your own. Only those with authorization may access, communicate or use confidential information.
5. Material posted on web pages is generally accessible and thus deserves even greater thought and care than your private electronic mail. Remember that, absent restrictions, your web page is available to anyone, anywhere, and act accordingly.
6. The University has a right to expect that computer users will properly identify themselves. Computer accounts are assigned and identified to individuals. Don't misrepresent yourself.

D. Do not harm the integrity of the University's computer systems and networks.

1. Today's information technology is a shared resource. Respect the needs of others when using computer and network resources. Do not tamper with facilities and avoid any actions that interfere with the normal operations of computers, networks, and facilities.
2. Avoid excessive use of computer resources. They are finite and others deserve their share. "Spamming" and similar inappropriate uses of University resources are not acceptable. Web pages that are accessed to an excessive degree can be a drain on computer resources and, except where significant to the University's mission, may require the University to ask that they be moved to a private Internet provider.
3. Although a respect for privacy is fundamental to the University's policies, understand that almost any information can in principle be read or copied; that some user information is maintained in system logs as a part of responsible computer system maintenance; that the University must reserve the right to examine computer files, and that, in rare circumstances, the University may be compelled by law or policy to

examine even personal and confidential information maintained on University computing facilities.

4. You are granted privileges and responsibilities with your account. While these vary between groups, the use of University resources for personal commercial gain or for partisan political purposes (not including the expression of personal political views, debate and the like) is inappropriate and possibly illegal.
5. Individual University computer systems have varying resources and demands. Some have additional and sometimes more restrictive guidelines applicable to their own user.

Implementation

- A. All University codes of conduct apply to information technology as well as to other forms of communication and activity.
- B. Systems managers or other individuals within an academic or administrative unit may be empowered to suspend some or all privileges associated with computer use in cases of misuse or threat to the integrity of all or part of the University's information management resources.
- C. Before any permanent action is taken against a user, the user will be advised of the bases for the proposed action and given an opportunity to respond. Concerns about such actions may be raised through the usual administrative or academic channels associated with the dean, school, facility or resource in question.
- D. Where a violation of University policies or applicable law appears to warrant action beyond a suspension or elimination of computer privileges, the matter may be referred to a supervisor, administrator or University disciplinary body with appropriate authority or to law enforcement authorities.
- E. Complaints or concerns about another's use of University computer resources should be directed to the administrator responsible for the facility or resource in question.

Approved, Washington University Faculty Senate, May 1997.

Revised and approved in form by the Washington University Faculty Senate Council, May 2007.

For questions about this policy, contact your school, department, or unit system manager or send e-mail to [Kevin Hardcastle](#), Chief Information Security Officer.

**GRADUATE SCHOOL OF ARTS & SCIENCES
ACADEMIC AND PROFESSIONAL INTEGRITY POLICY
FOR GRADUATE STUDENTS**

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April, 2012
Washington University in St. Louis
Graduate School of Arts and Sciences
<http://graduateschool.wustl.edu/>

PREAMBLE

This document on academic and professional integrity applies to graduate students in the Graduate School of Arts and Sciences (“GSAS”): Master’s and Ph.D. students in Arts & Sciences programs, all Ph.D. students on the Danforth & Medical campuses, including those home-based in another School (Engineering, Social Work, Medicine, Business), and Dual Degree students when one of the degree programs resides in GSAS. Originally adopted by the Graduate Council of the Faculty of Arts and Sciences in 1991, the current version underwent major review and revision and was approved by the Graduate Council in April 2012.

The Academic Integrity Policy is meant to safeguard and enhance the educational process that already exists in the departments. Students are here to learn not only academic information and techniques but also the rules of appropriate conduct; not learning such rules is as deleterious to academic advancement as not acquiring standard academic credentials. There may regrettably be cases where misconduct, rather than minor procedural error, appears to be at issue, and it is for such cases that guidelines detailed in this document have been established. **Both faculty and students should familiarize themselves with these guidelines, for they will be followed in all cases of alleged academic misconduct.**

I. INTRODUCTION

Academic integrity is of paramount importance at every educational institution. The university has an obligation to provide an atmosphere based on scrupulous adherence to the rules of honesty. This climate of impeccable integrity must encompass every aspect of academic activity. The university's role within the greater culture as provider of new knowledge and educator of future leaders demands no less.

The integrity code governing all teachers, scholars, and researchers is severe. Even a single allegation of impropriety, unless refuted to the satisfaction of peers, can tarnish a reputation and block career development. An egregious violation could abruptly end a career in disgrace. Ignorance of the rules of academic conduct is normally not regarded as a mitigating factor.

Washington University promotes the highest standards in academic scholarship. The Graduate School of Arts and Sciences, in providing a springboard for its students into careers in scholarship and research, does not tolerate any form of

laxity in academic integrity. Term papers, seminar presentations, laboratory experiments, homework problems, and examinations, to say nothing of published work, conference papers, and theses or dissertations, must be regarded as training grounds not only in the acquisition of knowledge but in scholarly ethics. No instance of proven academic dishonesty can be ignored, even if the offender claims to be unaware that his or her actions constitute an offense. The sole difference between the academic integrity code for graduate students and that for professionals is that student offenses are generally not publicly aired and that students may be permitted to continue their training if their transgressions are considered relatively minor or are considered to be adequately mitigated by circumstances. Findings of flagrant exhibitions of willful academic dishonesty, however, must result in expulsion from the Graduate School.

It is assumed by the Graduate School of Arts and Sciences and the Graduate Council that all students entering the University are well versed in the principles of honesty. Graduate students are expected to demonstrate appropriate academic and professional conduct and to exhibit truthfulness and candor in all aspects of their interactions with the University community. Thus, knowingly furnishing false information to the University, or to someone acting on its behalf, will be considered academic misconduct in violation of this policy. Students are strongly urged to study this document carefully and review with home departments any area in which they have questions.

II. OFFENSES WHICH CONSTITUTE VIOLATIONS OF ACADEMIC AND PROFESSIONAL INTEGRITY

A. ACADEMIC INTEGRITY VIOLATIONS

The following offenses, or attempts to commit these offenses, constitute violations of academic integrity:

1. Plagiarism and other misappropriation of the work of another

Plagiarism is the willful or unintentional act of using, without proper acknowledgement, another person's or persons' words, ideas, results, methods, opinions, or concepts. It does not matter whether the appropriated information is published or unpublished; academic or nonacademic in content; or in the public or private domain. The act of claiming as one's own work any intellectual material created by another or others is wrong and will be treated by the Graduate School of Arts and Sciences as a serious violation of academic integrity.

To avoid plagiarism, students are expected to be attentive to proper methods of documentation and acknowledgement. To avoid even the suspicion of plagiarism, a student must always:

- a. Enclose every quotation in quotation marks, and acknowledge its source.
- b. Cite the source of every summary, paraphrase, abstraction or adaptation of material originally prepared by another person, and any factual data that is not considered common knowledge. Include the name of author, title of work, publication information, and page reference.
- c. Acknowledge material obtained from lectures, interviews, or other oral communication by citing the source (name of the speaker, the occasion, the place, and the date).
- d. Cite material from the Internet as if it were from a traditionally published source. Follow the citation style or requirements of the instructor for whom the work is produced.

Similar to standards governing preparation and publication of written works, there are standards that govern the creation and preparation of artistic, design and technical works and creations. It is a violation of academic integrity to represent another's artistic, design or technical work or creation, including unacknowledged or unauthorized use of proofs and codes, as one's own. It is recognized and understood that a student's work may often draw from previously published material and works for reference and inspiration, and the Graduate School encourages this type of exploration. However, student work claiming to be original, but which has been lifted without significant change from other sources, including magazines, the Internet, fellow students or colleagues, is unacceptable and will be treated as a violation of this policy.

2. Cheating

The use of deceit in the classroom or in the construction of materials related to the academic process is unacceptable. Such offenses include but are not restricted to copying someone else's answers during an examination or using or providing unapproved materials for an examination.

3. Copying Or Collaborating On Assignments Without Permission

When a student submits work with his/her name on it, this is a written statement that credit for the work belongs to that student alone. If the work was a product of collaboration, each student is expected to clearly acknowledge in writing all persons who contributed to the work.

If the instructor allows group work in some circumstances but not others, it is the student's responsibility to understand the degree of acceptable collaboration for each assignment, and to ask for clarification if necessary.

To avoid cheating or unauthorized collaboration, a student should never:

- a. Use, copy or paraphrase the results of another person's work and represent that work as his/her own, regardless of the circumstances.
- b. Refer to, study from, or copy archival files (e.g. old tests, homework, or back files) that were not approved by the instructor.
- c. Copy another's work or permit another student to copy his/her work.
- d. Submit work as a collaborative effort if he/she did not contribute a fair share of the effort.

4. Fabrication or Falsification of Documents, Data or Records

It is dishonest to fabricate, falsify or otherwise provide misleading data or other material presented in research papers, projects, publications, assignments and in any other academic and professional circumstances; to fabricate source material in a bibliography or "works cited" list; or to provide false information on a résumé or other document in connection with academic and professional efforts.

Examples of falsification include:

- a. Altering information on any exam or class assignment being submitted for a re-grade.
- b. Altering, omitting, or inventing data to submit as one's own findings. This includes copying data from another student to present as one's own; modifying data in a write-up; and providing data to another student to submit as his/her own.
- c. Improper adjustment or revision of data, gross negligence in collecting or analyzing data, deceptive selective reporting of data, or the deceptive omission of conflicting data.
- d. Publication of information that will knowingly mislead or deceive readers
- e. Failure to give proper credit to collaborators, including joint authorship, if appropriate or identification of persons as authors who have not contributed to the work

5. Research Misconduct

It is a violation of this policy to engage in research misconduct or otherwise fail to adhere to the University's research policies and guidelines, which can be found at <http://research.wustl.edu>. Research misconduct includes but is not limited to failure

to adhere to or to receive the approval required for work under research regulations of federal, state, local or University agencies or departments.

6. Obstruction of the Academic Activities of Another

Students are prohibited from obstructing or interfering with the scholarly research and academic activities of another individual. Examples include but are not limited to stealing, tampering with, damaging, or destroying research papers, data, supplies, equipment, designs, drawings, other products of research or academic work, or such other property of others that is related to academic endeavors, or impeding access to shared resources such as library materials, studio materials, or computer software and hardware.

7. Abuse of Confidentiality

It is a violation of this policy for a graduate student to release information, ideas or data of others that were provided to the student with the expectation that the student would maintain such information, ideas or data as confidential. For example, a student may be exposed to or asked to participate in confidential grant proposals, review of manuscripts, or other applications for honors and awards that should be considered confidential and not disclosed to unauthorized persons.

8. Other Forms Of Deceit, Dishonesty, Or Inappropriate Conduct

Under no circumstances is it acceptable for a student to:

- a. Submit the same work, or essentially the same work, for more than one course without explicitly obtaining permission from all instructors. A student must disclose when a paper or project builds on work completed earlier in his/her academic career.
- b. Request an academic benefit based on false information or deception. This includes requesting an extension of time, a better grade, or a recommendation from an instructor.
- c. Misrepresentation of experience or ability. This includes providing false information concerning academic achievement or background in an area of study. For example, falsely reporting the substance of an internship, omitting transcripts or other academic information on an application for admission or other University records.
- d. Steal, deface, or damage academic facilities or materials.
- e. Collaborate with other students planning or engaging in any form of academic or professional misconduct.

- f. Submit any academic work under someone else's name other than his/her own. This includes but is not limited to sitting for another person's exam; both parties will be held responsible.
- g. Publish or attempt to publish collaborative works without the permission of the other participants
- h. In addition, any offense defined as academic misconduct within the Washington University Student Judicial Code may also constitute a violation of this policy.

B. PROFESSIONAL INTEGRITY VIOLATIONS

Professional integrity violations consist of behavior that is inconsistent with ethical standards in the professional roles for which the student is being trained that are not covered by policies governing academic integrity. This may include the student's performance in the role of researcher or scholar, teacher or mentor, supervisor, service-provider or colleague. Of particular note in this regard are behaviors that make the workplace hostile for colleagues, supervisors or subordinates. Graduate students are expected to adhere to ethical standards in a variety of work settings (e.g., offices, classrooms, clinics, and laboratories) within the explicit standards set by University policies. Being physically or verbally threatening, disruptive, abusive or hostile can make the workplace so unsafe or unpleasant that others cannot do their work. However, graduate education must take place in an environment in which free expression, free inquiry, intellectual honesty, and respect for the rights and dignity of others can be expected. Ethical standards of conduct should help ensure, not compromise, these features of the University environment.

Sources of the norms or standards to which graduate students can be held accountable (and charged under this policy if they fail to adhere to them) are as follows:

1. State and Federal Laws: Graduate students, like all members of the University community, are expected to abide by all State and Federal laws.
2. Relevant University-Wide Policy Statements: Graduate students are responsible for being familiar with and are held accountable to the standards that are identified in University-wide policy statements and that apply to them, including but not limited to the University's Policy Against Sexual Harassment, Policy Against Discriminatory Harassment, the Non-Discrimination Statement, and the University Student Judicial Code, which can

be found at www.wustl.edu/policies.

3. **Discipline-Specific Professional Standards of Conduct or Code of Ethics:** Graduate students are expected to meet professional standards of conduct associated with their own disciplines and/or professions as articulated in formal codes of ethics. Such formal codes can include but are not limited to codes of professional conduct or statements on professional behavior that have been adopted by the student's department, program, school or college, as well as codes of ethics published by professional associations.
4. **Additional Forms of Professional Misconduct:** In addition, graduate students can be held accountable for the following professionally relevant behaviors, which may or may not be identified as violations in other formal codes of conduct relevant to the student. With respect to the following behaviors, the appropriate academic leadership (e.g., dean or department chair), in consultation with department faculty, serves as the authority for whether a specific student behavior warrants review under this policy.
 - a. Misrepresentation of one's credentials or status, or failure to correct others' inaccuracies or misrepresentation of one's credentials. This includes professional experience, paid or unpaid, including positions held; and relevant timeframes and dates (e.g., the timeframe in which a professional position was held, or the date on which a degree was earned).
 - b. Unethical consulting activity, including misrepresentation of one's status, credentials, or level of expertise to secure a consulting assignment; and knowingly taking on a consulting assignment without the necessary knowledge or expertise. (Consultation should only be provided by individuals who have demonstrated knowledge, expertise, and competence related to the consultation. To avoid problems in this regard, graduate students are strongly encouraged to seek the advice of their faculty advisors or other appropriate members of the faculty before taking on a consulting assignment.)
 - c. Unethical professional practice based on conflict of interest. This includes engaging in unethical professional behaviors to promote, benefit or protect one's self, family, friends, or business colleagues; and exploiting personal knowledge about an individual (e.g., personal life as well as political and religious views).
 - d. Failure to protect confidential records, in accordance with relevant professional standards.

- e. Abuse of the peer review process. This includes the following:
 - simultaneous submission of a manuscript to more than one journal without approval from the respective editors
 - submission of previously published material without clarifying the extent of the previously published material to the editor
 - submitting a manuscript without the permission/agreement of all authors
 - judging a peer's work on other than professional grounds,
 - serving as a peer reviewer despite conflict of interest (e.g., having a personal relationship with the author) or otherwise being knowingly unable to judge the merits of scholarly work without prejudice
 - trying to unduly influence a colleague's review of one's own work
- f. Other fraudulent behavior. This includes actions, taken individually or with other people that the appropriate dean believes to call into question the student's ability to ethically and competently join the profession. Specific examples include knowingly providing false information in one's professional role, embezzling funds, and misusing department or school resources.
- g. Aiding or abetting professional misconduct. Aiding or abetting any individual in the violation of any of the categories of professional misconduct outlined above shall itself be considered misconduct.
- h. Attempted professional misconduct. An attempt to commit professional misconduct may be treated as seriously as the completed act.
- i. Misrepresentation, abuse, or other seriously improper conduct in relation to instructors, students, colleagues, research subjects, clients, or other members of the University community.
- j. Participation in illegal activities, substance abuse, or other misconduct or misrepresentations in violation of University policies and procedures or State or Federal laws.

III. PROCEDURES FOR DEALING WITH CASES OF ACADEMIC AND PROFESSIONAL INTEGRITY VIOLATIONS

A. Academic Integrity Violations (described under II. A.)

Individual faculty members, departments or students should not attempt to adjudicate allegations of academic integrity violations at the course or departmental level. Instead, in the interest of providing consistent, prompt consideration and

resolution of allegations of academic integrity infractions, a formal complaint must be filed and the procedures outlined below should be followed in each instance of an alleged violation of academic integrity by a student enrolled in the Graduate School.

B. Professional Integrity Violations (described under II. B.)

If violations of professional integrity violations are alleged by a faculty member, department, or student and a formal complaint is filed with the Graduate School of Arts and Sciences, the Associate Dean of the Graduate School of Arts and Sciences (“Associate Dean”) may consult with the accused student’s Department, the University Judicial Administrator, and/or other appropriate University officials to determine whether such allegations or complaint will be handled on a Departmental level, under the University Judicial Code, and/or the procedures of this Policy set forth below.

C. General Provisions

- 1. Filing a Complaint:** Formal complaints of academic or professional integrity violations must be filed in writing with the Associate Dean of the Graduate School of Arts and Sciences (“Associate Dean”) by a faculty member, member of the administration or another student. All available substantiating evidence shall be submitted with the formal complaint. If the charging party seeks to subsequently withdraw the formal complaint, the Associate Dean may decide to proceed with the complaint in order to preserve the interests of the Graduate School.
- 2. Confidentiality:** Individuals submitting information regarding such allegations or participating in any manner in the investigation or disciplinary process are reminded of the need for confidentiality regarding all matters of the alleged misconduct.
- 3. Further Investigation by Associate Dean:** The Associate Dean will consider the merits of the complaint and whether it appears to warrant further investigation. The Associate Dean may take further action, as necessary, to investigate the allegations, including consultation with the accused student’s program director, advisor or other relevant faculty members, the charging party, witnesses, or other University administrators if appropriate.
- 4.** Unless it is determined by the Associate Dean that extraordinary circumstances

exist, the student will be permitted during the review process to attend class so long as the student does not pose a threat to himself/herself or others.

5. **Consultation with Judicial Administrator:** The Associate Dean shall determine, and may consult with the University's Judicial Administrator in making such a determination, whether the alleged conduct, if true, could constitute misconduct under the Judicial Code. If the Associate Dean determines that the alleged misconduct constitutes misconduct under the Judicial Code, the Associate Dean may refer the matter to the University's Judicial Administrator.
6. **Enrollment in Dual-Degree Programs or a GSAS Program Home-Based in another School:** If a graduate student in the Graduate School of Arts and Sciences is enrolled in a GSAS program home-based in another School or is enrolled in a Dual Degree Program, the Associate Dean may advise appropriate officials from all Schools involved. The Washington University Provost / Executive Vice Chancellor for Academic Affairs will also be informed, and asked to determine whether additional proceedings are required, or whether any should take precedence over the Graduate School's proceedings.
7. **Research Integrity Policy:** When the alleged violation of academic integrity occurs during the conduct of research, the Washington University Research Integrity Policy may take precedence. The Dean of the Graduate School of Arts & Sciences, the Research Integrity Officer, and the Vice Chancellor for Research, or their designees, will confer to make this determination and advise the Graduate School Associate Dean. Copies of this policy may be obtained from the Research Office and online at: <http://www.wustl.edu/policies/research.html>.
8. **Notice to Accused Student:** If the complaint warrants further investigation, the Associate Dean will notify the accused student of the alleged infraction, discuss the allegations, and review the hearing process, including the student's options to reply to the complaint.
9. **Admission of Violation:** Should the accused student agree with the facts presented in the complaint and furthermore agree that he or she has committed a violation of academic integrity, the student may admit to the violation, thus waiving his or her right to a hearing, and agree to abide by disciplinary penalties imposed by the Dean of the Graduate School. In every other instance

however, the complaint will be forwarded to the Academic Integrity Hearing Committee for further investigation and hearing.

- 10. Refusal to participate or respond:** If the accused student refuses to respond to the charges or refuses to participate in the proceeding, the Associate Dean and/or the Academic Integrity Hearing Committee may interpret the accused student's lack of response or participation as an admission of the charges, and the Associate Dean and/or the Academic Integrity Hearing Committee may immediately proceed to impose sanctions against the accused student in accordance with this Policy.
- 11.** The record of the review, including Hearing Proceedings if any, will be held confidentially in accordance with the law and University policy, with access restricted to the Associate Dean, Hearing Committee members, the student accused, and members of the WU Administration involved in the proceedings or on appeal.
- 12.** The Associate Dean, Hearing Committee if any, and Dean of the Graduate School may consider additional evidence of prior conduct, evidence as to the charged student's character, the student's academic record, or any other evidence which could assist in determining an appropriate sanction.
- 13. Composition of Academic and Professional Integrity Hearing Committee**
 - a. **Chair of the Academic and Professional Integrity Hearing Committee:** The Chair of the Graduate Council Executive Committee will serve as Chair of the Academic and Professional Integrity Hearing Committee ("Chair").
 - b. **Appointed Members:** The Academic and Professional Integrity Hearing Committee is composed of 4 members of the Graduate Council Executive Committee (two student and two faculty members) selected by the Chair. The Executive Committee is elected each year by the Graduate Council.
 - c. **Ex-officio Members:** At the discretion of the Chair, membership may include, in ex officio capacity, the Associate Dean of GSAS, a representative of the Student Health Services, or an official from the graduate student's program if the student is home-based in another School. In addition, the Office of General Counsel may be present during a hearing to advise the Committee.
 - d. **Recusal from participation and voting:** A voting member of the Committee should declare any potential conflicts of interest to the

Committee, and the remaining Committee members will determine whether the member should be recused from discussion and voting.

14. Hearing Process

- a. The Chair of the Academic and Professional Integrity Hearing Committee will convene a hearing where the accused student and the charging party will present evidence.
 - b. Each party must present his or her case.
 - c. Each party may be assisted by no more than two aides. These aides may be experts in the pertinent academic areas.
 - d. In addition, the Committee may call witnesses at the suggestion of the accused student or the charging party.
 - e. Upon notification of the hearing date, the accused student and the charging party will be issued advance notice of procedural rules governing the proceeding.
- 15.** A list of expected aides, suggested witnesses, the name and title of accompanying individual, and copies of any documents expected to be presented, either in support of the complaint or in defense of the student charged, shall be provided to the Associate Dean no less than five (5) business days prior to the Committee meeting. Upon request and unless otherwise agreed upon, the student will have access to the documents to be presented no less than two (2) business days in advance of the meeting.
- 16.** The student may present evidence on his or her behalf, subject to reasonable limitations as to amount, scope, and format, as determined by the Chair of the Committee.
- 17.** The Chair of the Committee will rule on whether or not specific evidence or testimony will be considered. The Committee has neither the advantages nor limitations inherent in a court of law.
- 18.** The decision as to whether the student committed the alleged misconduct will be made solely on the basis of evidence and testimony presented at the meeting. Innocence of the student will be presumed. A Committee member must find in favor of the student unless the member is persuaded that it is more likely than not that the student engaged in the misconduct alleged.
- 19.** The person who has submitted the complaint of misconduct may not serve as a member of Committee. He or she will be asked to present the complaint and information regarding the allegations and will then be excused.

- 20. Deliberation and Finding:** After the hearing, the Academic Integrity Hearing Committee will deliberate and reach a finding. A majority (three members) is needed to sustain a charge. In particular, a tie vote will indicate that the charge has not been proven and is therefore rejected.
- 21. Recommendation for sanctions:** Should the Committee find the accused student to have committed an integrity violation, it will proceed to recommend appropriate disciplinary action to the Dean of the Graduate School. Such action will be drawn from a range of established penalties which could include, but are not restricted to, the assignment of a failing grade, the revocation of a fellowship or assistantship, or a recommendation for suspension or expulsion from the Graduate School of Arts and Sciences.
- 22. Review by Dean of Graduate School:** The Dean of the Graduate School will review the Committee's findings and recommendations. In the instance of a finding that the accused student committed an integrity violation, the Dean will decide the appropriate penalty. The decision of the Dean is final with respect to all penalties except suspension or expulsion. The decision and other pertinent information will be communicated in writing to the accused student and charging party, as well as to the chair of the Academic Integrity Hearing Committee. Other individuals who serve in an administrative or advisory capacity will also be informed, on a "need to know" basis in compliance with FERPA regulations.
- 23. Appeal:** Students found guilty of an integrity breach which results in suspension or expulsion by the Dean have 14 days from issuance of the Dean's letter to file a written appeal with the Provost / Executive Vice Chancellor for Academic Affairs. The appeal must be limited to the grounds that a fair hearing was not provided, or that the sanction imposed was excessive. Such written appeal must clearly state the grounds for the appeal and must include all supporting information which the student desires to be considered as part of the appeal. Upon appeal, the decision of Provost / Executive Vice Chancellor for Academic Affairs is final.

April 19, 2012

Revision Approved by the Graduate Council

Alcohol Service Policy

Policy Governing Alcohol Service at Events sponsored by Graduate Student Organizations

Philosophy on Alcohol Service at Washington University in St. Louis

The Washington University in St. Louis Drug and Alcohol Policy affords recognized student groups the privilege of serving alcohol at certain events. As adults, students are expected to know and abide by all applicable state and federal laws and University policies and procedures. Ultimately, students are responsible for their own behavior; however, if a student group provides alcohol as part of their event they share in the responsibility to provide a safe environment for all attendees. If your group has questions, contact the Dean of your School or the Office of the Graduate School of Arts and Sciences.

Any on or off campus event sponsored by a recognized graduate-professional student group (registered by ProGradS or recognized by one of the eight Schools) must comply with the Drug and Alcohol Policy of Washington University in St. Louis if it involves alcohol. This Policy is available online at: <http://hr.wustl.edu/policies/Pages/DrugandAlcoholPolicy.aspx>. Any on-campus event involving alcohol must have a recognized Sponsoring Group.

Distribution of Alcohol

In compliance with Missouri's Liquor Control Law*, alcohol must be served in a controlled manner and not freely accessible. No one who is under the age of 21 or visibly intoxicated may be served. Alcohol must not leave the confines of the event.

Options Regarding Serving Alcohol

a. Third Party Vendor - Student Groups may contract with a third-party vendor, such as Bon Appetit, to acquire and serve alcohol. The third party vendor uses its own liquor license and provides bartenders.

b. Group Purchases the Alcohol- Student Group members may order, set up, and control distribution of the alcohol at the event independently in compliance with this Policy.

See Responsible Contact section.

Some University common spaces require a third party vendor; check Guidelines in advance with the appropriate reserving office, Event Management, or School Dean's Office.

Location

Student Groups should check in advance with Event Management, School Dean's office, or the appropriate reserving office for specific location guidelines. When alcohol is permitted, the space must be secured (or roped off as is necessary for outdoor locations) to ensure that proper admittance and alcohol distribution can be regulated easily and effectively.

Advertising

Alcohol may be mentioned or implied in campus advertising of the event to graduate students, using conventional phrases such as "happy hour," "beer & pizza," "wine and cheese," etc. But alcohol may not be the primary focus of an event. Events open to the general public and /or advertised off campus are not permitted to include alcohol.

Security

School Deans or the ProGradS Chair or their designees must be notified at least one week in advance of the event. At the discretion of Dean or Dean's designee, University Police may be notified, and private security guards may be required, to assist with safety of participants and security of facility, when total attendance involves more than 100 students. The cost of private security guards is the responsibility of the sponsoring Student Group. The guards or designated Group members are required to verify the age of each participant with identification that lists date of birth. If the event is held outside, or in an unsecured area, distinct identification (such as wristband or stamp) is required to identify attendees 21 years and over; this is to ensure that those passing through an event do not receive alcohol.

Responsible Contacts

At least one person (preferably two) from the Sponsoring Group must be designated as the Responsible Contact(s) for the event. Responsible contacts should not consume alcohol immediately prior to or during the event. The Contacts are responsible for overseeing and ensuring the safety of the event, the distribution of alcohol, and the implementation of this Policy. Contacts are to introduce themselves to the University Police as well as any security guards and serve as the point persons with these agencies. Responsible Contacts, with the assistance of University Police and security guards as needed, must be able to shut down an event if this policy is not being implemented effectively or if other problems arise.

Food and Beverages

Food must be provided at all events where alcohol is served. Among the food there should be non-salty options readily available, free and displayed in an attractive manner. Non-alcoholic beverages also should be readily available and free. Water should be one of the non-alcoholic beverages provided. The food and non-alcoholic beverages should be replenished several times throughout the program so that they are constantly available.

Sanctions

The Sponsoring Group will be held accountable for any and all violations of this Policy. Sanctions for a violation may include, but are not limited to, loss of space reservation privileges, loss of University student group registration, or other sanctions pursuant to the University Judicial Code (<http://www.wustl.edu/policies/judicial.html>)

Addendum

There may be more specific guidelines and restrictions for the use of specific spaces on both Danforth and Medical Campuses. Be sure to check in advance with the appropriate space reserving office. Contact Event Management (third floor of the Danforth University Center - 935-5234) for an updated list of contacts on the Danforth Campus.

*"Missouri's Liquor Control Law makes it illegal for a person under the age of twenty-one years to purchase, attempt to purchase, or possess any intoxicating liquor. Section 311.325 RSMo. Violation of this provision can subject one to a fine between \$50 and \$1000 and/or imprisonment for a maximum term of one year. County and municipality ordinances contain similar prohibitions and sanctions." To review specific provisions of applicable ordinances and statutes, contact the Office of the General Counsel (935-5152). Washington University Policies and Procedures, Drug and Alcohol Policy: <http://hr.wustl.edu/policies/Pages/DrugandAlcoholPolicy.aspx>.

Policy approved by the University Council 1/26/04; effective immediately. (This policy was also reviewed and approved by Professional and Graduate Coordinating Committee; the Deans and graduate student associations of the eight Graduate Schools; an ad hoc committee of the Professional and Graduate Student Coordinating Committee drafted the original proposal 2002-2003.)

Policy on Consensual Faculty-Student Relationships

- A. Policy
- B. Definitions
- C. Procedures
- D. Noncompliance with Policy
- E. Sanctions
- F. Faculty Rights

Interactions between the faculty and students at Washington University are guided by mutual trust, confidence, and professional ethics. Professional faculty-student relationships have a power differential between faculty members and students; personal faculty-student relationships carry risks of conflict of interest, breach of trust, abuse of power, and breach of professional ethics.

A. Policy

Faculty members shall not engage in consensual relationships with students whenever a faculty member has a professional "position of authority" with respect to the student in such matters as teaching a course or in otherwise evaluating, supervising, or advising a student as part of a school program. Should a consensual relationship develop, or appear likely to develop, while the faculty member is in a position of authority, the faculty member and/or the student shall terminate the position of authority. Even when the faculty member has no professional responsibility for a student, the faculty member should be sensitive to the perceptions of other students that a student who has a consensual relationship with a faculty member may receive preferential treatment from the faculty member or the faculty member's colleagues.

B. Definitions

1. Faculty, for purposes of this policy only, consists of all full- or part-time faculty, teaching assistants, graders, members of dissertation committees, and all other personnel who teach, coach, evaluate, allocate financial aid to, or guide research by students.
2. Students are all full- or part-time students.
3. A consensual relationship is any dating, romantic, sexual, or marriage relationship.
4. Position of authority includes but may not be limited to situations in which the faculty member makes or is responsible for an evaluation of a student for admission, coursework, promotion, financial aid, research funding, suspension, expulsion, or other discipline. (Faculty members providing instruction without evaluation are not necessarily in positions of authority.)

C. **Procedures**

When a faculty-student consensual relationship exists or develops, a faculty position of authority with respect to the student must be avoided or terminated. Avoidance or termination includes but is not limited to the student not enrolling in a course; a qualified alternative faculty member or teaching assistant taking the position of authority; transfer of the student to another course, section, seminar, etc. taught by a different faculty member or teaching assistant; assigning or transferring the student to another academic advisor; the student dropping a course.

D. **Noncompliance with Policy**

Any credible allegation of a faculty member's failure to avoid or terminate a position of authority while in a consensual faculty-student relationship obligates the department chair, dean, or other responsible person to conduct a prompt and thorough inquiry to determine whether the allegation is true. Where it is concluded that a position of authority in a faculty-student consensual relationship exists and the faculty member and/or the student involved refuse(s) to terminate the position of authority, the department chair or dean shall terminate the position of authority and can impose sanctions against the parties involved.

E. **Sanctions**

Persons in violation of this policy shall be subject to sanctions ranging from verbal warnings to dismissal or termination. Persons who knowingly make false allegations that a faculty-student consensual relationship overlaps with a position of authority between the two shall be subject to the same sanctions.

F. **Faculty Rights**

Nothing herein shall abridge the rights of faculty as outlined in the Washington University Policy on Academic Freedom, Responsibility, and Tenure.

UNIVERSITY STUDENT JUDICIAL CODE

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UNIVERSITY STUDENT JUDICIAL CODE

I. General Principles

- A. Purpose: The primary purpose for the maintenance of discipline in the University setting is the protection of the campus community and the maintenance of an environment conducive to learning and inquiry. Freedom of thought and expression is essential to the University's academic mission. Nothing in this Code should be construed to limit the free and open exchange of ideas and viewpoints, even if that exchange proves to be offensive, distasteful, disturbing, or denigrating to some.
- B. Inherent Authority: The University reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community, notwithstanding the provisions in this Code.
- C. Interpretation of Regulations and Standard of Conduct: To the extent feasible and practicable, disciplinary regulations at the University are in writing in order to give students general notice of prohibited conduct. The regulations are not a criminal code; they should be read broadly and are not designed to define misconduct in exhaustive terms.
- D. Proceedings: Disciplinary proceedings conducted pursuant to the Code shall be informal, fair, and expeditious. Procedures governing criminal or civil courts, including formal rules of evidence, are not applicable. Deviations from the procedures in this Code shall not invalidate a proceeding or decision, except where such deviation has clearly resulted in significant prejudice to an accused student or to the University.
- E. Violations of Local, State, and Federal Law: Students may be accountable to both governmental authorities and to the University for acts which constitute violations of law and this Code. Student conduct allegedly constituting a felony or misdemeanor offense may be referred to appropriate law enforcement agencies for prosecution. Disciplinary proceedings at the University will not be subject to challenge on the ground that criminal charges involving the same incident have been filed, prosecuted, dismissed, reduced, or otherwise resolved or that such proceedings constitute double jeopardy.
- F. Violations of University Policies: Students alleged to have violated certain University policies, such as the Research Integrity Policy, may be subject to investigation and sanctions under both this Code and the other policy. Disciplinary proceedings at the University will not be subject to challenge on the ground that other charges involving the same incident have been filed or resolved or that such proceedings constitute double jeopardy.

- G. Time Limitations for Bringing a Complaint: A complaint may be brought at anytime, as long as the respondent is a current student of the University, as defined below, and has not graduated. Potential complainants are reminded that the University's ability to effectively investigate complaints can be hampered or negated by the passage of time. Therefore, potential complainants are encouraged to file complaints in a timely manner.

II. Definitions

- A. Student: Any person registered in one or more courses in any school, college, or professional school of Washington University, at either the undergraduate or graduate level. Teaching or research assistants, if also registered as students, are classified as student for the purposes of this Code. Additionally within the scope of this definition shall be any person (1) who has accepted an offer of admission to a School at Washington University, but has not yet matriculated, for example, a pre-freshman student, (2) who is not now a student, but has a continuous relationship with the University, including, but not limited to, continuing to reside on University property or taking a leave of absence; or (3) who is not now a student, but is accused of an academic integrity violation during his or her period of enrollment.
- B. Campus: All property owned, leased, managed, or rented by Washington University in St. Louis.
- C. Member of the University Community: Any Washington University faculty member, student, employee, or Trustee, as well as any person on Campus who is an employee of an entity with a continuous relationship with Washington University.
- D. Student Group: Any organization of two (2) or more Washington University students that is recognized by Student Union, Congress of the South 40, the Interfraternity Council, Women's Panhellenic Association, the Graduate-Professional Council, or graduate student governments in any of the eight graduate-professional schools; or utilizes (or seeks to utilize) Campus space; or attempts to take action, of any kind, in a collective manner on Campus or at any officially arranged University activity.

III. Offenses

- A. The following forms of misconduct by a student or student group are subject to disciplinary action when they occur on Campus or when they occur off Campus

and adversely affect the University community and/or the pursuit of its objectives. Attempts to commit acts prohibited by this Code, agreements among two or more students to commit acts prohibited by this Code may be punished to the same extent as commission of the prohibited act itself.

1. Academic or professional misconduct, including, but not limited to, cheating, plagiarism, fabrication of data or records, unpermitted collaboration on assignments, misrepresentation of student status or identity, resume or credential falsification, unauthorized use of prescription medication to enhance academic performance, or otherwise violating the applicable Academic and/or Professional Integrity Policy. Knowingly making false allegations of academic misconduct against any student will itself be considered a form of academic misconduct.
2. Interfering with the rights of other members of the University community or visitors to the University to engage in educational, recreational, residential, administrative, professional, business, and ceremonial activities, or other functions.
3. Physical abuse of any member of the University community or visitor to the University.
4. Threatening physical abuse, stalking, hazing, engaging in domestic, dating, or interpersonal violence, or any other conduct which harasses, threatens, or endangers the safety or health of, any member of the University community or visitor to the University.
5. Sexual contact with any member of the University community or visitor to the University without that person's consent, including, but not limited to, rape and other forms of sexual assault. Conduct will be considered "without consent" if no clear consent, verbal or non-verbal is given; if inflicted through force, threat of force, or coercion; or if inflicted upon a person who is unconscious or who otherwise would appear to a reasonable observer to be without the mental or physical capacity to consent. For example, sexual contact with a person who would appear to a reasonable observer to be impaired in the exercise of his or her judgment by alcohol or other drugs may be considered "without consent."

6. Conduct which is disorderly, lewd, indecent, or which disturbs the peace on University premises or at functions sponsored by, or participated in by, Washington University or a Washington University student group.
7. Possession (concealed or otherwise), storage, or use on Campus of firearms or a facsimile, explosives, explosive fuels, fireworks, dangerous chemicals, or other dangerous weapons, except as specifically authorized in advance by the Washington University Police and appropriate University officials.
8. Use, possession, manufacture, distribution or facilitation of distribution of narcotics or other controlled substances, including prescription medication, except as expressly permitted by law, or possession on Campus of drug paraphernalia as defined by Washington University.
9. Use or possession of a hookah on the Danforth Campus or in any Residential Life managed facility.
10. Use, possession, manufacture, or distribution of alcoholic beverages except as expressly permitted by law or University policy.
11. Unauthorized or fraudulent use of the University's resources, including, but not limited to, facilities, telephone system, mail system, electronic communication devices, electronic databases, course management programs, computer systems, or use of any of the above for any illegal act.
12. Knowingly furnishing false information to a University official, or anyone acting on the University's behalf, including, but not limited to, (a) the falsification of information in applications for admission or financial aid, (b) the intentional passing of an insufficient funds check or fraudulent money order in payment of any financial obligation to the University, or (c) filing a false police report.
13. Intentional dishonesty before any decision-making individual or body of the University, including knowingly making false allegations against any student or student group.
14. Knowingly making a false claim to represent the University or a student group of the University.

15. Refusal to identify oneself, failure to display a University identification card or other identification, possessing, or providing false identification to any appropriate University official or designee upon reasonable request.
 16. Failure to comply with the reasonable and lawful request of University officials or designees acting in the performance of their duties.
 17. Theft, attempted theft, unauthorized taking or use of any University, public, or private property.
 18. Knowingly possessing stolen property.
 19. Unauthorized entry, deliberate destruction of, damage to, malicious use of, or abuse of any University, public, or private property.
 20. Knowingly or recklessly violating a published University policy, rule, or regulation; or participating in conduct which one should reasonably know to be a violation of a published University policy, rule, or regulation.
 21. Failure to appear before the University Judicial Board (UJB), University Sexual Assault Investigative Board (USAIB), Judicial Administrator, or other University official or administrative body as directed, or to properly comply with or complete a sanction imposed under the University Judicial System or through other administrative bodies.
 22. Intentionally or recklessly disabling, or causing the false activation of life safety equipment, including, but not limited to, exit door alarms, emergency telephones, fire safety equipment, closed circuit television systems, emergency notification systems, and identification card and door access systems.
 23. Formally charged with, convicted of, or found guilty of a crime such that the student's continued presence on the University Campus poses a substantial threat to the ability of others to continue their normal University functions and activities.
- B. Offenses by Student Groups: Student groups or organizations and their officers may be held responsible for violations of this Code by members or others associated with the group or organization who has received the tacit, or overt consent, or encouragement of the group or organization or its leaders, officers, or

spokespersons. Student groups or organizations are subject to the same sanctioning provisions set forth in this Code as individual students, including but not limited to revocation of student group status.

IV. Composition of the University Judicial System

A. The University Judicial System shall consist of the following¹ :

1. Judicial Administrator

- a. Responsibilities: The Judicial Administrator receives and investigates complaints of violation of this Code and either adjudicates the complaint or, if appropriate, refers the complaint to the appropriate University office or administrative body for investigation and/or hearing. If the Judicial Administrator adjudicates the complaint and a violation is found, the Judicial Administrator imposes appropriate sanctions. The Judicial Administrator does not hear allegations of academic misconduct, and does not have the authority to suspend, expel, or otherwise directly terminate the status of a student found in violation of this Code unless by agreement.
- b. Selection: The Judicial Administrator is appointed by the Chancellor, or his/her designee, following consultation with the Vice Chancellor for Students and Dean of Students. The appointee may be a faculty member or staff member. In the event the Judicial Administrator is unavailable to serve, the Dean of Students or his/her designee may serve as the Judicial Administrator or appoint an appropriate University official to serve temporarily in that capacity.

2. University Judicial Board

- a. Composition: The UJB is composed of six (6) faculty members, six (6) undergraduate student members, six (6) graduate – professional student members, six (6) administrative or staff members, and one additional member who shall serve as Chairperson.

¹ The responsibility of the University Judicial System, including the UJB and USAIB, is concurrent with that of the administration of the University and does not displace the University's administrative responsibility to address instances of discrimination, harassment, and threats to person(s) or property.

b. Responsibilities:

- (1) The UJB hears and decides cases referred to it by the Judicial Administrator, the undergraduate School or College Academic Integrity Officers or Panels, Graduate – Professional schools, and the suspending authority following a temporary suspension; and cases involving allegations of academic misconduct in the absence of a School or College Academic Integrity Panel. The UJB hears and decides appeals from temporary suspensions, appeals referred to it by the Chairperson of the UJB, and appeals from sanctions issued by the Judicial Administrator. The UJB also performs other duties as called for by this Code.
- (2) The Chairperson of the UJB presides over all hearings conducted before the UJB and convenes pre-hearing proceedings as needed; rules on appeals from decisions of the Judicial Administrator and undergraduate School or College Academic Integrity Panels; and performs other duties as called for by this Code.

c. Selection

- (1) Members of the UJB are appointed for two (2) year terms, beginning on January 1. Faculty members are appointed by the Faculty Senate Council; student members are appointed by the Student Union and the Graduate-Professional Student Council; and administrative or staff members are appointed by the Chancellor. Each year, three (3) faculty members are appointed; three (3) undergraduate student members are appointed; three (3) graduate – professional student members; and three (3) administrative or staff members are appointed. If a vacancy exists or scheduling conflict arises members may be appointed throughout the year by the Judicial Administrator. Members may be reappointed, but no member shall serve more than two (2) consecutive terms. Members of the Faculty Senate Council, Student Union Executive Council, officers of the Graduate and Professional Student Council, and officers of the University shall not serve on the UJB.

- (2) The Chairperson of the UJB is appointed annually by the Chancellor. The Chairperson must be a member of the University community. The Chairperson may be appointed, without limitation, for consecutive terms.
- d. The panel convened for a hearing normally consists of three (3) student members and three (3) members of the faculty, administration or staff, plus the Chairperson. A quorum consists of four (4) members, plus the Chairperson. Student members shall comprise a portion of the hearing panel in every case. Every attempt shall be made to provide peer representation for both graduate and undergraduate students. The Judicial Administrator, in consultation with the Chairperson, shall determine which faculty, administration or staff members shall comprise the remainder of the panel. In making this determination, faculty members only shall be designated whenever the sole allegation is academic misconduct. If the allegations do not relate solely to matters of academic misconduct, faculty, administration, and staff members, in any combination thereof, may serve.

3. University Sexual Assault Investigative Board

- a. The University Sexual Assault Investigative Board (USAIB) is composed of faculty, staff and student members and is governed by separate investigation procedures set forth in the USAIB Procedures.
- b. The USAIB investigates (i) complaints of sexual assault alleged to have been committed by a student(s) in violation of Offense Number 5 above and (ii) other complaints referred by the Judicial Administrator that involve allegations of sexual harassment committed by a student(s). Complaints may allege other violations of the Code, in which case the USAIB may investigate and exercise jurisdiction over such complaints in their entirety as long as the additional charges arise out of the same set of facts and circumstances or are related to the alleged incident of sexual assault. The USAIB may elect to refer the other charges to the Judicial Administrator or UJB for hearing and resolution.
- c. Following a determination by the USAIB Panel that it is more likely than not that a respondent has committed a sexual assault or engaged

in sexual harassment in violation of the Code, sanctions will be imposed in accordance with the USAIB procedures and may include suspension or expulsion.

4. Authority Retained by Individual Schools, the Office of Residential Life, and Greek Life

a. Each School or College of the University may establish a panel to hear and decide cases of alleged academic misconduct involving undergraduate students of that School or students taking courses taught by faculty in that School.

(1) The composition of such a panel shall be determined by appropriate persons in each School or College.

(2) Such a panel may impose sanctions other than suspension or expulsion in any case where academic misconduct is found. No School or College panel may suspend or expel an undergraduate student for academic misconduct; however, upon a finding of academic misconduct serious enough to warrant suspension or expulsion, a panel may recommend the suspension or expulsion of an undergraduate student to the UJB.

b. Each Graduate or Graduate Professional School of the University may establish a panel to hear and decide cases of alleged academic or professional misconduct by graduate or graduate professional students of that School.

(1) Appropriate persons in each school shall determine the composition of the panel and the scope of the panel's authority, which shall not exceed the parameters set out immediately below.

(2) Such a panel may impose or recommend to the Dean of the student's Graduate or Graduate Professional School appropriate sanctions, including suspension or expulsion, in any case where academic or professional misconduct is found.

- (3) Any appeal from a decision of a Graduate or Graduate Professional School academic and professional integrity panel, including, where the panel is vested with such authority, the panel's decision to impose the sanctions of suspension or expulsion, shall be made to the Dean of that School. His or her decision shall be final. Each Graduate or Graduate Professional School is permitted, but not required, to establish an intermediate level of appeal that the student must complete prior to initiating a final appeal to the Dean.
- (4) Except for cases falling within Section IV.A.3.b(3) above, any appeal from a decision of a Dean of a Graduate or Graduate Professional School to suspend or expel a student shall be made in accordance with the provisions of Section VII.B.1 of this Code.
- c. If a School or College does not establish an academic integrity panel or if an established panel fails to function, complaints of academic or professional misconduct shall be heard by the UJB.
- d. Complaints filed with individual Schools or Colleges shall be governed by the procedures created by those bodies. The procedures created by these Schools or Colleges shall be approved by the Chancellor or his designee.
- e. The Office of Residential Life may, in consultation with student representatives of the appropriate residential community, establish rules and regulations, in addition to this Code, to govern the conduct of students living in the University residential colleges and other housing subject to Residential Life regulations. The Office of Residential Life may impose sanctions upon students who violate such rules. Repeated violations of such rules, or serious offenses, may be referred to the Judicial Administrator for further disciplinary proceedings. The foregoing authority supplements, but does not supersede rights retained by the University in Housing contracts and leases. Nothing in this paragraph precludes further proceedings under this Code.
- f. The Office of Campus Life may, in consultation with student representatives of the Greek community, establish rules and regulations, in addition to this Code, to govern the conduct of organizations and persons who are members of the Greek community.

The Office of Campus Life may impose sanctions when such rules are violated. Repeated violations of such rules or serious offenses may be referred to the Judicial Administrator for further disciplinary proceedings. The foregoing authority supplements, but does not supersede rights retained by the University in Housing contracts and leases. Nothing in this paragraph precludes further proceedings under this Code.

B. Student Decision-Making Bodies

Certain student groups have established decision-making bodies which receive and investigate all allegations of violations of their legislation, procedures, or policies. The pendency before the decision-making body of any student group of any case arising from an incident alleged to constitute a violation of this Code, shall not bar or postpone proceedings under this Code.

V. University Student Judicial Code Procedures

A. Initiation of Proceedings

1. Proceedings concerning an alleged violation of this Code are initiated with a written complaint. The complaint is a brief written statement describing the conduct alleged to be in violation of the Code.
2. Complaints of alleged violations of this Code may be filed against any student or student group by any member of the University community.
3. Complaints limited to alleged academic misconduct or professional misconduct.
 - a. Complaints limited to alleged academic misconduct or professional misconduct shall be filed with the Academic Integrity Panel of the School or College in which the misconduct allegedly occurred or, where no such panel exists, with the UJB.
 - b. If a complaint involving alleged academic misconduct against an undergraduate student is filed with a School or College Academic Integrity Panel and the case is viewed as serious enough that suspension or

expulsion is a possible sanction, the complaint shall be referred to the UJB for hearing. In such a case, a representative of the School or College shall prepare a statement of charges and have it served, by mail, electronic means, or personal service, upon the original complainant and the respondent.

4. Complaints involving alleged offenses other than academic or professional misconduct.
 - a. Complaints alleging any offense other than academic or professional misconduct shall be filed with the Judicial Administrator.
 - b. When a complaint is filed with the Judicial Administrator, he or she shall promptly consider and investigate the complaint, notify the student or student group against whom the complaint has been filed, and give the respondent(s) an opportunity to be heard. The Judicial Administrator shall conduct meetings with the parties and any witnesses in an informal manner, seeking to obtain relevant information.
 - c. If the Judicial Administrator determines that there are not reasonable grounds to believe that a violation of the Code occurred, the complaint shall be dismissed and the complainant and student or student group complained against shall be informed, in writing, of this action.
 - d. If the Judicial Administrator determines that there are reasonable grounds to believe that a violation of the Code has occurred, the Judicial Administrator shall either:
 - (1) determine whether a violation of the Code has occurred and, if so, impose a sanction; or
 - (2) refer the complaint to the UJB, USAIB, or an appropriate University administrative body for investigation and hearing. In any case where the Judicial Administrator believes that suspension or expulsion is a possible sanction, s/he shall refer the case to the UJB or USAIB. The Judicial Administrator may refer to the UJB or USAIB any other case at his or her sole discretion.

- e. If the complaint is not referred to the UJB or other University administrative body, the Judicial Administrator shall render a written decision within a reasonable time, and deliver same to the respondent(s) by mail, electronic means, or hand delivery. The Judicial Administrator shall, to the extent permitted by law, inform the complainant of the decision and any sanctions.
 - f. If the complaint is referred to the UJB, the Judicial Administrator shall prepare a statement of charges, which shall include the provision(s) of the Code allegedly violated, and have it served by mail, electronic means, or hand delivered to the student or student group charged and the Dean of the School or College in which the student(s) is/are enrolled. The Judicial Administrator shall also furnish a copy to the complainant. A hold shall be placed on the student's academic records until disposition of the case.
- B. The pendency of any case arising from an incident alleged to constitute a violation of the Code in any municipal, state, federal court, or agency shall not bar or postpone proceedings under this Code unless (1) the Judicial Administrator elects to defer proceedings until a final resolution of the case in the court or agency system; or (2) with the exception of allegations involving sexual harassment or sexual assault set forth below, the student has been charged with a felony offense and requests a deferral of proceedings. The request for deferral shall result in the student's immediate withdrawal from student status and removal from all University premises until the matter is heard and resolved under this Code. The student's request must precede the initiation of a hearing by the UJB. Postponement of a hearing shall not postpone a respondent's obligation to fulfill sanctions imposed by the Judicial Administrator. In cases involving allegations of sexual harassment or sexual assault, the University will ordinarily not delay its investigation if criminal charges are filed. At the request of law enforcement authorities, however, the University may postpone the University investigation and proceeding while the authorities gather evidence.
- C. Organizational Procedures of the University Judicial Board
- 1. The UJB shall set times and places for hearings, and establish procedures not inconsistent with this Code to govern the conduct of its hearings. Hearings may be scheduled at any time, including during the summer and during University breaks.

2. No student shall be subject to more than one UJB hearing on a charge or charges resulting from any act or series of related acts alleged in violation of the Code. The UJB may consolidate all charges pending against a student at the time of hearing. Nothing in this provision shall prohibit a hearing on charges arising from acts which take place or are discovered after earlier charges are filed.
3. The UJB shall not conduct a hearing until the respondent has received the statement of charges against him or her. If the respondent fails to appear for the hearing, the UJB may postpone the hearing or, in the alternative, may conduct a hearing to determine whether a violation of the Code occurred and impose sanctions if appropriate. If the UJB decides to postpone the hearing, the UJB may decide to suspend the student from the University until the student does appear before the UJB for the hearing on the charges.
4. Prior to a UJB hearing, the Chairperson of the UJB may convene a pre-hearing conference with the parties. At that conference, the parties shall be prepared to discuss the witnesses and evidence they intend to introduce, the issues they anticipate, and any matters that may require resolution by the Chairperson. The Chairperson may, at his or her sole discretion, confer separately with the complainant or respondent.
5. The respondent and the complainant each may choose (at his or her own expense) to be assisted by and accompanied to the hearing and pre-hearing conference by one individual, for example, a friend, faculty member, advisor, or parent. Where the victim of alleged misconduct is not a party, but a testifying witness, he or she may be accompanied by an individual, subject to the limitations below. If the accompanying individual is an attorney, the student shall provide the attorney's name and telephone number to the Judicial Administrator at least one week before the scheduled hearing.
6. The function and role of the accompanying individual is to provide support, advice, or assistance to the person requesting his or her presence. The accompanying individual (including attorneys) shall not be permitted to testify, serve as a witness, examine parties or witnesses, or provide statements or arguments to the UJB. Therefore, if the individual witnessed the events at issue or has other information relevant to the proceedings, he or she shall not accompany the student. The respondent and the complainant are each responsible for stating his or her own case to the UJB.

7. A list of expected witnesses, the name and title of the accompanying individuals, and copies of any documents expected to be presented in support of the charges, or in defense of the charged party, shall be provided to the Judicial Administrator at least five (5) business days before the hearing. Where a student includes the opinion or recommendations of medical professionals, such opinions or recommendations shall be submitted ten (10) business days prior to the hearing. A student submitting documentation from a medical professional also should submit a copy of the medical professional's curriculum vitae. If additional witnesses or documents are obtained after the submissions period described above, the Chairperson shall decide whether the witnesses or documents may be allowed, and the hearing may be postponed at the sole discretion of the Chairperson of the UJB. A party is not obligated to call all witnesses on the list. Each party is permitted to call witnesses to rebut testimony offered by the other party. The Chairperson may recess a hearing if he or she concludes that the Board requires additional evidence or information.
8. The following persons may be present during a UJB hearing: the Chairperson of the UJB and Board members, the respondent and an accompanying individual; the complainant and an accompanying individual; witnesses and their accompanying individuals, where authorized by the Chairperson; the Judicial Administrator; and a member of the Office of the Executive Vice Chancellor and General Counsel. Witnesses and their accompanying individuals, if any, may be present only when testifying unless the Chairperson specifically requests a witness be present for any other portion of the hearing.
9. The Chairperson of the UJB may, at his or her discretion, direct any student to appear as a witness at a hearing of the UJB. The Chairperson also may call witnesses, including, but not limited to, medical experts, on his or her own initiative. The failure of a student to appear at a UJB hearing following receipt of such a directive shall subject that student to disciplinary action under this Code.
10. The procedure at a hearing before the UJB shall be as follows:
 - a. The complainant and the respondent shall have the opportunity to present statements summarizing their respective cases and the evidence to be presented.

- b. The complainant shall present his or her evidence. The complainant may decide whether or not to testify during the hearing. Except as otherwise noted in this subsection, the respondent and members of the UJB may question the complainant's witnesses.
- c. The respondent shall have the opportunity to present evidence. The respondent may decide whether or not to testify during the hearing. Except as otherwise noted in this subsection, the complainant and members of the UJB may question the respondent's witnesses.
- d. The complainant and the respondent shall have the opportunity to present concluding remarks.
- e. In cases referred to the UJB by the Judicial Administrator, the Judicial Administrator may be called as a witness by the complainant or the respondent, or by the UJB itself.
- f. In any hearing before the UJB, members of the UJB may ask questions of any participant in the hearing (including the complainant, the respondent, and any witness) at any time during the hearing, and may also recall witnesses and/or request that additional witnesses be called.

The Chairperson may determine in some cases that it is appropriate for all questioning by the parties to be directed through the Chairperson or his/her designee. In such cases, the parties will be permitted to submit questions of the other party and witnesses to the Chairperson five (5) days in advance of the hearing.

- g. If, after questions have been put to a party or other witness by the Chairperson or UJB, a party believes that there are further questions that need to be asked of the other party or witness, the party may advise the Chairperson that she or he has additional questions and submit those questions to the Chairperson for consideration. The Chairperson or his/her designee retains discretion throughout this process regarding whether to accept and pose suggested questions.
11. Evidence shall be considered which tends to prove or disprove the charges. Prior conduct and offenses unrelated to the charges shall not be considered in determining whether the respondent has committed the offense except in

unusual circumstances. The Chairperson of the UJB shall rule on whether evidence or testimony will be considered.

12. If the UJB concludes that the evidence presented does not warrant a finding that the respondent committed the charged offense(s), the proceedings are terminated.
13. If the UJB concludes that the respondent committed the charged offense(s), or if the respondent decides to admit to the charge(s), the complainant, the respondent, and the University shall be given an opportunity to present additional evidence for consideration by the UJB in deciding what sanction(s) to impose. The additional evidence may consist of evidence of prior conduct (including prior offenses) by the respondent, evidence as to the respondent's character, the respondent's applicable University records, or any other evidence which could assist the UJB in determining an appropriate sanction. Any such additional evidence shall be presented at a hearing before the UJB conducted in accordance with the procedures set forth above.
14. A verbatim record (which may be in the form of an audio recording) shall be kept of all pre-hearings and disciplinary hearings conducted by the UJB at the expense of the University. A verbatim record may be kept of any proceedings before other panels or persons at the request and expense of the party charged. The party charged must make such a request no more than two days in advance of the hearing. Deliberations of the UJB or other hearing panels shall not be recorded. Both parties, but not the witnesses, shall have the right to review such records in the Office of the Judicial Administrator, but may not make copies. All recordings shall remain the property of the University and shall be destroyed upon closure of the case by the Judicial Administrator unless required by law to be maintained.

D. Decisions

1. A decision-maker (whether the Judicial Administrator, the UJB, or other University administrative body) must find in favor of the respondent unless the decision-maker is persuaded that it is more likely than not that the student committed the offense(s) charged. The respondent shall be afforded the benefit of the presumption of innocence.
2. If a respondent elects not to provide his or her version of events to the decision-maker (whether the Judicial Administrator, the UJB, or other

University administrative body), the decision-maker may, but is not required to, draw adverse inferences from the student's silence.

3. In cases decided by the UJB, the following shall apply:
 - a. A majority vote of the members of the UJB participating in the case shall be required for a decision.
 - b. The Chairperson of the UJB may participate and vote.
 - c. Any decision of the UJB shall be made in writing. Copies of the decision, redacted as necessary, shall be mailed, e-mailed, or delivered to the complainant, the respondent, and the respondent's parents if the parents will receive notification pursuant to this Code, and other University officials with a need to know as determined by the Judicial Administrator or the Chairperson of the UJB.

VI. Sanctions

- A. Subject to the limitations described in paragraph C of this section, sanctions combinations of sanctions, may be imposed following a determination that a violation of the Code has occurred:
 1. Warning: notice of a finding that it is more likely than not that an offense has been committed and that continuation or repetition of such violation within a specified time period will result in more severe sanctions.
 2. Deferred Penalty and Probation: any of the listed sanctions may be deferred by the adjudicatory body or person for a specified time period, not to exceed two (2) calendar years. Should the student, during the period of probation, be determined to have committed another violation of this Code, the deferred penalty shall take effect, in addition to the sanction imposed for any new offense.
 3. Restitution: reimbursement for actual damage or loss caused by the violation of the University Judicial Code, either through appropriate repairs or monetary compensation.
 4. Fine: monetary penalty of not more than Seven Hundred and Fifty Dollars (\$750.00).

5. Educational Remedies: meetings with University officials or others, unpaid University or community service, or other educational assignments. These may include, but are not limited to, referrals to Student Health Services, attendance at workshops or panel discussions, letters of apology, and reflective essays. Service assignments may occur on or off Campus. Conditions may be specified for the completion of the sanction. Where a violation involves drug use, the Judicial Administrator or UJB also may require the student to participate in drug screening on a scheduled or random basis. Any and all costs associated with the screening are the responsibility of the student.
 6. Disciplinary Activity Limitation: ineligibility for participation in any or all elected and appointed positions within the University; also ineligibility for participation in all forensic, athletic, dramatic, musical, social, or other University recognized activities for a specified period of time.
 7. Denial of Access to Certain University Facilities: exclusion from University owned or leased facilities; including housing, athletic fields, grounds, or parts of these facilities indefinitely or for a specified period of time.
 8. Temporary Removal from University Housing: ineligibility to reside in University Housing, including off Campus University owned, leased, managed, or rented apartments, for a specified period of time.
 9. Permanent Removal from University Housing: permanent ineligibility to reside in University Housing including off Campus University owned, leased, managed, or rented apartments.
 10. Suspension: removal from student status in the University for a specified period of time. This sanction will be permanently noted on a student's official transcript.
 11. Expulsion: permanent removal from student status in the University. This sanction will be permanently noted on a student's official transcript.
- B. A student's entire academic integrity, disciplinary record, and criminal history, if appropriate and relevant in the discretion of the Chairperson, may be considered in determining appropriate sanction(s)

- C. The sanctions of expulsion and suspension may only be imposed by: (i) the UJB; (ii) the USAIB; (iii) the Chancellor, Provost, Vice Chancellor for Students or Dean of a Graduate or Graduate Professional School; or (iv) in Graduate and Graduate Professional Schools that grant such authority, the Academic and Professional Integrity Panel. The Judicial Administrator and the other University judicial panels without authority to expel or suspend may impose any of the other sanctions, except as such authority is limited by Section IV.A. of this document.
- D. Academic Misconduct: if academic misconduct is determined to have occurred, the body making the determination may recommend to the faculty member responsible for the course in which academic misconduct occurred that the grade of the student involved be lowered, or no credit given. However, the final decision in any grading determination shall rest with the faculty member. The UJB may recommend this sanction in addition to any other sanctions imposed.
- E. Notification of Dean and Parents or Legal Guardians:
1. The parents or legal guardians of any student who is legally dependent upon his or her parents or legal guardians and who is suspended or expelled shall be informed of the decision of the UJB.
 2. The parents or legal guardians of any student under the age of 21 who has admitted committing or been found under this Code to have committed an offense under Section III.A.8 or III.A.10 may be notified of such violation or violations by the Office of the Dean of Students. The Office of the Dean of Students shall have discretion to determine when a violation or violations of Sections III.A.8 or III.A.10 are of sufficient severity or number to warrant notifying parents or legal guardians. Nothing contained in this section shall be construed to prohibit the University from disclosing to parents or legal guardians information relating to a health or safety emergency involving the student or as otherwise permitted by law.
 3. The Dean of the School or College in which the student is enrolled shall be informed of any UJB decision involving the student. If the student is an exchange student, visiting student or other non-degree student and is regularly enrolled elsewhere, notice of the outcome of any judicial matter may be provided to the student's home college or university.

4. Decisions of the UJB and decision-making bodies (or persons) other than the UJB, which do not involve academic or professional misconduct, shall be reported to the Dean of Students.
5. Student Union, the Graduate-Professional Council, and/or the sponsoring student governing body will be made aware of specific details regarding violations of the Code by a student group under its auspices at the time that the matter is resolved.

F. Failure to Comply with Sanctions

If a student fails to comply in a timely fashion with any of the sanctions assigned, a hold may be placed on his or her University records. The hold will be removed upon full completion of the sanctions assigned.

VII. Appeals

- A. Time Limit for Appeals: any appeal authorized by the Code must be filed within fourteen (14) calendar days of the date of the written decision by the decision-making body or person. An appeal is filed when personally delivered to or electronically received by the appellate authority or bearing a United States Postal Service postmark or other documentary evidence of timely delivery to an independent delivery service.
- B. Appeals of UJB Decisions and Decisions of Deans of Graduate or Graduate Professional Schools to Suspend or Expel a Graduate or Graduate Professional Student:
 1. A student complainant, a student respondent determined by the UJB to have violated this Code, or a graduate student or graduate professional student suspended or expelled by the Dean of a Graduate School or Graduate Professional School shall, within the period of time specified by this Code, have the right to appeal to the person designated by the Chancellor to serve as the appeal officer, or his or her designee. Such appeal shall be made in writing to the appeal officer and shall be limited to grounds that a fair hearing was not provided or that the sanction imposed was insufficient or excessive. A student appealing a UJB decision shall also deliver a copy of the appeal to the Judicial Administrator. When such appeal is taken, the appeal officer shall not substitute his or her judgment of the facts for that of the UJB or of the Dean. The scope of the appeal

officer's review shall be limited to determining whether a fair hearing was provided and whether the sanction imposed, given all the relevant facts and circumstances, was insufficient or excessive.

2. The appeal officer, if he or she grants the appeal, may order a new hearing, may reduce or modify the sanctions assessed by the UJB or the Dean. The decision of the appeal officer is final.
3. In the event of the absence or disqualification of the appeal officer, the appeal will be determined by the Chairperson of the Faculty Senate Council, or his or her designee.
4. The University may not appeal any adverse decision of the UJB.
5. Sanctions will be stayed pending the disposition of any appeal, except that a temporary suspension or any interim protective measures will remain in effect. If a hold has been placed on a student's records, it will remain until final disposition of the case.

C. Appeals of Decisions of the Judicial Administrator and Academic Integrity Panels of Undergraduate Schools and Colleges:

1. Any final decision of the Judicial Administrator or an Academic Integrity Panel of an Undergraduate School or College may be appealed, in writing, to the UJB Chairperson, or his or her designee, with a copy to the Judicial Administrator, within the period of time specified by this Code. An appeal may be filed either by the complainant or the respondent(s) or student group.
2. The Chairperson of the UJB, upon receiving an appeal, shall provide a copy of the appellant's request and supporting materials to the appellee. The Chairperson, in his/her sole discretion, may request that the appellee provide a response and seek additional materials as needed. The Chairperson of the UJB, or his or her designee, shall not substitute his or her judgment of the facts, and the scope of his or her review shall be limited to determining whether the written material submitted indicates that either no fair hearing had been provided to the appellant or that the sanction imposed, given all relevant facts and circumstances, was insufficient or excessive.

3. If the Chairperson, or his or her designee, determines that an unfair hearing has occurred, he or she shall take one of the following actions:
 - a. Remand the case to the Judicial Administrator or Academic Integrity Panel with specific instructions to assure a fair hearing. Upon remand, the Judicial Administrator or the Academic Integrity Panel may modify the sanctions previously imposed.
 - b. Convene a hearing of the UJB to hear the matter de novo. Should the UJB hold a hearing de novo, the hearing shall be conducted in accordance with the procedures set out in Section V.C. of this Code. Statements made by the parties or witnesses in the prior, underlying hearing may be disclosed to the UJB. The UJB may impose a sanction in excess of that imposed by the prior adjudicator.
4. If the Chairperson, or his or her designee, determines that the sanctions were excessive, he or she may modify the sanctions previously imposed.
5. Sanctions will be stayed pending the disposition of any appeal. If a hold has been placed on a student's records, it will remain until final disposition of the case.
6. The decision of the UJB, or its Chairperson, shall be final in any appeal from the Judicial Administrator or Academic Integrity Panel, and no appeal to the appeal officer shall occur.

D. Appeals of Decisions of the Office of Residential Life or Greek Life:

1. Any final decision of the Office of Residential Life or Greek Life may be appealed in writing to the Judicial Administrator within the period of time specified by this Code. The Judicial Administrator, or his or her designee, shall not substitute his or her judgment of the facts. The scope of his or her review shall be limited to determining whether the written materials submitted indicates that either no fair hearing had been provided to the appellant or that the sanction imposed, given all the relevant facts and circumstances, was excessive.
2. If the Judicial Administrator decides to sustain the contentions of the appellant, in whole or part, he or she shall fashion a remedy or form of relief appropriate to the facts and circumstances of the case.

3. Sanctions will be stayed pending the disposition of any appeal; provided however, that nothing contained in this Code shall in any way impair the enforcement of the terms of the housing contracts and leases entered into between the University and students residing in residential housing, including, but not limited to, reassignment and cancellation or other interim protective measures.

VIII. Record Retention

Subject to Section V.14., records of the University Judicial Administrator and the UJB directly related to non-academic cases heard under the University Judicial System shall be destroyed after a period of ten years from the date of final adjudication. If a student withdraws from the University prior to final adjudication, the records shall not be destroyed. Records of the University Judicial Administrator, the UJB, and the USAIB directly related to allegations of academic misconduct or cases resulting in suspension or expulsion, and any applicable transcript notations, shall be maintained indefinitely.

IX. Report on Student Conduct

Each semester the Judicial Administrator shall prepare a Report on Student Conduct summarizing the complaints filed in the previous semester, the types of conduct involved, and the outcomes, including a description of the sanctions, if any. The Report shall be circulated to the University administrators at the discretion of the Judicial Administrator and the Vice Chancellor for Students.

X. Temporary Suspension

- A. The Chancellor, Vice Chancellor for Students, Dean of Students, or their respective designees, may suspend a student for a temporary period if (1) there is evidence that the student has committed an offense under this Code or the student has been indicted or otherwise formally charged with a crime; and (2) there is evidence that the continued presence of the student on the University Campus or in the University community poses a substantial threat to him/herself or others or to the ability of others to continue their normal University functions and activities.
- B. The suspending authority (the person imposing the suspension) shall limit the scope of the temporary suspension to that necessary to protect those possibly affected by the actions of the suspended student. Access to parts of University

owned, leased, managed, or rented property, the Campus, or to certain activities, may be limited. In cases of seriously disruptive or dangerous behavior, the suspending authority may deny the student access to the University owned or leased property, Campus, and/or prohibit class attendance and participation in University activities and events.

- C. If a student is suspended for a temporary period, the suspending authority shall prepare a written notice of the suspension and shall have the notice served, by mail or electronic means, or hand delivered, on the suspended student. The written notice shall include a brief statement of the scope of the suspension and the reasons therefore, and a brief statement of the procedures provided in cases of temporary suspension under this Code.
- D. A student suspended for a temporary period shall be given an opportunity to appear personally before the suspending authority within five (5) business days from the date of service of the notice of temporary suspension. If the student asks to appear personally before the suspending authority, only the following issues shall be considered:
1. Whether the suspending authority's information concerning the student's conduct is reliable;
 2. Whether under all the circumstances, there is a reasonable basis for believing that the continued presence of the student on Campus poses a substantial threat to the student or to the rights of others to engage in their normal University functions and activities; and
 3. Whether the scope of the temporary suspension is reasonable.
- E. Within ten calendar days of the date of a temporary suspension, the suspending authority shall file a statement of charges against the suspended student with the UJB, and shall have the statement of charges served, by mail or electronic means or hand delivered, upon the suspended student and the Dean of the School or College in which the student is enrolled.
- F. A temporary suspension shall end when rescinded by the suspending authority, or upon the failure of the suspending authority to file a statement of charges within a reasonable time or, if not rescinded and if a statement of charges is promptly filed, when the case is heard and decided by the UJB or other University administrative body.

XI. Amendment of the Code

The amendment process may be initiated by any member of the campus community, the Student Union, the Graduate-Professional Council, the Faculty Senate Council, or any faculty, staff or student group by the submission of proposed changes to the Office of the Dean of Students. The Associate Vice Chancellor for Students and Dean of Students, or his or her designee, shall promptly distribute copies of the proposed changes to the Office of the General Counsel, Student Union, the Graduate-Professional Council, and the Faculty Senate Council for adoption or rejection. Review of the Code shall be initiated by the Office of the Dean of Students no less than every three years.

XII. Titles and Successors

Because the titles, positions, or groups stated in this Code may change, the functions or responsibilities assigned by this Code shall be performed by persons or groups that assume the functions of the positions or groups stated in this Code.

Effective July 1, 2014

Washington University School of Medicine Policies

Abusive Conduct

[« BACK TO ALL POLICIES](#)

Washington University in St. Louis School of Medicine (WUSM) is committed to having a positive learning and working environment for its students, faculty and staff. All individuals have the right to enjoy an environment free from all forms of conduct that can be considered harassing, threatening or intimidating. In addition, academic freedom can exist only when every person is free to pursue ideas in a non-threatening atmosphere of mutual respect. WUSM is committed to protecting the academic freedom and freedom of expression of all members of the school community and this Policy against abusive conduct will be applied in a manner that protects those freedoms. Abusive conduct is reprehensible and threatening to the careers, educational experience, and well being of all members of our community and will not be tolerated. This Policy applies to all students, faculty and staff and is in addition to the Washington University Sexual Harassment and Discriminatory Harassment policies.

What Is Abusive Conduct?

Abusive conduct is behavior that creates an intimidating environment and is likely to interfere with an individual's work or education. This conduct can be verbal, visual, physical or communicated in writing or electronically. Such conduct is typically directed against a particular individual or individuals. It includes, but is not limited to, situations in which one person has authority over another. In such situations, abusive conduct is particularly serious because it may unfairly exploit the power inherent in a faculty member's or supervisor's position.

Examples of conduct that may be considered abusive include but are not limited to:

- threatening or intimidating behavior or words (written or oral);
- obscenities/profanities (verbal or gestures) directed at a person;
- threatening or obscene gestures, jokes, or cartoons;
- degrading a person or a group on the basis of a personal or cultural characteristic;
- taunting, jeering, mocking, or humiliating another person through acts or words;
- screaming and/or yelling at or around others;
- insulting someone, especially in the presence of others; and
- endangering the safety of an individual or individuals.

In considering a complaint under this policy, the following understandings shall apply:

(1) Abusive conduct must be distinguished from behavior which, even though unpleasant or disconcerting, is appropriate to the carrying out of certain instructional, advisory, or supervisory responsibilities. In the context of patient care clear and direct communication may be necessary in order to deliver safe, effective, appropriate, and timely clinical treatment.

(2) Instructional responsibilities require appropriate latitude for pedagogical decisions concerning the topics discussed and methods used to draw students into discussion and full participation.

The fact that someone did not intend to be abusive is generally not considered a sufficient defense to a complaint, although the reasonableness of the accuser's perceptions may be considered. In most cases, it is the characteristics and the effect of the behavior on the

complainant and whether a reasonable person would find the conduct abusive that determines whether the behavior was abusive.

Reporting Abusive Conduct

The School of Medicine can respond to specific instances and allegations of abusive conduct only if it is aware of them and therefore encourages anyone who believes that he or she has experienced abusive conduct to come forward promptly with inquiries, reports, or complaints and to seek assistance. In addition, any faculty member, manager, or employee who becomes aware of instances or allegations of abusive conduct, by or against a person under his or her supervisory authority, is required to report it to the appropriate dean, director, department head, or other similar administrator or to the WUSM Human Resources Office. Once a complaint is received, it is the responsibility of the dean, director, department head, or similar administrator to respond to the allegations and reports of abusive conduct and take corrective action, if appropriate, or to work with WUSM Human Resources to develop such a response and corrective action, if appropriate. All complaints and their resolution must be reported to WUSM Human Resources.

Protection of Rights

Retaliation means conduct that adversely affects another's terms or conditions of employment or education and has the effect of harming a person for filing a complaint or for participating in the investigation. Retaliation can take many forms. Examples include but are not limited to:

- reassignment of work duties without good reason; loss of job benefits (i.e., travel);
- loss of salary;
- termination; and
- threats.

Against the Complainant

It is a violation of this policy to retaliate against persons who report or make a charge of abusive conduct or against those who testify, assist, or participate, in any investigation involving a complaint. Any such retaliation, or any encouragement of another to retaliate, is a violation of this policy, independent of whether the particular claim is substantiated.

Against the Respondent

Lodging a complaint is not proof of prohibited conduct. A complaint shall not be taken into account during reappointment, tenure, promotion, merit, or other evaluation or review until a final determination has been made that the policy has been violated.

Knowingly False or Malicious Complaints

Accusations of abusive conduct typically have injurious and far-reaching effects on the careers and lives of accused individuals. Therefore allegations must be made in good faith and not out of malice. Knowingly making a false or frivolous allegation will not be tolerated and will subject the person making such a report to disciplinary action.

Possible Sanctions

Possible sanctions for a person found to exhibit abusive conduct include, but are not limited to, the following:

In many situations, the following examples of sanctions may be sufficient:

- oral or written reprimand;
- required attendance at a sensitivity program;
- apology to the victim; and

- oral or written warning.

In certain situations, the following sanctions may also need to be considered:

- loss of salary or benefit, such as sabbatical or research or travel funding;
- loss of non-salary benefits (i.e., travel funding); demotion; and
- suspension, probation, termination.

While counseling is not considered a sanction, it may be offered or required in combination with sanctions.

Tobacco-free Policy

Effective April 2007

It is the policy of the University to provide a healthy, comfortable and productive work and learning environment for all faculty, staff and students. All smoking, other use of tobacco products, and electronic cigarettes are strictly prohibited within the School of Medicine buildings and on our property, including during breaks and meal times. This policy applies to the entire School of Medicine community, including, but not limited to all faculty, staff, students, patients, contractors and visitors.

Individuals within the WUSM community are not permitted to smoke, use tobacco products or electronic cigarettes within WUSM owned, leased or occupied facilities or on WUSM owned, leased or occupied property.

This includes:

- The physical campuses
- Parking facilities and lots (including in personal vehicles at these locations)
- WUSM owned, leased or rented vehicles
- Within 25 feet of entryways or exits; near air intakes; or near fire/explosion hazards
- Any worksites in which individuals within the WUSM Community work

If individuals within the WUSM community smoke, use tobacco products or electronic cigarettes off WUSM properties, they are expected to be respectful of residents, hospitals and businesses neighboring WUSM facilities. They should not loiter in front of homes, hospitals or businesses near WUSM facilities and must discard any remaining products in appropriate receptacles.

Violations of the policy may result in disciplinary action.

Revised February 2014

Pharmaceutical & Medical Device Industry Policy

WUSM Clinical Conflict of Interest Policy

Printable Version of Policy

Conflict of Interest in Clinical Care - Pharmaceutical and Medical Device Industry Policy - Interaction with Industry Representatives

Adopted: May 22, 2007

Revised & Approved: November 15, 2007, December 15, 2009, October 18, 2011, January 21, 2014

Purpose

Pharmaceutical and medical device representatives have an interest in making health care professionals aware of their products and new product developments. While interactions with sales representatives have a legitimate purpose, it is essential that information provided by these individuals is free of bias and financial inducements that might unduly influence medical decision making. The purpose of this policy is to define ethical standards for interacting with pharmaceutical and medical device manufacturers.

Definition

For purposes of this Policy, "medical device" is defined broadly to include medical devices, implants and other medical care related products and services.

Policy

- 1) Vendor sales representatives are allowed on WUSM premise, including its off-site clinics, only by appointment and only in department-designated areas as approved by the Department Chair, Program Director or their respective designees. Vendor sales representatives must wear visible identification while on any WUSM premises, and the purpose of their visits must be educational, not promotional, in nature.
- 2) Vendor sales representatives are prohibited from having direct patient contact and are not permitted to meet with faculty in patient care areas. Any exceptions to this policy must be approved by the Department Chair or Program Director and limited to situations in which the presence of a medical device representative is essential because of the complexity of the medical device being utilized.
- 3) Pharmaceutical/medical device manufacturers may only provide unrestricted educational grants to a central fund with the approval of the Department Chair, Program Director or their respective designees. The fund is independent of any industry input or control.
 - Grants may be used for medical education purposes including, but not limited to, medical textbooks, honoraria and expenses for extramural lecturers and the provision of modest food/meals.
 - Grants cannot be conditional or related in any way to any pre-existing or future business relationship with the industrial sponsor.
 - The content of the educational program and related materials must be under the exclusive control of WUSM.

- Financial support of programs can be acknowledged in text in program announcements (*Ex: "This program was supported in part by an educational grant from _____."*)
- 4) When industry provides support of CME-accredited educational activities, additional CME guidelines and procedures for commercial support of educational activities must be followed. Up-to-date versions of these standards can be found at the CME web site (<http://cme.wustl.edu>). University resources including campus mail, e-mail or other official means of communication should not be used to announce or publicize industry-sponsored or co-sponsored events:
 - Educational events may be publicized if supported by an unrestricted educational grant.
 - Pharmaceutical/medical device manufacturers should not be provided with e-mail lists or address lists of WUSM physicians, health professionals, students, trainees, residents or staff.
 - 5) Vendor sales representatives may not interact with students, residents and other trainees on WUMC premises without faculty presence. Vendors may provide only peer-reviewed literature and technical information related to the use of medical devices in this setting. With approval from the appropriate Department Chairperson or Program Director vendors may provide medical textbooks to students, residents and other trainees. Departmental or Program review and approval will include the educational materials as well as the distribution process.
 - 6) Promotional items (pens, notepads, magnets, etc.) are not allowed in clinical practice areas or at educational conferences for students, residents and other trainees.
 - 7) Industry-sponsored food and catered meals are not permitted in any WUSM area (clinical or academic) and are not permitted at educational conferences for students, residents and other trainees unless provided through an unrestricted departmental grant.
 - 8) Pharmaceutical samples from industry are prohibited, except under narrow circumstances approved by the Faculty Practice Plan Clinical Practice Committee that protect the interests of patients and prevent the use of samples as a marketing tool. Permitted uses are limited to:
 - Low-income uninsured or underinsured patients who are unable to afford prescriptions.
 - Situations in which the patient's response to sample medications can be helpful in determining the most effective treatment before writing a full prescription.
 - The medications must only be accepted by the clinic site manager and stored in a secured location. A log must be maintained to document their use, including the date, patient's name, medication name, lot number, expiration date, indication for use and quantity dispensed. Sample medications may not be given directly to physicians by pharmaceutical sales representatives.
 - 9) Pursuant to the WUSM Policy on Conflicts of Interest in Clinical Care (Approved March 16, 2006) meals, sporting event tickets, golf outings, gift baskets, travel, and any other

free goods or services should not be accepted from vendors.

- 10) Faculty and staff members (including their spouses, domestic partner or dependent children) who receive payments from a pharmaceutical or medical device manufacturer or distributor, or who have a personal financial interest in such companies, must not make decisions regarding WUSM and affiliated hospital purchases related to the products of such companies. To the extent an individual's expertise is necessary in evaluating any product, the individual must report his or her financial or fiduciary ties (or those of his/her spouse, domestic partner or dependent child) to any manufacturer of the product to those responsible for making the procurement decision. The individual may provide information, but may not participate in the final purchasing decisions relevant to such products.

Applied Health Behavior Research Policies

Standards for Satisfactory Academic Progress for Financial Aid Eligibility: See below.
For additional policies, please visit the [Applied Health Behavior Research](http://crtc.wustl.edu/degrees.html) website at <http://crtc.wustl.edu/degrees.html>.

Audiology and Communication Sciences Policies

Standards for Satisfactory Academic Progress for Financial Aid Eligibility: See below.
For additional policies, please visit the [Program in Audiology and Communication Sciences](http://pacs.wustl.edu) website at pacs.wustl.edu.

Biology and Biomedical Sciences Policies

Standards for Satisfactory Academic Progress for Financial Aid Eligibility: See below.
For additional policies, please visit the [Division of Biology and Biomedical Sciences](http://dbbs.wustl.edu) website at dbbs.wustl.edu.

Biomedical Engineering Policies

Standards for Satisfactory Academic Progress for Financial Aid Eligibility: See below.
For additional policies, please visit the [Biomedical Engineering](http://bme.wustl.edu/graduateprograms/Pages/default.aspx) website at <http://bme.wustl.edu/graduateprograms/Pages/default.aspx>.

Biostatistics Policies

Standards for Satisfactory Academic Progress for Financial Aid Eligibility: See below.

For additional policies, please visit the [Division of Biostatistics](http://biostatistics.wustl.edu/training/msibs/prospectivestudents/MS/Pages/AdmissionsRequirements.aspx) website at <http://biostatistics.wustl.edu/training/msibs/prospectivestudents/MS/Pages/AdmissionsRequirements.aspx>.

Clinical Investigation Policies

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#): See below.
For additional policies, please visit the [Clinical Research Training Center](http://crtc.wustl.edu/) website at <http://crtc.wustl.edu/>.

Doctor of Philosophy Policies

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#): See below.
For additional policies, please visit the [Division of Biology and Biomedical Sciences](http://dbbs.wustl.edu) website at dbbs.wustl.edu.

Genetic Epidemiology Policies

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#): See below.
For additional policies, please visit the [Genetic Epidemiology](https://biostatistics.wustl.edu/training/msibs/prospectivestudents/certificate/Pages/default.aspx) website at <https://biostatistics.wustl.edu/training/msibs/prospectivestudents/certificate/Pages/default.aspx>.

Occupational Therapy Policies

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#): See below.
For additional policies, please visit the [Program in Occupational Therapy](http://ot.wustl.edu) website at ot.wustl.edu.

Physical Therapy Policies

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#): See below.

For additional policies, please visit the [Program in Physical Therapy](#) website at pt.wustl.edu.

Population Health Sciences Policies

[Standards for Satisfactory Academic Progress for Financial Aid Eligibility](#): See below.

For additional policies, please visit the [Master of Population Health Sciences](#) website <http://www.mphs.wustl.edu/>.

Standards for Satisfactory Academic Progress for Financial Aid Eligibility: Other School of Medicine Programs

<< Back to [Washington University School of Medicine Policies](#)

The following policy applies to students pursuing graduate/professional training in the following programs:

- Applied Health Behavior Research Audiology and Communications Sciences
- Biology and Biomedical Sciences
- Biomedical Engineering
- Biostatistics
- Clinical Investigation
- Doctor of Philosophy
- Genetic Epidemiology
- Occupational Therapy
- Physical Therapy
- Population Health Sciences

Federal law and regulations require that all students receiving financial assistance from Federal Title IV funds maintain satisfactory academic progress (SAP). This policy presents the standards adopted by the Washington University School of Medicine and applies to all non-MD students.

The School of Medicine at Washington University in St. Louis evaluates SAP at the end of each semester for all non-MD students receiving financial aid. A student failing to meet the standards of progress as determined by the Committee on Academic and Professional Evaluation of Students (CAPES) shall be placed on financial aid probation and notified by CAPES and the Director of Financial Aid. While on probation the student may receive financial assistance for one semester, trimester, or equivalent period of time. At the conclusion of this period, the student must have achieved compliance with each standard. A student who does not achieve compliance and is not making SAP by the conclusion of the probationary period is suspended from federal aid eligibility. The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

In order to be considered to be maintaining SAP, and thus eligible for financial aid, students must be satisfactorily progressing toward their academic objectives. Federal regulations require three measurements for determining SAP; qualitative, quantitative and timeframe.

Maximum Time Frame:

To maintain eligibility you must complete your program by attempting no more than 150% of the credits required to complete your program. For example, if your program requires 120 credits to complete your degree, you must be able to complete the program by attempting no more than 180 credits. This includes credits attempted without financial aid. Specific information for each program may be found in each program's Handbook or Bulletin.

Periods of non-enrollment are NOT counted in the measurement of satisfactory academic progress but all periods of attendance, regardless of whether the student received Title IV aid, are counted.

If you reach a point where you cannot complete your program within the 150% maximum, students become ineligible for aid.

Qualitative Requirement:

The minimum semester and cumulative GPAs needed to meet the SAP requirement are set by each program. The program's Bulletin or Handbook will help you determine your minimum GPA requirements.

If you are not achieving the minimum GPA requirements for your program at the end of each semester when the SAP review is performed, you are not considered to be making SAP.

Financial Aid Warning:

A student failing to meet the standards of progress as determined by their Program at the end of each semester will be placed on "financial aid warning" for the following term. At the end of that term, the student must be meeting SAP to receive financial aid for future

semesters. Any student not meeting SAP at the end of the warning period will be suspended from future financial aid. The student will be eligible for aid when they achieve SAP or the student may appeal. Students who choose to appeal must state the reasons for failing to meet SAP (e.g. injury/illness of the student, death in the family or other special circumstance) and what has changed in the student's situation so that he or she can now make SAP. If the student successfully appeals, the student will be placed on financial aid probation and may receive financial assistance for one semester. At the conclusion of this period, the student must have achieved compliance with each standard or be progressing per their individual academic plan to receive additional aid. A student who does not achieve compliance with each standard by the conclusion of the probationary period is suspended from financial aid eligibility.

The Office of Student Financial Aid must notify a student of implementation of probationary status and/or suspension.

The Director of Student Financial Aid shall have primary responsibility for enforcement of this policy. The Office of Student Financial Aid shall ascertain at the time of each disbursement of funds and prior to certification of a financial aid application that the student is in compliance with the policy.

People

Faculty

The **All Faculty** listing in the Bulletin of the School of Medicine is drawn from the Washington University Human Resources Management System (HRMS). To update or change a faculty member's listing, please contact the HRMS representative for your department, division or program. Thank you.

Elliot Efrem Abbey, MD
Professor of Clinical Medicine

Camille N. Abboud, MD
Professor of Medicine

Basem Abdeen, MD
Instructor in Clinical Medicine

Khaled M Abdel-Hamid

Instructor in Clinical Medicine

Shabaana Abdul Khader, PHD
Associate Professor of Molecular
Microbiology

Haley J Abel, PHD
Instructor in Genetics

Dana Ray Abendschein, PHD

Associate Professor of Cell Biology and Physiology
Associate Professor of Medicine (primary appointment)

Enyo Ama Ablordeppey, M PH, MD

Assistant Professor of Anesthesiology (primary appointment)
Assistant Professor of Emergency Medicine in Medicine

Marc Bruce Abrams, D DENT

Instructor in Clinical Otolaryngology

Barry K Abramson, MD

Instructor in Clinical Medicine

Yousef Abu-Amer, MS, PHD

Professor of Orthopaedic Surgery (primary appointment)
Professor of Cell Biology and Physiology

Nada A Abumrad

Robert C Atkins Professor of Obesity Research in Medicine (primary appointment)
Professor of Cell Biology and Physiology

Aninda Bhat Acharya, MD

Instructor in Clinical Neurology

Samuel I Achilefu, PHD

Professor of Radiology (primary appointment)
Professor of Biochemistry and Molecular Biophysics

Susan E Adams, PHD, MD

Assistant Professor of Clinical Pediatrics

Susan R Adams, MD

Instructor in Clinical Medicine

William S Adams, MD

Associate Professor of Clinical Pediatrics

Foluso O Ademuyiwa, MBBS, M PH

Assistant Professor of Medicine

Laura Jean Adhikari, MD

Assistant Professor of Pathology and Immunology

Douglas R Adkins, MD

Professor of Medicine

Benard C Adler, MD

Prof Emeritus Of Clinical Otolaryngology

Rebecca L Aft, PHD, MD

Professor of Surgery (General Surgery)

Sirajuddin Agha, MBBS

Assistant Professor of Anesthesiology

Randy Agolia

Instructor in Clinical Pediatrics

Arpana Agrawal, PHD

Associate Professor of Psychiatry

Aqeeb Ahmad

Instructor in Clinical Psychiatry

Fahd Aqeeb Ahmad, MD

Instructor in Pediatrics

Nawal Mona Ahmed

Instructor in Clinical Otolaryngology (DDS)

Gail G Ahumada, MA, MD

Assoc Prof Emeritus Of Clinical Medicine

Walter John Akers, DVM, PHD

Assistant Professor of Radiology

Abdulla Akfaly, MD

Instructor in Clinical Medicine

Gustav Akk

Assistant Professor of Anesthesiology

Hussam Al Kateb, MA, PHD

Assistant Professor of Pathology and Immunology

Ziyad Al-Aly

Assistant Professor of Medicine

Bassam Albarcha

Instructor in Clinical Medicine

Suzanne G Albrecht

Instructor in Clinical Pediatrics

Jorge M Alegre, MD

Instructor in Clinical Medicine

**Jennifer Marie Alexander-Brett, MD,
PHD**

Instructor in Medicine

Etihad S. Al-Falahi

Instructor in Clinical Pediatrics

Tarek Alhamad, MD, MS

Assistant Professor of Medicine

Ream Al-Hasani, PHD

Instructor in Anesthesiology

Muhammad A Ali, MD

Instructor in Clinical Medicine

Zarmeena Ali, MBBS

Instructor in Medicine

Paul M Allen, MS, PHD

Robert L. Kroc Professor of Pathology and
Immunology

Henry W Allhoff, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Ardis Kay Allison, DOST

Instructor in Clinical Pediatrics

Muhammad Taher Al-Lozi, MD, MS

Professor of Neurology

Florence Michelle Almiron-Torralba

Instructor in Clinical Medicine

David Hershel Alpers, MD

William B Kountz Professor of
Gerontology in Medicine

Denis Ian Altman, MBBCH

Associate Professor of Clinical Neurology
(primary appointment)
Assistant Professor of Clinical Pediatrics

Michael Bernard Altman, PHD

Instructor in Radiation Oncology

Lizette Alvarez-Montero, MD

Instructor in Clinical Neurology

Jamaluddin Faisal Amanullah

Instructor in Clinical Medicine

Gaya K Amarasinghe, PHD

Assistant Professor of Pathology and
Immunology (primary appointment)
Assistant Professor of Biochemistry and
Molecular Biophysics

Ferdinand Enginco Amarillo

Assistant Professor of Pathology and
Immunology

Maryellen Amato, MD

Instructor in Clinical Radiology

Patricia J Amato, MD

Associate Professor of Clinical Pediatrics

Amit P. Amin, MD

Assistant Professor of Medicine

Manik A Amin, MD

Instructor in Medicine

Navinkumar J Amin, MS

Associate Professor of Clinical
Ophthalmology and Visual Sciences

Shilpa S Amin, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Mohamad T Amjad, MD

Professor of Clinical Pediatrics

Ping An, MD

Assistant Professor of Genetics

Jagruti Shah Anadkat, MD

Instructor in Pediatrics

Milan J. Anadkat

Associate Professor of Medicine
(Dermatology)

Beau Mark Ances, MS, PHD, MD

Associate Professor of Neurology (primary
appointment)

Associate Professor of Biomedical
Engineering
Associate Professor of Radiology

Kristen Minette Andersen

Instructor in Clinical Pediatrics

Dale J Anderson, MD

Instructor in Clinical Psychiatry

Frank Kim Anderson, MD

Instructor in Clinical Medicine
(Dermatology)

Neil William Anderson, MD

Assistant Professor of Pathology and
Immunology

Richard H Anderson, MS, PHD, MD

Instructor in Clinical Psychiatry

Scott J Anderson, PHD, MD

Instructor in Clinical Medicine

Usha P Andley, PHD

Professor of Ophthalmology and Visual
Sciences (primary appointment)
Assistant Professor of Biochemistry and
Molecular Biophysics

Dorothy A Andriole, MD

Associate Professor of Surgery (General
Surgery) (primary appointment)
Assistant Dean for Student Affairs and
Medical Education

Gerald L Andriole, MD

Robert Killian Royce, M.D. Distinguished
Professor of Urologic Surgery

Adam Michael Andruska, MD

Instructor in Medicine

Dana E Ankney, MD

Instructor in Clinical Pediatrics

Andrey P Anokhin, MS, PHD

Associate Professor of Psychiatry

George Ansstas, MD

Instructor in Medicine

Alison Lynne Antes Schuelke, MS, PHD

Assistant Professor of Medicine

E. James Anthony, PHD, MD

Prof Emeritus Of Psychiatry (child Psych)

Lucinda L. Antonacci-Fulton, MS

Academic Rank held in Genetics (primary
appointment)

Instructor in Genetics

Amal F. Antoun

Instructor in Clinical Pediatrics

Shafkat Anwar, MD

Assistant Professor of Pediatrics

Anthony John Apicelli III, MD, PHD

Assistant Professor of Radiation Oncology

John K Appelbaum, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Murray Howard Appelbaum, DDENT

Instructor in Clinical Otolaryngology
(DMD)

Catherine M Appleton, MD

Assistant Professor of Radiology

Rajendra Apte, MD, PHD

Professor of Developmental Biology
Paul A. Cibis Distinguished Professor of
Ophthalmology and Visual Sciences
(primary appointment)

Tomas Ismael Aquino

Assistant Professor of Clinical Obstetrics
and Gynecology

Scott J Arbaugh, MD

Instructor in Clinical Psychiatry

Jeffrey Michael Arbeit, MD

Professor of Cell Biology and Physiology
Professor of Surgery (Urologic Surgery)
(primary appointment)

Ana Marie Arbelaez Perez, MD

Assistant Professor of Pediatrics

Ahmad Beheshti Ardekani, MD

Assistant Professor of Clinical Psychiatry

Ananth Kumar Arjunan, MD

Instructor in Medicine

Kenneth J Arnold, MD

Assistant Professor of Clinical Surgery
(General Surgery)

Suzanne V Arnold, MD, MHA

Adjunct Assistant Professor of Medicine

Vivek Kumar Arora, MD, PHD

Assistant Professor of Medicine

Neva P Arribas, AA, MD

Assoc Prof Emeritus Of Clin Ophthal & Vls
Sci

Anna Maria Arroyo Plasencia, MD

Assistant Professor of Medicine

Jennifer L. Arter, MD

Assistant Professor of Clinical Pediatrics

Maksym Artomov, MS, PHD

Assistant Professor of Pathology and
Immunology

Saira M Asadullah, MD

Instructor in Clinical Medicine

Phillip V. Asaro, MD

Assistant Professor of Emergency
Medicine in Medicine

Yasmin Asvat, PHD

Instructor in Clinical Obstetrics and
Gynecology

Umeshkumar Athiraman, MD

Instructor in Anesthesiology (Pending
Dean's Approval)

Elizabeth L Atkinson, MD

Instructor in Clinical Pediatrics

Jeffrey Jay Atkinson, MD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Pediatrics

John Patterson Atkinson, MD

Samuel Grant Professor of Medicine
(primary appointment)
Professor of Molecular Microbiology

Robert K Atteberry

Instructor in Clinical Pediatrics

Crystal Lynn Atwood, MD

Instructor in Medicine

Adrienne Denise Atzemis, MD

Assistant Professor of Pediatrics

Chandra Aubin, MD

Associate Professor of Emergency
Medicine in Medicine

Sarah Elizabeth Aubuchon, MD

Instructor in Clinical Pediatrics

Jacob D AuBuchon, MD

Assistant Professor of Anesthesiology

Paul F Austin

Professor of Surgery (Urologic Surgery)

James G Avery, MD

Associate Professor of Clinical Medicine

Michael Simon Avidan, MBBCH

Professor of Anesthesiology (primary
appointment)

Professor of Surgery (Cardiothoracic
Surgery)

Michael Magdi Awad, MD, PHD

Assistant Professor of Surgery (General
Surgery) (primary appointment)
Associate Dean for Medical Education

Sylvia Awadalla, MD

Professor of Neurology

Victoria Brooke Ayden, MD

Instructor in Psychiatry

Sara Ayers, MD

Instructor in Clinical Pediatrics

Abdelkareem Azab, PHD

Assistant Professor of Radiation Oncology

Riad Azar, MD

Associate Professor of Medicine

Fariba Azarpour, MD

X

Sangeeta Kaur Babar

Instructor in Clinical Obstetrics and
Gynecology

Hilary M Babcock, MD, MPH

Associate Professor of Medicine

Richard G. Bach, MS

Associate Professor of Medicine

Leonard B Bacharier, MD

Professor of Medicine
Professor of Pediatrics (primary
appointment)

Kyongtae T Bae, ME, MS, PHD

Adjunct Associate Professor of Radiology

Jacques Ulrich Baenziger, MD, PHD

Professor Emeritus of Biochemistry and
Molecular Biophysics (primary
appointment)
Prof Emeritus of Biochem & Molecular
Biophysic (primary appointment)

Nancy L Baenziger, PHD

Associate Professor of Neurobiology

Jill M Baer, MD

Assistant Professor of Clinical Pediatrics

Nusayba Bagegni, MD

Instructor in Medicine

Maria Quintos Baggstrom, MD

Associate Professor of Medicine

Kathy Baglan

Instructor in Clinical Radiation Oncology

Om Parkash Bahl, MS

Assistant Professor of Clinical Medicine

Donald M Bailey

Adjunct Instructor in Medicine

Jeffrey Allen Bailey, M PA, MD

Adjunct Assistant Professor of Surgery
(General Surgery)

Sean B Bailey, MD, MS

Instructor in Clinical Otolaryngology

Thomas C Bailey, MD

Professor of Medicine

Gregory Eden Baker, MD

Instructor in Clinical Medicine

Jonathan C Baker

Assistant Professor of Radiology

Parul Bakhshi

Assistant Professor of Occupational
Therapy

Dennis M Balfe, MD

Professor of Radiology

Fred J Balis, MS, MD

Assistant Professor of Clinical Medicine

Clarence William Balke, MD

Professor of Medicine

Robert H Baloh, MD

Adjunct Assistant Professor of Neurology

Keki Rohonton Balsara, MD

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Sirine A. Baltagi, MD

Instructor in Pediatrics

David T Balzer, MD

Professor of Pediatrics

David Ban, MD

Associate Professor of Clinical Medicine

James William Banks, MD

Instructor in Clinical Medicine

Dhruv Bansal, MD

Instructor in Medicine

Michael Roman Banton, MD

Instructor in Clinical Psychiatry (Child Psychiatry)

Jianxin Bao, PHD

Adjunct Associate Professor of Otolaryngology

Abraham Barake, MD

Associate Professor of Clinical Medicine

Thomas J Baranski, MD, PHD

Associate Professor of Developmental Biology
Associate Professor of Medicine (primary appointment)

Peggy Barco, MED

Instructor in Occupational Therapy (primary appointment)
Instructor in Medicine

Angela L Bard, MD

Associate Professor of Clinical Pediatrics

Rachel Hannah Bardowell, MD

Instructor in Medicine

Philip M Barger, MD

Assistant Professor of Medicine

Wayne Morris Barnes, PHD

Associate Professor of Biochemistry and Molecular Biophysics

Alan Roy Barnette

Adjunct Instructor in Pediatrics

Joaquin Barnoya, MS

Assistant Professor of Surgery (General Surgery)

Robert L Barrack, MD

Charles F and Joanne Knight
Distinguished Professor of Orthopaedic Surgery

Michael James Barratt, PHD

Instructor in Pathology and Immunology

Ernie-Paul Barrette, MA, MD

Associate Professor of Medicine

Melissa Anne Barrow, PHD

Instructor in Pathology and Immunology

Perry J Bartels, DDENT

Instructor in Clinical Otolaryngology

Thomas Joseph Bartholet, MD

Instructor in Clinical Medicine

Nancy Lee Bartlett, MS, MD

Koman Professor of Medical Oncology in Medicine

Kevin Barton, MD

Instructor in Pediatrics

Robert W Barton, MD, PHD

Assistant Professor of Clinical Medicine

Ruteja A. Barve, MS, PHD

Instructor in Genetics

Adil Bashir, MEE, PHD

Instructor in Radiology

Donald R Bassman, MD

Instructor in Clinical Orthopaedic Surgery

Steven Bassnett, PHD

Professor of Ophthalmology and Visual Sciences (primary appointment)
Professor of Cell Biology and Physiology

Amy J Bastian, PHD

Adjunct Assistant Professor of Physical Therapy

Kevin W Baszis, MD

Assistant Professor of Pediatrics

Maria S Baszis

Instructor in Clinical Pediatrics

Randall John Bateman

Charles F and Joanne Knight
Distinguished Professor of Neurology

Professor of Neurology (primary appointment)

Luis Francisco Zirnberger Batista, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Developmental Biology

Natalie Christine Battle, MD

Instructor in Medicine

Adam Quentin Bauer, MS, PHD

Instructor in Radiology

M. Carolyn Baum, MA, PHD

Elias Michael Executive Director of the Program in Occupational Therapy

Professor of Occupational Therapy

(primary appointment)

Professor of Neurology (Occupational Therapy)

Margaret Elizabeth Baum, MD

Instructor in Clinical Obstetrics and Gynecology

Susan L Baumer, MD

Associate Professor of Clinical Pediatrics

Frederick D Bauschard, MD

Assistant Professor of Clinical Medicine (Dermatology)

Michael D Bavlsik

Assistant Professor of Clinical Medicine

Rebecca Ann Bavolek, MD

Assistant Professor of Emergency Medicine in Medicine

Christie A. Bayer, MD

Instructor in Clinical Pediatrics

Susan Joy Bayliss, MD

Professor of Medicine (Dermatology) (primary appointment)

Professor of Pediatrics

Ronald Beach, MD

Instructor in Clinical Psychiatry

Wandy L. Beatty, PHD

Assistant Professor of Molecular Microbiology

Paul Douglas Becherer, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Anne Marie Beck, MD, MS

Professor of Pediatrics

Julia M. Becker, MD

Instructor in Clinical Pediatrics

Robert L Becker, MD

Assistant Professor of Clinical Obstetrics and Gynecology

Stanley C Becker, MA, PHD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

William L Becker, MA, MD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Jeffrey John Bednarski, MD, PHD

Assistant Professor of Pediatrics

Earl C Beeks Jr, MD

Associate Professor of Clinical Pediatrics

Saba Beg, MD

Instructor in Medicine

Avraham Beigelman, MD

Assistant Professor of Pediatrics

James E Belcher, MD

Instructor in Clinical Obstetrics and Gynecology

Andrew Curry Belden, MS, PHD

Assistant Professor of Psychiatry

Joe E Belew

Associate Professor of Clinical Obstetrics and Gynecology

Richard C Bell, MD

Instructor in Clinical Medicine
(Dermatology)

C. Elliott Bell Jr, MD

Instructor in Clinical Medicine

Arbi Ben Abdallah, PHD

Assistant Professor of Anesthesiology

William Waite Benedict

Instructor in Clinical Medicine

Bruno Antonio Benitez Vilorio, MD

Instructor in Medicine

Kenneth J Bennett, MD

Associate Professor of Clinical Surgery
(General Surgery)

Walter F Benoist, MD

Professor of Clinical Pediatrics

Max Prely Benzaquen

Instructor in Clinical Neurology

Tammie Lee Smith Benzinger

Associate Professor of Radiology (primary
appointment)

Associate Professor of Neurological
Surgery

George Richard Benzinger III, PHD, MD

Assistant Professor of Anesthesiology

Kathleen Mary Berchelmann, MD

Assistant Professor of Pediatrics

Louise E Berdan, MA

Instructor in Clinical Pediatrics

Gregg Jonathan Berdy, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Susan Berdy, MD

Assistant Professor of Clinical Medicine

Mikhail Y Berezin, MS, PHD

Assistant Professor of Radiology

Christine R. Berg, BSOT, MS, PHD

Associate Professor of Neurology

Associate Professor of Occupational
Therapy (primary appointment)

Daniel Ralph Berg, MD

Assistant Professor of Clinical Medicine

Douglas E Berg, PHD

Alumni Prof Emeritus of Molecular
Microbiology

Martin Bergmann, MD

Assoc Prof Emeritus Of Clin Surg (cardio
Surg)

Michael A Berk, MD

Professor of Clinical Medicine

Lynda Cheryl Berkowitz, MS

Instructor in Audiology and
Communication Sciences
Instructor in Otolaryngology (primary
appointment)

John Rutledge Bermingham Jr

Associate Professor of Genetics

Kathryn Quitasol Bernabe, MD

Assistant Professor of Surgery (Pediatric
Surgery)

Cory Thomas Bernadt, PHD, MD

Assistant Professor of Pathology and
Immunology

Carlos Bernal-Mizrachi, MD

Associate Professor of Cell Biology and
Physiology
Associate Professor of Medicine (primary
appointment)

Lisa Marie Bernhard, MD

Assistant Professor of Obstetrics and
Gynecology

Paul M Bernier

Adjunct Instructor in Ophthalmology and
Visual Sciences

Aaron M Bernstein

Assistant Professor of Clinical Medicine

Keith A Bernstein, MD

Instructor in Clinical Medicine

Marc Jordan Bernstein, MD

Associate Professor of Clinical Medicine

Douglas R Berson

Instructor in Clinical Medicine

Mary Ellen Bertrand, MD

Associate Professor of Neurology (primary appointment)

Associate Professor of Pediatrics

Stephen M Beverley, PHD

Marvin A Brennecke Professor of Molecular Microbiology (primary appointment)

Head of the Department of Molecular Microbiology

Sanjeev Bhalla, MD

Professor of Radiology

Pavan Kumar Bhamidipati, MD

Instructor in Clinical Medicine

Anita R. Bhandiwad, MD

Assistant Professor of Medicine

Mythili C. Bharadwaj

Instructor in Clinical Medicine

Shobha Bhaskar, MBBS

Instructor in Pediatrics

Priya Narayana Bhat, MS, MD

Assistant Professor of Pediatrics (Pending Executive Faculty Approval)

Savita Bhat, MS, MS1

Instructor in Clinical Psychiatry

Deepta Bhattacharya, PHD

Assistant Professor of Pathology and Immunology

Rakhee Kapadia Bhayani, MD

Assistant Professor of Medicine

Sam B Bhayani, MD

Professor of Surgery (Urologic Surgery)

Anjali Maruti Bhorade, MD

Associate Professor of Occupational Therapy

Associate Professor of Ophthalmology and Visual Sciences (primary appointment)

Stanley I Biel, MD

Instructor in Clinical Medicine

Frank Joseph Bier, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Andrew J Bierhals, MPH, MD

Assistant Professor of Radiology

Joelle Biernacki, MD

Instructor in Radiology

Laura J Bierut

Alumni Endowed Professor of Psychiatry

Scott W Biest, MD

Associate Professor of Obstetrics and Gynecology

Saira Bilal

Instructor in Medicine

Ronald C Bilchik, MD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Jason Gary Bill, MD

Instructor in Medicine

Joseph John Billadello, MD

Associate Professor of Medicine

Lawrence J Billy, MD

Instructor in Clinical Surgery (General Surgery)

Ellen F Binder, MD

Professor of Medicine (primary appointment)

Professor of Occupational Therapy

Aaron Birenbaum, MD
Assistant Professor of Clinical Medicine

William D Birenbaum, MD
Instructor in Clinical Medicine

Clifford Allen Birge, MD
Assistant Professor of Clinical Medicine

Stanley J Birge, MD
Associate Professor of Medicine

Rebecca L Birkenmeier, MS
Assistant Professor of Occupational
Therapy (primary appointment)
Assistant Professor of Neurology
Assistant Professor of Physical Therapy

Thomas M Birkenmeier, MD
Assistant Professor of Medicine

Mark Gerald Birkmann, OD
Adjunct Instructor in Ophthalmology and
Visual Sciences

Jean E Birmingham, MD
Associate Professor of Clinical Pediatrics

Elisa H Birnbaum, MD
Professor of Surgery (General Surgery)

Alan J Birtwistle
Assistant Professor of Clinical Neurology

Monica E. Bishop, MD
Assistant Professor of Psychiatry

Joseph T Black, MD
Professor of Clinical Neurology

Kevin J. Black, MD
Professor of Psychiatry (primary
appointment)
Professor of Radiology
Professor of Neurology
Professor of Neurobiology

Lynn Bennett Blackburn, MA
Assistant Professor of Clinical Neurology

Huldah C Blamoville, MD

Associate Professor of Clinical Pediatrics

Valerie Blanc, MS, PHD
Instructor in Medicine

Melvin S Blanchard, BBA, MD
Associate Professor of Medicine (primary
appointment)
Director of Residency Program,
Department of Internal Medicine

Marghuretta Dakota Bland, DPT, MS
Assistant Professor of Physical Therapy
(primary appointment)
Assistant Professor of Neurology
Assistant Professor of Occupational
Therapy

Thomas J Blanke Sr, MD
Instructor in Surgery (General Surgery)

Kevin J Blanton
Instructor in Clinical Pediatrics

Andrew N Blatt, MA, MD
Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Joshua Andrew Blatter, MD, M PH
Instructor in Pediatrics

Pablo M Blazquez Gamez, PHD
Assistant Professor of Otolaryngology

Kevin Jay Blinder, MD
Professor of Clinical Ophthalmology and
Visual Sciences

Morey A Blinder
Professor of Pathology and Immunology
Professor of Medicine (primary
appointment)

Adam J. Bloom, PHD
Instructor in Psychiatry

Gordon R Bloomberg, MD
Professor of Pediatrics

Jeffrey D Bloss

Adjunct Associate Professor of Obstetrics and Gynecology

Brandon Jamaal Blue, MD

Instructor in Medicine

Donald Allen Blum

Assistant Professor of Clinical Medicine

Kendall Jay Blumer, PHD

Professor of Cell Biology and Physiology

Trina Blythe, MD

Assistant Professor of Clinical Pediatrics

James C Bobrow, MD

Professor of Clinical Ophthalmology and Visual Sciences

Grant Bochicchio, M PH, MD

Professor of Surgery (General Surgery)

Imre Bodo

Adjunct Instructor in Medicine

George M Bohigian

Professor of Clinical Ophthalmology and Visual Sciences

Barbara Ann Bohne, PHD

Prof Emeritus of Otolaryngology

Donald David Bohnenkamp, MD

Assistant Professor of Psychiatry

Irving Boime, MS, PHD

Professor of Developmental Biology (primary appointment)

Professor of Reproductive Biology in Obstetrics and Gynecology

Joshua P Boldt

Instructor in Clinical Pediatrics

Michael Bolger

Instructor in Clinical Medicine

Kerry M Bommarito, M PH, PHD

Instructor in Medicine

Isaac Boniuk, MD

Professor Emeritus of Clinical Ophthalmology and Visual Sciences (primary appointment)

Prof Emeritus of Clin Ophthalmol & Vis Sci (primary appointment)

Stephanie Lynn Bonne, MD

Assistant Professor of Surgery (General Surgery)

James Scott Bonner, MD

Instructor in Clinical Neurology

Azad Bonni

Head of the Department of Anatomy and Neurobiology

Edison Professor of Neurobiology (primary appointment)

Matthew James Bonzelet, MD

Instructor in Clinical Medicine

Adrianus C Boon, MS, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Molecular Microbiology

Assistant Professor of Pathology and Immunology

Ingrid B Borecki, MS, PHD

Professor of Genetics (primary appointment)

Professor of Biostatistics

Bernita Born-Wolf, BN, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Benjamin A Borowsky, MD

Professor of Clinical Medicine

Jonathan D Bortz, MD

Instructor in Clinical Medicine

Walter R Bosch, BE, MS, PHS

Associate Professor of Radiation Oncology

Ron Bose, PHD, MD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Cell Biology and Physiology

Matthew S Bosner, MD

Assistant Professor of Clinical Medicine

Umar Sekou-Toure Boston, MD

Associate Professor of Surgery (Cardiothoracic Surgery)

Paul J Botelho

Adjunct Instructor in Ophthalmology and Visual Sciences

Kathryn L Botney

Instructor in Clinical Obstetrics and Gynecology

Kelly N Botteron

Professor of Psychiatry (Child Psychiatry) (primary appointment)
Professor of Radiology

Laila M Bottros, MD

Assistant Professor of Anesthesiology

Michael M Bottros, MD

Assistant Professor of Anesthesiology

Lawrence V Boveri, MD

Instructor in Clinical Obstetrics and Gynecology

Bryan R Bowen, OD

Instructor in Ophthalmology and Visual Sciences

William G Bowen, MD

Associate Professor of Clinical Medicine

Jessica Naomi Bowers

Instructor in Clinical Obstetrics and Gynecology

Angela N Bowman, PHD

Assistant Professor of Developmental Biology

Gregory R. Bowman, PHD

Assistant Professor of Biochemistry and Molecular Biophysics

Lyndsey Jean Bowman, PHD

Adjunct Instructor in Medicine

Martin I Boyer, MD, MS

Carol B and Jerome T Loeb Professor of Orthopaedic Surgery

Susan Kathleen Boyer, MD

Instructor in Clinical Psychiatry

Allyson Boyle, MD

Instructor in Clinical Psychiatry

Walter A Boyle III, MD

Professor of Surgery (General Surgery)
Professor of Anesthesiology (primary appointment)

Assistant Professor of Developmental Biology

Jeffrey D Bradley, MD

S. Lee Kling Professor of Radiation Oncology

Joseph P Bradley, MD

Assistant Professor of Otolaryngology

Richard V Bradley, MD

Assoc Prof Emeritus Of Clin Surg (Gen Surg) (primary appointment)
Assoc Prof Emeritus Of Clin Surgery (gen Surg) (primary appointment)

Robert J Bradshaw, MD

Instructor in Clinical Pediatrics

Robert Harry Brady, MD

Instructor in Clinical Psychiatry (Child Psychiatry) (primary appointment)
Adjunct Instructor in Psychiatry (Child Psychiatry)

Celeste Capers Brancato, MD

Assistant Professor of Pediatrics

Steven B Brandes, MD

Professor of Surgery (Urologic Surgery)

Keith E Brandt, MD

William G. Hamm Professor of Surgery
(Plastic and Reconstructive Surgery)

Gregory Harris Branham, MD

Professor of Otolaryngology

Anoop k Brar

Instructor in Surgery (Cardiothoracic
Surgery)(Pending Dean's Approval)

Richard D. Brasington Jr, MD

Professor of Medicine

Rebekah Arletta Braslow, MD

Instructor in Clinical Ophthalmology and
Visual Sciences

Alan C Braverman, MD

Alumni Endowed Professor of
Cardiovascular Disease in Medicine

Peter Anthony Brawer, PHD

Instructor in Clinical Psychiatry

Andrea Lynn Bredemeyer, PHD

Instructor in Pathology and Immunology

Sean Michael Breit

Instructor in Clinical Ophthalmology and
Visual Sciences

Daniel C Brennan

Professor of Medicine (primary
appointment)
Alan A and Edith L Wolff Distinguished
Professor

Audrey Brenot, PHD

Instructor in Medicine

Tamara L. Brent, MD, PHD

Professor of Molecular Microbiology
(primary appointment)
Alumni Endowed Professor of Molecular
Microbiology

Thomas J. Brett, PHD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Biochemistry and
Molecular Biophysics

Assistant Professor of Cell Biology and
Physiology

G. Larry Bretthorst, MS, PHD

Associate Professor of Radiology

Paul C Bridgman, MS, PHD

Professor of Neurobiology (primary
appointment)

Associate Professor of Biomedical
Engineering

Keith Happ Bridwell, MD

J Albert Key Distinguished Professor of
Orthopaedic Surgery (primary
appointment)

Professor of Neurological Surgery

James Drew Brien, PHD

Instructor in Medicine

Matthew Brinkmeier, MD

Instructor in Medicine

David L Brody, MD

Associate Professor of Neurology

Steven L Brody, MD

Dorothy R and Hubert C Moog Professor
of Pulmonary Diseases in Medicine
(primary appointment)

Professor of Radiology

Thomas J Broekelmann, MS

Instructor in Cell Biology and Physiology

Larry G Brokering, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Igor Brondz, MD

Instructor in Clinical Obstetrics and
Gynecology

Rita Thomas Brookheart, PHD

Instructor in Pediatrics

Christopher B. Brooks, MD

Associate Professor of Emergency
Medicine in Medicine

Frank Brooks

Instructor in Radiology

Robert Henry Brophy IV, MS, MD

Associate Professor of Orthopaedic
Surgery

Angela L Brown, MD

Associate Professor of Medicine

Barbara I Brown, PHD

Prof Emeritus Of Biological Chemistry

David L. Brown, MD

Professor of Medicine

Lawrence R Brown, PHD, MD

Assistant Professor of Emergency
Medicine in Medicine

Marc Richard Brown, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Marybeth Brown, MA, PHD

Adjunct Associate Professor of Physical
Therapy

Robert J Brown, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Sarah Michelle Brown

Assistant Professor of Pediatrics (primary
appointment)
Assistant Professor of Pathology and
Immunology
Instructor in Anesthesiology

Yolette V Brown, MD

Assistant Professor of Clinical Pediatrics

Earline A Brownridge, MD

Instructor in Clinical Pediatrics

Seth J Brownridge, MD

Assistant Professor of Clinical Pediatrics

Bernard H Brownstein, PHD

Associate Professor of Anesthesiology

George John Broze Jr, MD

Professor of Medicine (primary
appointment)
Professor of Cell Biology and Physiology
Professor of Pathology and Immunology

Robert M Bruce, MD

Professor of Clinical Medicine

Steven E. Bruce, MA, PHD

Visiting Assistant Professor of Psychiatry

Michael Raymond Bruchas, PHD

Assistant Professor of Anesthesiology

Janice E Brunstrom-Hernandez, MD

Adjunct Associate Professor of Neurology

Elizabeth M Brunt, MD

Professor of Pathology and Immunology

L. Michael Brunt, MD

Professor of Surgery (General Surgery)

Kathleen S Brunts, MD

Instructor in Clinical Medicine

Bruce L Bryan

Assistant Professor of Clinical Obstetrics
and Gynecology

Robert Charles Bucelli, MD, PHD

Assistant Professor of Neurology

Tony Wayne Buchanan, MA, PHD

Adjunct Asst Professor of Psychiatry

Kathleen K Bucholz, MS, MS1, PHD

Professor of Psychiatry

Jacob M Buchowski, MS, MD

Professor of Orthopaedic Surgery (primary
appointment)

Professor of Neurological Surgery

Donald William Buck, MD

Assistant Professor of Surgery (Plastic and Reconstructive Surgery)

Stanley Buck, MD

Instructor in Clinical Medicine

Kathryn Ann Bucklen, BFA, MD

Assistant Professor of Pediatrics

Virginia D Buckles, MS, PHD

Professor of Neurology

Sara Anne Buckman, PHARMD, MD

Assistant Professor of Surgery (General Surgery)

Tara M. Budetti

Instructor in Clinical Pediatrics

Philip J Budge, PHD, MD

Assistant Professor of Medicine

John B Buettner, MD

Instructor in Clinical Surgery (General Surgery)

Lorena Buffa, MD

Instructor in Clinical Pediatrics

Richard S Buller, MS, PHD

Associate Professor of Pediatrics

Rebecca Kay Bullivant, MD

Assistant Professor of Clinical Pediatrics

Arnold D Bullock

Alan A and Edith L Wolff Distinguished Professor

Professor of Surgery (Urologic Surgery) (primary appointment)

Michelle A. Burack, PHD, MD

Adjunct Instructor in Neurology

Max H Burgdorf, MD

Assistant Professor of Clinical Pediatrics

Peter M Burgers, MS, PHD

Marvin A. Brennecke Professor of Biological Chemistry

Dean B Burgess, MD

Professor Emeritus of Clinical Ophthalmology and Visual Sciences (primary appointment)

Prof Emeritus of Clin Ophthalmol & Vis Sci (primary appointment)

Andreas H Burkhalter, MS, PHD

Associate Professor of Neurobiology in Neurological Surgery

Professor of Neurobiology (primary appointment)

Associate Professor of Biomedical Engineering

Tamara Lavon Burlis, MHS, DPT

Associate Professor of Physical Therapy (primary appointment)

Associate Director for Clinical Education in Physical Therapy

Assistant Director of Professional Curriculum in Physical Therapy

Associate Professor of Medicine

Scott H Burner, MD

Associate Professor of Emergency Medicine in Medicine

Carey-Ann Dawn Burnham, PHD

Assistant Professor of Pediatrics

Assistant Professor of Pathology and Immunology (primary appointment)

Garrett C Burris, MD

Associate Professor of Clinical Pediatrics

Associate Professor of Clinical Neurology (primary appointment)

Robert Burstein, MD

Prof Emeritus Of Clinical Ob & Gyn

Harold Burton, PHD

Professor of Biomedical Engineering

Professor of Cell Biology and Physiology

Professor of Neurobiology (primary appointment)

Professor of Radiology

Donald F Busiek, MD

Instructor in Clinical Medicine

Joan Rachel Butcher

Instructor in Clinical Psychiatry

Melvin J Butler

Instructor in Clinical Medicine

Derek E Byers, MD, PHD

Assistant Professor of Medicine

Meredith S Byers

Assistant Professor of Radiology

James Byrd, MD

Instructor in Clinical Psychiatry (Child Psychiatry)

Jonathan Nicholas Byrd

Instructor in Clinical Medicine

Minji Byun, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Pathology and Immunology

Galileu Cabral, MD

Associate Professor of Clinical Medicine

Kelley S. Caddel, MD

Instructor in Clinical Pediatrics

William Todd Cade, MS, PHD

Associate Professor of Physical Therapy (primary appointment)

Associate Professor of Medicine

Alison Gale Cahill, MD

Associate Professor of Obstetrics and Gynecology

Nigel John Cairns, PHD

Professor of Neurology (primary appointment)

Professor of Pathology and Immunology

Boris Calderon, MD

Assistant Professor of Pathology and Immunology

Cheryl Ann Caldwell, MHS, DPT

Associate Professor of Physical Therapy (primary appointment)

Associate Professor of Orthopaedic Surgery

Archna Calfee, MD

Instructor in Clinical Pediatrics

Ryan Patrick Calfee, MD

Associate Professor of Orthopaedic Surgery

Joshua W. Calhoun, MD

Instructor in Clinical Psychiatry (Child)

David J Callahan

Assistant in Clinical Pediatrics

Assistant Professor of Clinical Neurology (primary appointment)

Wilma J. Calvert, BN, MSN, PHD

Adjunct Instructor in Psychiatry

Greta Camel, MD

Asst Prof Emeritus Of Medicine

John William Campbell, MD

Professor of Clinical Medicine

Meghan Clark Campbell, PHD

Assistant Professor of Neurology (primary appointment)

Assistant Professor of Radiology

Jian Li Campian, MD, MS, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Neurological Surgery

Samuel A Canaan Jr, MA, MD

Asst Prof Emeritus of Clin Ophthal & Vis Sci

Joseph Edward Cargas

Assistant Professor of Clinical Pediatrics

Maria J Canizares, MD

Instructor in Clinical Medicine
(Dermatology)

Rosemary L Cannistraro, MD

Instructor in Clinical Medicine

Charles E Canter, MD

Professor of Pediatrics

Russell C. Cantrell, MD

Instructor in Clinical Neurology

Yuqing Cao, PHD

Associate Professor of Anesthesiology

Michael G Caparon Jr, PHD

Professor of Molecular Microbiology

David Anthony Caplin, MD

Instructor in Clinical Surgery (Plastic and
Reconstructive Surgery)

Douglas A Carano, DDENT

Instructor in Clinical Otolaryngology (DDS)

Rebecca Goodwin Carey

Adjunct Instructor in Medicine

John R Carlile, MD

Assistant Professor of Clinical Pediatrics

M. Richard Carlin, MD

Assoc Prof Emer Of Clin Surg (urologic
Surg)

Adam J. Carlisle, MD

Instructor in Medicine

Kim Alan Carmichael

Associate Professor of Medicine

Michael J. Carney, MD

Instructor in Clinical Pediatrics

Robert Michael Carney, MS, PHD

Professor of Psychiatry (primary
appointment)
Professor of Psychology

Christopher Robert Carpenter, MD

Associate Professor of Emergency
Medicine in Medicine

Danielle Marie Ho Carpenter, MD

Assistant Professor of Pathology and
Immunology

David A Carpenter, MD

Associate Professor of Neurology

David B Carr, MD

Professor of Medicine (primary
appointment)

Professor of Neurology

Alan A and Edith L Wolff Distinguished

Professor of Geriatric Medicine

Beatriz M Carreno, PHD

Associate Professor of Medicine (primary
appointment)

Associate Professor of Pathology and
Immunology

Javier A Carrero-Brewer, MA, PHD

Assistant Professor of Pathology and
Immunology

Scott Carrizales, MD

Assistant Professor of Medicine (Pending
Executive Faculty Approval)

Kenneth R Carson, MD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Surgery (Public
Health Sciences)

Alexandre Carter, MD

Assistant Professor of Neurology (primary
appointment)

Assistant Professor of Occupational
Therapy

Arthur L Casey, MD

Instructor in Clinical Obstetrics and
Gynecology

Amanda Fishback Cashen, MD

Associate Professor of Medicine

Anil Govind Cashikar, MS, PHD

Assistant Professor of Cell Biology and Physiology

Rubilinda Q Casino, MD

Instructor in Clinical Pediatrics

Timothy James Casper, MD

Instructor in Pediatrics

Carmen F Castellano, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Chesney Dawn Castleberry

Assistant Professor of Pediatrics (Pending Executive Faculty Approval)

Mario Castro, MD, M PH

Professor of Pediatrics

Alan A and Edith L Wolff Distinguished Professor

Professor of Medicine (primary appointment)

Valeria Cavalli, MS, PHD

Associate Professor of Neurobiology

Laura Francesca Cavallone, MD

Assistant Professor of Anesthesiology

Patricia A Cavazos-Rehg, PHD

Assistant Professor of Psychiatry

Lilibeth Maria Cayabyab-Loe

Assistant Professor of Clinical Medicine

Ari Michael Cedars

Assistant Professor of Medicine

Marina Cella, MD

Associate Professor of Pathology and Immunology

Chad Phadung Chadaratana, MD

Instructor in Clinical Otolaryngology

Murali M Chakinala, MD

Associate Professor of Medicine

Grant A Challen, PHD

Assistant Professor of Medicine

Aaron Mark Chamberlain, B MUS

Assistant Professor of Orthopaedic Surgery

Kari Terece Chambers, PHD

Instructor in Medicine

Tattamangalam P Chandrika, MS

Associate Professor of Clinical Pediatrics

Chih-Hao Chang, MS, MS, PHD

Instructor in Pathology and Immunology

Kae Pyng Chang, MD

Instructor in Clinical Medicine

Shih Chung Chang, MD, MBA

Assoc Prof Emeritus of Ob & Gyn

Su-Hsin Chang, MA, PHD

Assistant Professor of Surgery (Public Health Sciences)

Earl S Changar, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

William T Chao, MD

Instructor in Clinical Pediatrics

Ajay Rama Chapa, MS, MD

Instructor in Radiology

Hugh Chaplin Jr

Prof Emeritus Of Medicine

Will C Chapman, MD

Eugene M. Bricker Professor of Surgery (General Surgery)

Douglas Char, MA, MD

Associate Professor of Emergency Medicine in Medicine

Mina Charepoo, MD

Instructor in Clinical Psychiatry

Siroth Charnond, MD

Instructor in Clinical Medicine

Lewis Robert Chase, MD

Professor of Medicine

Alexander Chi Chen, MD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Chien-Huan Chen, MD, PHD

Associate Professor of Medicine

Delphine L. Chen, AB, MD

Assistant Professor of Radiology (primary appointment)

Assistant Professor of Medicine

Edward C. Chen, MD

Instructor in Clinical Medicine

Feng Chen, PHD

Associate Professor of Medicine (primary appointment)

Associate Professor of Cell Biology and Physiology

Ling Chen, MS, MPH, PHD

Instructor in Biostatistics

Li-Shiun Chen, MD, M PH, PHS

Assistant Professor of Psychiatry

Michael B Chen

Assistant Professor of Clinical Obstetrics and Gynecology

Phyllis Chen, MD

Instructor in Clinical Medicine

Qing Chen, MD, MS

Instructor in Clinical Medicine

Shiming Chen, MS, PHD

Professor of Developmental Biology
Professor of Ophthalmology and Visual Sciences (primary appointment)

Ying Chen, MD, PHD

Assistant Professor of Medicine

Zhoufeng Chen, MS, PHD

Professor of Anesthesiology (primary appointment)

Professor of Developmental Biology
Professor of Psychiatry

Ziwei Chen, MBBS, MS, PHD

Assistant Professor of Anesthesiology

Glenn S Cheng, MD

Instructor in Clinical Pediatrics

Steven Chih Nung Cheng

Associate Professor of Medicine

Praveen R Chenna, MBBS

Assistant Professor of Medicine

Rebecca D Chernock, MD

Assistant Professor of Otolaryngology
Assistant Professor of Pathology and Immunology (primary appointment)

Richard Patrick Cheung, MD

Instructor in Medicine

James M Cheverud, MS

Prof Emeritus of Anatomy

John Jeonhwan Chi, MS, MD

Assistant Professor of Otolaryngology

Luqi Chi, MD, MA

Associate Professor of Neurology

Wak S Chia, MD

Instructor in Clinical Pediatrics

John N Chiapel

Instructor in Clinical Otolaryngology

Michael R Chicoine, MD

Professor of Neurological Surgery (primary appointment)
August A. Busch, Jr. Distinguished Professor

Jonathan C Chiles, MD

Assistant Professor of Pediatrics

Kelly Lynne Chilson, MD

Associate Professor of Anesthesiology

David Steve Chin Yee

Instructor in Ophthalmology and Visual Sciences

Sri Sankar Chinta, MBBS, MS1

Instructor in Pediatrics

Phillip Ruben Chisholm

Instructor in Clinical Medicine

Ronald J Chod, MD

Adjunct Associate Professor of Obstetrics and Gynecology

Jaebok Choi, BE, MS, PHD

Assistant Professor of Medicine

Kyunghee Choi, MS, PHD

Associate Professor of Pathology and Immunology

Youngjee Choi, MD

Instructor in Medicine

Richard A Chole, MD, PHD

Lindburg Professor of Otolaryngology (primary appointment)
Professor of Audiology and Communication Sciences
Head of the Department of Otolaryngology
Professor of Developmental Biology

Hyemi Chong, MD

Instructor in Medicine

Courtney Darcey Chrisler, MD

Instructor in Medicine

Camaryn E Chrisman Robbins, M PH, MD

Assistant Professor of Obstetrics and Gynecology

Jacob L Christensen

Assistant Professor of Anesthesiology

Wenhua Chu, MS, PHD

Instructor in Radiology

Philip Chu Pak-Yu, MD

Instructor in Clinical Medicine

Duck Sung Chun, MD

Instructor in Clinical Medicine

Jeffrey Peter Ciaramita

Instructor in Clinical Medicine

Theodore J Cicero, MS, PHD

John P Feighner Professor of Psychiatry (primary appointment)
Vice Chairman for Research, Department of Psychiatry
Professor of Neurobiology

Thomas Michael Ciesielski

Instructor in Medicine

Matthew Aaron Ciorba, MD

Assistant Professor of Medicine

Cara Alessandra Cipriano, MD

Assistant Professor of Orthopaedic Surgery

John R. Cirrito

Associate Professor of Neurology

Geoffrey Cislo, MD

Assistant Professor of Medicine

Roberto Civitelli, MD

Sydney M and Stella H Schoenberg Professor of Medicine (primary appointment)
Professor of Orthopaedic Surgery
Professor of Cell Biology and Physiology

Billie Ruth Clark, PHD

Associate Professor of Physical Therapy (primary appointment)
Associate Professor of Neurology

Christine M Clark, MA

Adjunct Instructor in Audiology and Communication Sciences

William W. Clark, MS

Professor of Otolaryngology (primary appointment)
Professor of Education
Director of the Program in Audiology and Communication Sciences
Professor of Audiology and Communication Sciences

Martin J Clarke, MS, MA, PHD

Instructor in Psychiatry

William W Clendenin

Assistant Professor of Clinical Psychiatry

David B Clifford, MD

Melba and Forest Seay Professor of Clinical Neuropharmacology in Neurology (primary appointment)
Professor of Medicine

Paul F Cliften, MS, PHD

Associate Professor of Genetics

Dorothy Jean Cline, MD

Instructor in Clinical Medicine (Dermatology)

John C Clohisy, MD

Daniel C. and Betty B. Viehmann Distinguished Professor of Orthopaedic Surgery

C. Robert Cloninger, MD

Wallace Renard Professor of Psychiatry (primary appointment)
Professor of Genetics
Professor of Psychiatry
Professor of Psychology

James Close, MD

Instructor in Clinical Medicine

William Edward Clutter, MD

Associate Professor of Medicine (primary appointment)
Associate Director of the House Staff Training Program, Department of Internal Medicine

Lawrence A Coben, MA, MD

Assoc Prof Emeritus Of Neurology

Heidi Atwell Coco, DOST

Assistant Professor of Anesthesiology (primary appointment)
Assistant Professor of Surgery (Cardiothoracic Surgery)

John E. Codd, MD

Professor of Clinical Surgery (Cardiothoracic Surgery)

Andrew Richard Coggan, MS, PHD

Assistant Professor of Radiology

Albert Murray Cohen, MD

Assistant Professor of Anesthesiology

Barak Alon Cohen, PHD

Professor of Genetics (primary appointment)
Alvin Goldfarb Distinguished Professor of Computational Biology

Bruce H Cohen, MD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Darryl S Cohen

Assistant Professor of Clinical Pediatrics

Gene C Cohen, DDENT

Instructor in Clinical Otolaryngology (DDS)

Robert S Cohen, MD

Asst Prof Emeritus Of Clinical Ob & Gyn

Shari J Cohen, MD

Assistant Professor of Clinical Medicine

Sheldon C Cohen, DDENT

Instructor in Clinical Otolaryngology

William Mark Cohen, DDENT, MS

Instructor in Clinical Otolaryngology (DMD)

Zachary Robert Cohen, MD

Instructor in Anesthesiology

Brian G Cohn

Assistant Professor of Emergency
Medicine in Medicine

Susan R Colbert-Threats, MD

Assistant Professor of Clinical Medicine

Graham A Colditz

Siteman Cancer Center

Graham A Colditz, MBBS, M PH, DRPH

Professor of Medicine
Niess-Gain Professor of Surgery (General
Surgery) (primary appointment)
Deputy Director for the Institute of Public
Health

Danita L Cole

Instructor in Clinical Medicine

F. Sessions Cole, MD

Vice Chair of the Department of Pediatrics
Park J White, M.D. Professor of Pediatrics
(primary appointment)
Professor of Cell Biology and Physiology
Assistant Vice Chancellor for Children's
Health, Washington University School of
Medicine

John C. Cole, MD, PHD

Instructor in Clinical Pediatrics

Patricia L Cole, MA

Associate Professor of Clinical Medicine

Roger Barto Cole, MS, PHD, MD

Instructor in Clinical Medicine

Lloyd W Coleman, MS, PHD

Instructor in Medicine

Laura Ann Colletti-Mann, MD

Associate Professor of Medicine

Lora Pearlman Collier

Instructor in Clinical Pediatrics

Brian Tyler Collins, MD

Associate Professor of Pathology and
Immunology

Vicente M Colon-Alcaraz, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Marco Colonna, MD

Robert Rock Belliveau MD Professor of
Pathology (primary appointment)
Professor of Medicine

Berdale S. Colorado, DOST, MS

Assistant Professor of Orthopaedic
Surgery

Nicholas J Colosi, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Kim David Colter, MS, MD

Instructor in Clinical Medicine

Eric S Colton, MD

Instructor in Clinical Obstetrics and
Gynecology

Arthur Hamilton Combs, MD

Associate Professor of Clinical Medicine

Paul Kevin Commean

Assistant Professor of Radiology

Susan Conger

Instructor in Clinical Pediatrics

David M Conner, MD

Instructor in Clinical Psychiatry

Anne Maureen Connolly

Professor of Neurology (primary
appointment)
Professor of Pediatrics

John Michael Conoyer, MD

Instructor in Clinical Otolaryngology

**Donald Franklin Conrad, M RESEAR,
PHD**

Assistant Professor of Genetics (primary
appointment)

Assistant Professor of Pathology and Immunology

Beth A Conrardy, MD

Instructor in Anesthesiology

Glenn C Conroy, M PHIL, PHD

Professor of Anatomy (primary appointment)

Professor of Anthropology

John Nicholas Constantino, MD

Blanche F Littleton Professor of Psychiatry (Child Psychiatry) (primary appointment)

Professor of Pediatrics

Thomas E Conturo, MD, PHD

Associate Professor of Radiology (primary appointment)

Adjunct Associate Professor of Physics

Charles Richard Conway, MD

Associate Professor of Psychiatry

H. Groves Cooke III, DENT, MS

Instructor in Clinical Surgery (Plastic and Reconstructive Surgery)

Amber Russell Cooper, MD

Assistant Professor of Obstetrics and Gynecology

Daniel Horatio Cooper, MD

Assistant Professor of Medicine

John A Cooper, MD, PHD

Professor of Cell Biology and Physiology (primary appointment)

Interim Head of the Department of Biochemistry

Professor of Biochemistry and Molecular Biophysics

Matthew Cooper, PHD

Instructor in Medicine

Megan A Cooper, PHD, MD

Assistant Professor of Pediatrics (primary appointment)

Assistant Professor of Pathology and Immunology

Douglas E Coplen, MD

Associate Professor of Surgery (Urologic Surgery)

Maurizio Corbetta, MD

Norman J. Stupp Professor of Neurology (primary appointment)

Professor of Neurobiology

Associate Professor of Psychology

Professor of Radiology

Joseph C. Corbo, MD

Associate Professor of Pathology and Immunology (primary appointment)

Associate Professor of Genetics

Associate Professor of Ophthalmology and Visual Sciences

Suzanne Marie Cornbleet, MA, DPT

Associate Professor of Physical Therapy (primary appointment)

Associate Professor of Orthopaedic Surgery

Lynn Anne Cornelius, MD

Winfred A and Emma R Showman

Professor of Dermatology in Medicine

Juan C Corvalan, MD

Asst Prof Emeritus Of Clinical Psychiatry

Pamela Ann Coslick-Fada, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Maria Laura Costa Do Nascimento, MD, PHD

Visiting Assistant Professor of Obstetrics and Gynecology

Jessica Nicole Costalez, MD

Instructor in Pediatrics

Ferdinand Louis Coste III, DOST

Assistant Professor of Pediatrics

John Bernard Costello

Instructor in Clinical Medicine

Linda B Cottler, M PH

Adjunct Professor of Psychiatry (primary appointment)

Adjunct Professor of Anthropology

Catherine E Cottrell

Assistant Professor of Pathology and Immunology (primary appointment)

Assistant Professor of Genetics

Steven Michael Couch, MD

Assistant Professor of Ophthalmology and Visual Sciences

Martha Laurin Council, MD

Assistant Professor of Medicine (Dermatology)

Constance Stone Courtois, MD

Assistant Professor of Radiology

Douglas Floyd Covey, MA, PHD

Professor of Psychiatry

Professor of Pharmacology in Developmental Biology (primary appointment)

Professor of Anesthesiology

Sudha Mahajan Cowsik, MS, PHD

Instructor in Biochemistry and Molecular Biophysics

James L Cox, MD

Evarts A. Graham Professor Emeritus of Surgery (Cardiothoracic Surgery) (primary appointment)

Evarts A. Graham Prof Emer of Surg (Card Surg) (primary appointment)

Thomas E Cox, MD

Professor of Anesthesiology

Daniel W Coyne, MD

Professor of Medicine

Traves D. Crabtree, MD

Associate Professor of Surgery (Cardiothoracic Surgery)

Mary Michaeleen Cradock

Assistant Professor of Clinical Pediatrics

Clarissa S. Craft, PHD

Assistant Professor of Cell Biology and Physiology

Johnetta M Craig, MD, MBA

Instructor in Clinical Medicine

James P Crane, MD

Professor of Radiology

Associate Professor of Genetics

Associate Vice Chancellor for Clinical Affairs (primary appointment)

Chief Executive Officer-Faculty Practice Plan

Professor of Obstetrics and Gynecology

John Bruce Crane II, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

John Jeffrey Cras, MS, MD

Assistant Professor of Medicine

Charles Crecelius, MD, PHD

Assistant Professor of Clinical Medicine

Sharon Cresci, MD

Assistant Professor of Genetics

Assistant Professor of Medicine (primary appointment)

Stephen R Crespin

Associate Professor of Clinical Medicine

Jeffrey S Crippin, MD

Professor of Medicine

Robert D Crist

Instructor in Clinical Obstetrics and Gynecology

Lucia del Pilar Cristancho Pimiento, MD

Assistant Professor of Psychiatry

Susan R Criswell, MD

Assistant Professor of Neurology

Michael Crittenden, MD

Associate Professor of Surgery
(Cardiothoracic Surgery)

Andrew Cronyn, MD

Instructor in Clinical Pediatrics

Seth Daniel Crosby, MD

Assistant Professor of Genetics

Betty Cross, MD

Instructor in Clinical Pediatrics

Dorothy Anne Cross, MD

Professor of Neurology

Veronica Lynn Cross

Instructor in Clinical Obstetrics and
Gynecology

Dewitte T Cross III, MD

Professor of Radiology (primary
appointment)
Professor of Neurological Surgery

Erika C Crouch, PHD, MD

Professor of Pathology and Immunology

Jack L Croughan, MD

Associate Professor of Clinical Psychiatry

Michael G Crowley, PHD

Instructor in Radiology

**Beth Elaine Crowner, BS PT, MS, M PP,
DPT**

Associate Professor of Neurology
Associate Professor of Physical Therapy
(primary appointment)
Division Director of Clinical Practice in
Physical Therapy

Carlos Cruchaga, MA, PHD

Assistant Professor of Psychiatry

Nicole Cruz

Instructor in Clinical Neurology

Philip E Cryer, MD

Adjunct Professor of Medicine
Professor Emeritus of Medicine (primary
appointment)
Prof Emeritus of Medicine (primary
appointment)

Phillip S. Cuculich, MD

Assistant Professor of Medicine

Susan Margaret Culican, PHD

Associate Professor of Ophthalmology
and Visual Sciences

Susan E Cullen, PHD

Adjunct Professor of Molecular
Microbiology

Joseph P Culver, PHD

Associate Professor of Radiology (primary
appointment)
Assistant Professor of Physics (Courtesy)

Robert Culverhouse, MA, PHD

Assistant Professor of Medicine (primary
appointment)
Assistant Professor of Biostatistics

Clayton Cummings, MD

Instructor in Pediatrics

**Lenise Andrea Cummings-Vaughn, MS,
MD**

Assistant Professor of Medicine

Brian P. Cupps, MS, PHD

Associate Professor of Surgery
(Cardiothoracic Surgery)

David T Curiel, MD, PHD

Professor of Obstetrics and Gynecology
Distinguished Professor of Radiation
Oncology (primary appointment)
Professor of Medicine

Philip L Custer, MD

Professor of Ophthalmology and Visual
Sciences

Robert B Cusworth, MD

Instructor in Clinical Medicine

Amy Cyr, MD

Assistant Professor of Surgery (General Surgery)

Sylvia Lin Czuppon, MS, DPT

Assistant Professor of Orthopaedic Surgery

Assistant Professor of Physical Therapy (primary appointment)

Ralph G Dacey Jr, MD

Henry G and Edith R Schwartz Professor of Neurological Surgery (primary appointment)

Head of the Department of Neurological Surgery

Sonika M Dahiya, MD

Assistant Professor of Pathology and Immunology

Ann Marie Dale, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Occupational Therapy

Jeanenne M Dallas, MA

Instructor in Neurology

Instructor in Occupational Therapy (primary appointment)

Mackenzie Daly, MD

Assistant Professor of Radiation Oncology

Tracey M. Daly, MD

Instructor in Clinical Pediatrics

Ralph James Damiano Jr, MD

Evarts Ambrose Graham Professor of Surgery (Cardiothoracic Surgery)

William H Danforth, MD

Professor of Medicine (primary appointment)

Vice Chairman and Chancellor Emeritus

Adish S. Dani, MA, PHD

Assistant Professor of Pathology and Immunology

Erik D. Daniels

Instructor in Clinical Medicine

John S Daniels, MA, MD

Associate Professor of Clinical Medicine

Rand E Dankner, MD

Associate Professor of Clinical Medicine

Maria Cristina Dans, MD

Assistant Professor of Medicine

Gautam Dantas, PHD

Assistant Professor of Pathology and Immunology

Michael E Danter, MD

Assistant Professor of Clinical Pediatrics

Adam H Dao, MD

Instructor in Ophthalmology and Visual Sciences

Bhajan Shewaldas Dara, MD

Instructor in Clinical Medicine

Michael D Darcy, MD

Associate Professor of Surgery (General Surgery)

Professor of Radiology (primary appointment)

Rachel S Darken, PHD, MD

Assistant Professor of Neurology

Lakshman Darsi, MBBS

Assistant Professor of Medicine

Sundeep Das, MD

Instructor in Clinical Medicine

Jessica L Dashner, MS

Instructor in Occupational Therapy (primary appointment)

Instructor in Neurology

Alejandro M Datuin, MD

Assistant Professor of Clinical Psychiatry
(On Staff at Malcolm Bliss Mental Health
Center)

Yasmeen Daud, MD

Assistant Professor of Pediatrics

Carlos Colton Daughaday, MD

Professor of Medicine

Bakul Dave, MD

Assistant Professor of Anesthesiology

David L Davidson, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

John D Davidson, MD

Professor of Clinical Medicine

Lisa S. Davidson, MS, PHD

Assistant Professor of Otolaryngology
(primary appointment)
Assistant Professor of Audiology and
Communication Sciences

Nicholas O Davidson, MBBS

Professor of Medicine (primary
appointment)
Professor of Developmental Biology

Richard Davidson, DDENT, MS

Instructor in Clinical Otolaryngology
(DMD)

Steve Davidson, PHD

Instructor in Anesthesiology

Victor G Davila-Roman, MD

Professor of Radiology
Professor of Anesthesiology
Professor of Medicine (primary
appointment)

Andrea Jill Davis, MSN, MD

Instructor in Clinical Medicine

John C Davis, MD

Associate Professor of Clinical Pediatrics

Kasey L. Davis, MS, PHD

Instructor in Clinical Pediatrics

Mary A Davis, MD

Assistant Professor Emeritus of Clinical
Psychiatry (primary appointment)
Asst Prof Emeritus of Clinical Psychiatry
(primary appointment)

Ray S Davis, MD

Professor of Clinical Pediatrics

Thomas Keefe Davis, MD

Instructor in Pediatrics

Gene Layton Davis Jr, MD, MBA

Assistant Professor of Clinical Radiology

Jeffrey G Dawson, MD

Associate Professor of Pediatrics

Brian Keith Day, PHD, MD

Instructor in Neurology

Caroline Elizabeth Day, M PH

Instructor in Clinical Medicine

Gabriela De Bruin, MD

Assistant Professor of Neurology

Thomas M De Fer, MD

Professor of Medicine

Lisa De Las Fuentes, MD

Assistant Professor of Medicine (primary
appointment)
Assistant Professor of Biostatistics

Vincent R De Mello, MS, MD

Assistant Professor of Clinical Medicine

Charl Johan De Wet, MBCHB

Associate Professor of Surgery
(Cardiothoracic Surgery)
Associate Professor of Anesthesiology
(primary appointment)

Anne V Dean, MD

Instructor in Clinical Medicine

Jon Todd Dean, MD

Instructor in Clinical Psychiatry

Brian J. DeBosch, MD, PHD

Instructor in Pediatrics

James Allen Declue, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Jane E. Defalco, MS, MD

Assistant Professor of Clinical Pediatrics

John James Deguire, MD

Instructor in Ophthalmology and Visual Sciences

Farrokh Dehdashti, MD

Professor of Radiology

Louis P Dehner, MD

Professor of Pathology and Immunology (primary appointment)

Professor of Pathology in Pediatrics

Angeline Diane DeiSanti, MD

Assistant Professor of Medicine

Jennifer A. Delaney, MD

Instructor in Clinical Medicine

James Albert Delmez, MD

Professor of Medicine

Rowena Bayudan Delos Santos, MD

Assistant Professor of Medicine

Shadmehr Demehri, MD, PHD

Instructor in Medicine (Dermatology)

Bethany L Dement, MD

Instructor in Medicine

Jennifer Lee Demertzis, MD

Assistant Professor of Radiology

Maureen Elaine Dempsey

Instructor in Clinical Pediatrics

David G. DeNardo, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Pathology and Immunology

Carmen S Dence

Associate Professor of Radiology

Alex Eugene Denes, MD

Associate Professor of Medicine

Panyue Deng, MD, PHD

Assistant Professor of Cell Biology and Physiology

Leanne Michelle DePalma, MD

Instructor in Pediatrics

Colin Pieter Derdeyn, MD

Professor of Radiology (primary appointment)

Professor of Neurological Surgery

Professor of Neurology

Alana C Desai, MD

Assistant Professor of Surgery (Urologic Surgery)

Sunny Desai, MS

Instructor in Clinical Medicine

Gerry Deschamps, PHS, MD

Instructor in Clinical Pediatrics

Teresa L Deshields

Siteman Cancer Center

Teresa Deshields, MS, PHD

Associate Professor of Clinical Medicine

Anjali Desai Deshpande, MPH, PHD

Assistant Professor of Medicine

George J Despotis, MD

Associate Professor of Pathology and Immunology (primary appointment)

Associate Professor of Anesthesiology

Vladimir Novak Despotovic, MD

Assistant Professor of Medicine

Robert H Deusinger, MS, PHD

Assoc Prof Emeritus of Physical Therapy

Susan S. Deusinger, MA, PHD

Prof Emeritus of Physical Therapy

Michelle R Devera, MD

Instructor in Clinical Obstetrics and
Gynecology

Steven M Devine

Siteman Cancer Center

Venkata Rao Devineni, MD

Associate Professor of Clinical Radiation
Oncology

Paul Dewald, MD

Assistant Professor of Clinical Psychiatry

Todd Alan DeWees, MSSP, PHD

Assistant Professor of Radiation Oncology

Neelendu Dey, MD

Instructor in Medicine

Plaridel C Deza, MD

Assistant Professor of Clinical Psychiatry
(On Staff at Malcolm Bliss Mental Health
Center)

Amar Dhand, PHD, MD

Assistant Professor of Neurology

Rajat Dhar, MD

Assistant Professor of Neurology

Sekhar Dharmarajan, MD

Assistant Professor of Surgery (General
Surgery)

Vikas Ramnath Dharnidharka, MD

Associate Professor of Pediatrics

Marc I Diamond

Adjunct Professor of Neurology

Michael Diamond, PHD, MD

Professor of Medicine (primary
appointment)

Professor of Pathology and Immunology

Professor of Molecular Microbiology

Aaron DiAntonio, M PHIL, MD, PHD

Professor of Developmental Biology
(primary appointment)

Alan A and Edith L Wolff Professor of
Developmental Biology

Judith A Dibble, MD

Instructor in Clinical Medicine

Donald V. Dichsen, MD

Instructor in Clinical Pediatrics

Jeffrey M Dicke, MD

Professor of Obstetrics and Gynecology

Lizbeth H Didriksen

Assistant Professor of Clinical Pediatrics

Brian K Dieckgraefe, MD

Associate Professor of Medicine

Paul E Diehl, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Kathryn M Diemer, MD

Assistant Dean for Career Counseling
Associate Professor of Medicine (primary
appointment)

James A Diestelhorst, MD

Instructor in Clinical Medicine

Russell B Dieterich, MD

Instructor in Clinical Obstetrics and
Gynecology

Dennis J. Dietzen, PHD

Professor of Pathology and Immunology
Professor of Pediatrics (primary
appointment)

Krikor T Dikranian, MD, PHD

Associate Professor of Anatomy (primary
appointment)
Associate Professor of Physical Therapy

Patrick A Dillon, MD

Associate Professor of Surgery (Pediatric
Surgery) (primary appointment)
Associate Professor of Pediatrics

Mary C Dinauer, PHD, MD

Professor of Pediatrics (primary appointment)
Professor of Pathology and Immunology

Tulay F Dincer, MD

Assistant Professor of Clinical Pediatrics

Li Ding, PHD

Assistant Professor of Genetics
Assistant Professor of Medicine (primary appointment)

John F DiPersio, MD, PHD

Virginia E and Sam J Golman Professor of Medicine (primary appointment)
Professor of Pediatrics
Professor of Pathology and Immunology

John F DiPersio

Siteman Cancer Center

Michael N Diringer, MA, MD

Professor of Neurological Surgery
Professor of Neurology (primary appointment)
Professor of Anesthesiology
Professor of Occupational Therapy

Brianne Marie Disabato, MD

Assistant Professor of Psychiatry

Richard M Divalerio, MD

Instructor in Clinical Medicine

Abhinav Diwan

Assistant Professor of Cell Biology and Physiology
Assistant Professor of Medicine (primary appointment)

Kathleen Koller Dixon

Instr Emeritus in Physical Therapy

Sergej Djuranovic, PHD

Assistant Professor of Cell Biology and Physiology

Igor Dmitriev, PHD

Assistant Professor of Radiation Oncology

Matthew Barrett Dobbs, MD

Professor of Orthopaedic Surgery

Deborah E Dobson, PHD

Associate Professor of Molecular Microbiology

Martin A Docherty, MD

Assistant Professor of Emergency Medicine in Medicine

Allan Doctor, MD

Professor of Pediatrics (primary appointment)
Associate Professor of Biochemistry and Molecular Biophysics

Karen W Dodson, PHD

Instructor in Molecular Microbiology

William Edwin Dodson, MD

Prof Emeritus of Neurology

Irl Joseph Don, MD

Associate Professor of Clinical Medicine

Steven Don, MD

Associate Professor of Radiology

James W Donnelly, MD

Instructor in Clinical Medicine (Dermatology)

Joseph M Dooley Jr, MD

Associate Professor of Clinical Neurology

Balraj Doray, PHD

Assistant Professor of Medicine

Alla Dorfman

Instructor in Clinical Pediatrics

Gerald W. Dorn II, MD

Philip and Sima K Needleman Professor of Medicine

Ian G Dorward, MD

Assistant Professor of Neurological Surgery

Nico U. Dosenbach, MD, PHD

Instructor in Neurology

Ashish Nikhil Doshi, MD, PHD

Catherine J Doty

Instructor in Clinical Pediatrics

Charles H Dougherty, MD

Professor of Clinical Pediatrics

Joseph D Dougherty, PHD

Assistant Professor of Genetics (primary appointment)

Assistant Professor of Psychiatry

Matthew P Dougherty

Instructor in Clinical Pediatrics

Joshua L Dowling, MD

Associate Professor of Neurological Surgery

Joan Catherine Downey, M PH

Assistant Professor of Pediatrics (primary appointment)

Assistant Dean, College of Arts & Sciences

Maria Bernadette Majella Doyle, MD

Associate Professor of Surgery (General Surgery)

Bettina Drake, M PH

Assistant Professor of Surgery (General Surgery)

Andrew J. Drescher, MD

Assistant Professor of Otolaryngology

Anne Meredith Drewry, MD

Assistant Professor of Anesthesiology

Robert C Drews, MD

Prof Emeritus Of Clinical Ophthalmol & VIs Sci

William H Dribben, MD

Assistant Professor of Emergency Medicine in Medicine

Alexander W Dromerick, MD

Adjunct Associate Professor of Neurology (primary appointment)

Adjunct Associate Professor of Occupational Therapy

Adjunct Associate Professor of Physical Therapy

Norman Steven Druck, MD

Assistant Professor of Clinical Otolaryngology

Todd Druley, MD, PHD

Assistant Professor of Pediatrics (primary appointment)

Assistant Professor of Genetics

George Robert Drysdale, MS, PHD

Prof Emeritus Of Biochemistry & Molec Biophys

Robert E Drzymala, PHD

Professor of Radiation Oncology (primary appointment)

Professor of Neurological Surgery

Erik R Dubberke, MD, MPH

Associate Professor of Medicine

James Matthew DuBois, MA, PHD, D SC

Steven J Bander Professor of Medical Ethics and Professionalism (primary appointment)

Professor of Psychology

Nicole Marie Ducharme

Instructor in Clinical Medicine

Robert Kelso Duddy

Instructor in Clinical Orthopaedic Surgery

Maria C Dumadag-Sabio, MD

Instructor in Clinical Medicine

Edward Harry DuMontier

Instructor in Clinical Medicine

William C Dunagan, MS

Professor of Medicine

James R Duncan, MD, PHD

Professor of Radiology

Jennifer Gries Duncan, MD

Assistant Professor of Pediatrics

Ryan Patrick Duncan, MS, DPT

Assistant Professor of Neurology
Assistant Professor of Physical Therapy
(primary appointment)

Eric James Duncavage, MD

Assistant Professor of Pathology and
Immunology

Lakshmi Vijaya Dundoo, MS

Instructor in Clinical Obstetrics and
Gynecology

Gavin P. Dunn, MD, PHD

Assistant Professor of Neurological
Surgery (primary appointment)
Assistant Professor of Pathology and
Immunology

Jennifer M Dunn, MD

Assistant Professor of Clinical Pediatrics

Julia Passyn Dunn, MD, MS

Assistant Professor of Medicine

William Michael Dunne Jr

Adjunct Professor of Pathology and
Immunology

Nicole Marie Durko, DOST

Assistant Professor of Anesthesiology

Susan K. Dutcher, PHD

Professor of Genetics (primary
appointment)
Professor of Cell Biology and Physiology

Tiffany Biason Dy, MD

Instructor in Medicine

Joseph W Eades

Assistant Professor of Clinical Surgery
(Plastic and Reconstructive Surgery)

William Charles Eades Jr, BEE

Assistant Professor of Medicine

J. Chris Eagon, MD, MS

Associate Professor of Surgery (General
Surgery)

Gammon Marie Earhart, MS, PHD

Executive Director of the Program in
Physical Therapy
Professor of Physical Therapy (primary
appointment)
Professor of Neurobiology
Professor of Neurology
Associate Director of Movement Science
PhD Program in Physical Therapy

Dayna S Early, MD

Professor of Medicine

Adam C. Eaton, MD

Assistant Professor of Clinical Pediatrics

Royal J Eaton, MD

Instructor in Clinical Medicine

Stephen Ray Eaton, MD

Assistant Professor of Surgery (General
Surgery)

Lori L Eberhart

Instructor in Clinical Pediatrics

Timothy J Eberlein

Siteman Cancer Center

Timothy J Eberlein, MD, MA

Bixby Professor of Surgery (General
Surgery) (primary appointment)
Spencer T. and Ann W. Olin Distinguished
Professor
Head of the Department of Surgery
Director of The Alvin J. Siteman Cancer
Center
Professor of Pathology and Immunology

Charles S Eby, MD

Professor of Pathology and Immunology
(primary appointment)
Professor of Medicine

Brian T. Edelson, PHD, MD

Assistant Professor of Pathology and
Immunology

Julia D Edgar, PHD

Adjunct Instructor of Otolaryngology

Robert W Edmonds, MD

Asst Prof Emeritus of Clinical Pediatrics
(primary appointment)
Assistant Professor Emeritus of Clinical
Pediatrics (primary appointment)

Steven A. Edmundowicz, MD

Professor of Medicine

Charmaine E. Edwards, MD

Instructor in Clinical Medicine

Dorothy F Edwards, PHD

Adjunct Associate Professor of
Occupational Therapy
Adjunct Associate Professor of Neurology

James Earl Edwards, MD

Assistant Professor of Clinical Psychiatry
(Child Psychiatry)

John R. Edwards, PHD

Assistant Professor of Medicine

Tatiana Efimova, MS, PHD

Assistant Professor of Medicine
(Dermatology)

Stilianos Efstratiadis

Assistant Professor of Clinical Medicine

Takeshi Egawa, MD, PHD

Assistant Professor of Pathology and
Immunology

Adam Thomas Eggebrecht, MS, PHD

Instructor in Radiology

Russell E Eggebrecht, MD

Associate Professor of Clinical Medicine

Pirooz Eghtesady, D SC, MD

Professor of Surgery (Cardiothoracic
Surgery) (primary appointment)
Professor of Pediatrics

Tamara Kay Ehlert, MD

Instructor in Clinical Otolaryngology

Ali A Ehsani, MD

Professor of Medicine

Zamir Eidelman, MD

Associate Professor of Clinical Medicine

John Robert Eigenbrodt, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Arthur Z Eisen, MS, MD

Professor of Medicine (Dermatology)

Seth A Eisen, MD, MS

Adjunct Professor of Medicine

David Louis Eisenberg, MD, M PH

Assistant Professor of Obstetrics and
Gynecology

Lawrence N Eisenman, MD, PHD

Associate Professor of Neurology

Sarah Ann Eisenstein

Instructor in Radiology
Instructor in Psychiatry (primary
appointment)

Linda G Eissenberg, PHD

Instructor in Medicine

Josiah O. Ekunno, MD

Instructor in Clinical Obstetrics and
Gynecology

Charles David Eldridge, MD

Instructor in Pediatrics

Sven Gustav Eliasson, MD

Prof Emeritus Of Neurology

Lamice R. El-Kholy, MS

Instructor in Clinical Medicine

John Ellena, MD

Associate Professor of Clinical Medicine

Thomas E Ellenberger, PHD

Chairman of the Executive Council of the
Division of Biology and Biomedical
Sciences

Professor of Biochemistry and Molecular
Biophysics (primary appointment)

Alysa G. Ellis, MD

Assistant Professor of Pediatrics

Matthew James Ellis, MBBCH, PHD

Adjunct Professor of Medicine

Charlene Ann Ellsworth, PHD, MD

Instructor in Clinical Medicine

**Samir Khattab El-Mofty, DDENT, MS,
PHD, DDENT1**

Professor of Oral Pathology (primary
appointment)

Professor of Pathology and Immunology

Professor of Otolaryngology

Mohamed Elsafi

Assistant Professor of Clinical
Otolaryngology

Elliot L Elson, PHD

Alumni Endowed Professor of
Biochemistry and Molecular Biophysics
(primary appointment)

Professor of Biomedical Engineering

Adjunct Professor of Physics

Amged Eltahir, AB1

Instructor in Clinical Medicine

Alexis M Elward, MD, MPH

Professor of Pediatrics

Jill Elizabeth Elwing, MD

Assistant Professor of Medicine

Amanda R. Emke, MD

Assistant Professor of Pediatrics

Daniel Emmert, MD

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Assistant Professor of Anesthesiology
(primary appointment)

Nicholas Earl Engelbrecht

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Sarah K England, PHD

Professor of Obstetrics and Gynecology
(primary appointment)

Alan A and Edith L Wolff Professor of
Medicine

Professor of Cell Biology and Physiology

Joy L English, MD

Assistant Professor of Orthopaedic
Surgery (primary appointment)

Assistant Professor of Emergency
Medicine in Medicine

Jack R. Engsborg, MS, MS1, PHD

Professor of Neurological Surgery
Professor of Occupational Therapy

(primary appointment)

Professor of Orthopaedic Surgery

James Michael Epstein, MD

Instructor in Clinical Medicine

Jay S Epstein, MS, MD

Professor of Clinical Pediatrics

Lawrence W Ernst, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Christopher R. Erwin, MS, PHD

Associate Professor of Surgery (Pediatric
Surgery)

Juan Escandon, MD

Assistant Professor of Clinical Neurology

Diane M Eschmann, MD

Instructor in Clinical Pediatrics

Gerome V Escota, MD

Instructor in Clinical Medicine

Jennifer Ess

Instructor in Clinical Pediatrics

Laura Ann Esswein, MD

Instructor in Clinical Pediatrics

Michele Marie Estabrook, MA, MD

Professor of Pediatrics

Jacqueline Esthappan, PHD

Associate Professor of Radiation
Oncology

Neil A Ettinger, MD

Assistant Professor of Clinical Medicine

Bradley A Evanoff, MD, M PH

Richard A and Elizabeth Henby Sutter
Professor of Occupational, Industrial, and
Environmental Medicine in Medicine
(primary appointment)
Assistant Dean for Clinical and
Translational Research
Professor of Occupational Therapy

Alex S Evers, MD

Professor of Medicine
Henry E Mallinckrodt Professor of
Anesthesiology (primary appointment)
Head of the Department of Anesthesiology
Professor of Developmental Biology

Carol Jane Evers, MD

Instructor in Clinical Medicine

Eugene Evra, MD

Instructor in Clinical Neurology

Gregory A Ewald, MD

Associate Professor of Medicine

Renee D Ewing, MD

Instructor in Clinical Obstetrics and
Gynecology

Elisa Fabbrini, MD, PHD

Adjunct Assistant Professor of Medicine

Roberta Faccio

Associate Professor of Orthopaedic
Surgery (primary appointment)
Associate Professor of Cell Biology and
Physiology

Raymond F Fada Jr, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Brian T Faddis, MS, PHD

Assistant Professor of Otolaryngology
(primary appointment)
Assistant Professor of Audiology and
Communication Sciences

Mitch N Faddis, MD, PHD

Associate Professor of Medicine

Yuan Fan, MD, MS, PHD

Assistant Professor of Neurology

Nuri Bradford Farber, MD

Professor of Psychiatry

Elliott H Farberman, MD

Assistant Professor of Clinical Pediatrics

Cathleen Rae Faris, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Albert Faro, MD

Professor of Pediatrics

Akinrinola Fatoki, MS

Instructor in Clinical Medicine

Justin C. Fay, PHD

Associate Professor of Genetics

Adam Ross Fedyk

Instructor in Clinical of Ophthalmology &
Visual Sciences

Todd A Fehniger, PHD, MD

Assistant Professor of Medicine

James J Fehr III, MD

Associate Professor of Anesthesiology
(primary appointment)
Associate Professor of Pediatrics

Robert M Feibel, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Steven Edward Feit, MD

Assistant Professor of Anesthesiology

Mary F Feitosa, MA, PHD

Associate Professor of Genetics

David Feldman, MD

Instr Emeritus In Clinical Medicine

Mario Federico Feldman, PHD

Associate Professor of Molecular
Microbiology

Richard A. Felkel Jr

Instructor in Clinical Pediatrics

Thomas A Ferguson, MS, PHD

Associate Professor of Pathology and
Immunology
Professor of Ophthalmology and Visual
Sciences (primary appointment)

Thomas W Ferkol, MD

Professor of Cell Biology and Physiology
Professor of Pediatrics (primary
appointment)
Alexis Hartmann MD Professor of
Pediatrics

James A Fernandez, MD

Instructor in Clinical Otolaryngology

Isabel Fernandez-Holtzman

Instructor in Clinical Pediatrics

Herman L Ferrell, MD

Instructor in Clinical Medicine

Beverly J. Field, B MUS, M MUS, PHD

Associate Professor of Psychiatry
Associate Professor of Anesthesiology
(primary appointment)

Melanie Erin Fields, MD

Instructor in Pediatrics

Ryan Courtney Fields, MD

Assistant Professor of Surgery (General
Surgery)

Jeffrey T Fierstein, MD

Assistant Professor of Clinical
Otolaryngology

Robert S Figenshau, MD

Taylor Family and Ralph V. Claman, M.D.
Professor of Surgery (Urologic Surgery)

Brian N. Finck, MS, PHD

Associate Professor of Medicine

Mitchell Evan Fingerman, MD

Assistant Professor of Anesthesiology

Debra Fink, MS, DDENT

Instructor in Clinical Otolaryngology
(DMD)

Kurt W Finklang, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Charles Coleman Finley

Adjunct Research Associate Professor of
Otolaryngology

Gregory K Finn, MD

Assistant Professor of Clinical Pediatrics

Jill B Firszt, MS, PHD

Professor of Audiology and
Communication Sciences
Professor of Otolaryngology (primary
appointment)

Lewis Conrad Fischbein, MD

Associate Professor of Clinical Medicine

Keith C Fischer, MD

Associate Professor of Radiology

Peter Uwe Fischer, MS, PHD

Associate Professor of Medicine

Marsha Nicole Fisher, MD

Instructor in Clinical Obstetrics and
Gynecology

Norman Fishman, MD

Assistant Professor of Clinical Medicine

Anna M Fitz-James, MD, M PH

Assistant Professor of Clinical Pediatrics

Sean C. Fitzmaurice, MD

Instructor in Emergency Medicine in
Medicine

James Alexander John Fitzpatrick, PHD

Associate Professor of Neuobiology
(Pending Executive Faculty Approval)

Susan M Fitzpatrick, PHD

Adjunct Associate Professor of
Neurobiology (primary appointment)
Adjunct Associate Professor of
Occupational Therapy

James M Fleckenstein, MD

Associate Professor of Medicine

Jaquelyn F Fleckenstein, MD

Professor of Medicine

Julian B Fleischman

Assoc Prof Emeritus Of Molecular
Microbiology

Timothy Peter Fleming, PHD

Professor of Surgery (General Surgery)

Edward B Fliasher, MD

Assistant Professor of Clinical Pediatrics

Julaine Marie Florence, MS, DPT

Professor of Neurology (primary
appointment)
Professor of Physical Therapy

Cynthia Florin, MD

Instructor in Clinical Psychiatry

Justin Douglas Floyd, DOST

Assistant Professor of Clinical Medicine

Anthony Todd Fojo, MD

Instructor in Medicine

Gretchen Marie Foltz, MD

Assistant Professor of Radiology (primary
appointment)

Assistant Professor of Surgery (General
Surgery)

Emily Fondahn, MD

Assistant Professor of Medicine

Frank Donald Fontana, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Luigi Fontana, MD

Professor of Medicine

Andria L Ford, MD

Assistant Professor of Neurology

Shanon Alex Forseter

Instructor in Clinical Obstetrics and
Gynecology

Rebecca Hope Foster

Instructor in Clinical Pediatrics

Kathryn Fowler, MD

Assistant Professor of Radiology

Glennon Joseph Fox, MD

Instructor in Clinical Medicine

Ida K Fox, MD

Assistant Professor of Surgery (Plastic
and Reconstructive Surgery)

Judy Ann Frain, BN, MSN, PHD

Adjunct Assistant Professor of Medicine

Myrto Frangos, MD

Instructor in Clinical Pediatrics

Bennett David Frank, PHD, MD

Instructor in Clinical Neurology

Bruce S Frank, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Victoria J Fraser

Adolphus Busch Professor of Medicine
(primary appointment)
Head of the Department of Internal
Medicine

John Lawrence Frater, MD

Associate Professor of Pathology and
Immunology

Sharon Glave Frazee

Adjunct Assistant Professor of Pediatrics

William A Frazier III

Professor of Cell Biology and Physiology
Professor of Biomedical Engineering
Professor of Biochemistry and Molecular
Biophysics (primary appointment)

John Murray Fredrickson, MD

Prof Emeritus Of Otolaryngology

Kenneth E Freedland, MA, PHD

Professor of Psychology
Professor of Psychiatry (primary
appointment)

Bradley D. Freeman, MD

Professor of Surgery (General Surgery)

James Matthew Freer

Assistant Professor of Medicine

Seymour Michael Freiman, MD

Prof Emeritus Of Clinical Ob & Gyn

Daved H Fremont, PHD

Professor of Biochemistry and Molecular
Biophysics
Professor of Pathology and Immunology
(primary appointment)

**Anthony Raymond French, MS, PHD,
MD**

Associate Professor of Pediatrics (primary
appointment)
Associate Professor of Pathology and
Immunology

Associate Professor of Biomedical
Engineering

Deborah Frenchie, MD

Instructor in Clinical Medicine

Carl Frieden, PHD

Professor of Biochemistry and Molecular
Biophysics

David Alan Friedman, MD

Assistant Professor of Anesthesiology

Michael V Friedman

Assistant Professor of Radiology

Ernst R Friedrich, MS, MD

Prof Emeritus Of Ob & Gyn

Darrin Friesen, MD

Instructor in Clinical Psychiatry

Stuart Howard Friess, MD

Assistant Professor of Pediatrics

Stephanie Ann Fritz, MD, MS

Assistant Professor of Pediatrics

Brian R. Froelke, MD

Assistant Professor of Emergency
Medicine in Medicine

Qiang Fu

Robert P. Fucetola, MA, PHD

Adjunct Assistant Professor of Psychology
Associate Professor of Neurology (primary
appointment)

Anja G. Fuchs, MS, PHD

Assistant Professor of Surgery (General
Surgery)

Lara A Fuchs

Instructor in Clinical Psychiatry

Katherine C Fuh, MD

Instructor in Obstetrics and Gynecology

Brian M Fuller, MD

Assistant Professor of Anesthesiology

Assistant Professor of Emergency
Medicine in Medicine (primary
appointment)

Assistant Professor of Anesthesiology

Michael Paul Fuller

Associate Professor of Clinical Medicine

Robert S. Fulton, MS

Academic Rank held in Genetics (primary
appointment)

Instructor in Genetics

Suzanne Furesz

Instructor in Clinical Medicine

H Michael Gach, PHD

Associate Professor of Radiation
Oncology

Mokhtar H Gado, MBBCH, MS

Prof Emeritus of Radiology

Michael S Gaffrey, PHD

Assistant Professor of Psychiatry

Brian F Gage, MD, MS

Professor of Medicine

Carrie S Gaines, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Daniel Gaitan, MD

Associate Professor of Clinical Medicine

Andrew E Galakatos, MD

Professor of Clinical Obstetrics and
Gynecology

Leesa Galatz, MD

Professor of Orthopaedic Surgery

Eric A Galburt, PHD

Assistant Professor of Biochemistry and
Molecular Biophysics

Arthur H Gale, MD

Associate Professor of Clinical Medicine

John P Galgani Jr, MD

Associate Professor of Clinical Pediatrics

Rafael Galindo, PHD, MD

Assistant Professor of Neurology

Roberto Galletto, MS

Assistant Professor of Biochemistry and
Molecular Biophysics

Maria Virginia Ganninger

Instructor in Clinical Pediatrics

Lawrence A Gans, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Feng Gao, PHD

Associate Professor of Biostatistics
(primary appointment)

Associate Professor of Medicine

Charles M Gaona, MA

Joel Richard Garbow, PHD

Professor of Radiology

Jane M. Garbutt, MBCHB, MHS

Professor of Medicine (primary
appointment)

Professor of Pediatrics

John A Garcia, MBA

Instructor in Clinical Medicine

Jose L Garcia, MS

Assistant Professor of Radiation Oncology

Michael J Gardner, MD

Associate Professor of Orthopaedic
Surgery

Tessa D Gardner, MD

Assistant Professor of Clinical Pediatrics

Nick S. Garg

Instructor in Clinical Psychiatry (Child
Psychiatry)

Marcie Epstein Garland, MD

Assistant Professor of Psychiatry

Stephen M Garnett, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Heather Vallhonrat Garrett, MD

Assistant Professor of Radiology

Jacquelyn B Garrett, MD

Instructor in Clinical Medicine (Dermatology)

Caryn Garriga

Assistant Professor of Clinical Pediatrics

Francisco J Garriga, MD

Instructor in Clinical Medicine

Charles F Garvin, MD

Instructor in Clinical Radiology

Sarah Kathryn Garwood, MD

Assistant Professor of Pediatrics

Karen J Garzia

Instructor in Clinical Pediatrics

Dawn Lee Garzon

Adjunct Instructor in Psychiatry

Fred W Gaskin, MD

Associate Professor of Clinical Psychiatry

Felicitas Z Gatachalian, MD

Instructor in Clinical Medicine

Joseph H Gatewood, MD

Instructor in Emergency Medicine in Medicine

Joseph P. Gaut, MD, PHD

Assistant Professor of Pathology and Immunology (Pending Executive Faculty Approval)

Narasimhan Gautam, MS, PHD

Professor of Anesthesiology (primary appointment)
Professor of Genetics

Karen Marie Gauvain, MD

Assistant Professor of Pediatrics

Hiram Alberto Gay, MD

Associate Professor of Radiation Oncology

William A Gay, MD

Prof Emeritus of Surgery (Cardio Surg)

William D Gay, DDEnt, LLB

Assoc Prof Emeritus of Otolaryngology

Avihu Gazit, MD

Assistant Professor of Pediatrics

William M Gee, MD

Instructor in Clinical Medicine

Stefanie Geisler, MD

Instructor in Neurology (Pending Dean's Approval)

Richard A Geisman, MD

Instructor in Clinical Medicine

Judith Rebecca Gelber, DPT

Assistant Professor of Neurology
Assistant Professor of Physical Therapy (primary appointment)

Richard H Gelberman, MD

Professor of Orthopaedic Surgery

Barbara Geller, MD

Prof Emeritus of Psychiatry (Child Psychiatry)

Elliot Field Gellman, MD

Professor of Clinical Pediatrics

Andrew E. Gelman, PHD

Associate Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Associate Professor of Pathology and Immunology

Edward M Geltman, MD

Professor of Medicine (primary appointment)
Assistant Professor of Radiology

Sharon McCoy George, MD

Associate Professor of Medicine (Pending Executive Faculty Approval)

Patrick J Geraghty, MD

Associate Professor of Surgery (General Surgery)

Robert W Gereau, PHD

Dr Seymour and Rose T Brown Professor of Anesthesiology (primary appointment)
Professor of Neurobiology

Chiara G.I. Ghatti, MD

Associate Professor of Obstetrics and Gynecology

Armin Ghobadi, MD

Assistant Professor of Medicine

Nsangou T Ghogomu, MD, MS

Assistant Professor of Otolaryngology

N. Rex Ghormley

Adjunct Instructor in Ophthalmology and Visual Sciences

Nupur Ghoshal, PHD, MD

Assistant Professor of Neurology

Erin A Gibbons

Assistant Professor of Anesthesiology

Matthew John Giffried, MD

Instructor in Clinical Medicine

Jeffrey M. Gidday, PHD

Associate Professor of Neurological Surgery (primary appointment)
Associate Professor of Cell Biology and Physiology
Associate Professor of Ophthalmology and Visual Sciences

Stephen James Giddings, PHD, MD

Associate Professor of Medicine

David S Gierada, MD

Professor of Radiology

Ralph V Gieselmann, MD

Prof Emeritus Of Clinical Medicine

Susan Gilfillan, PHD

Assistant Professor of Pathology and Immunology

William Ewald Gillanders, MS, MS1

Vice Chair for Research, Department of Surgery

Professor of Surgery (General Surgery) (primary appointment)

Jason R Gillihan, MD

Assistant Professor of Anesthesiology

William Scott Gilmore, MD

Assistant Professor of Emergency Medicine in Medicine

Thomas J Girard, PHD

Instructor in Medicine

Margo Renee Girardi, MD

Instructor in Medicine

Gardar T Gislason

Adjunct Instructor in Medicine

Luis Giuffra, MS, MD

Professor of Clinical Psychiatry

Paul E Glaser, MS1, MD, PHD

Professor of Psychiatry (Child Psychiatry)

Sean C. Glasgow, MD

Adjunct Assistant Professor of Surgery (General Surgery)

Harvey S Glazer, MD

Professor of Radiology

John F Gleeson Jr

Instructor in Pediatrics

Marye J Gleva, MD

Associate Professor of Medicine

Anne L Glowinski, MD, MS

Professor of Psychiatry (Child Psychiatry)

Dehra Anne Glueck, MD

Assistant Professor of Psychiatry (Child Psychiatry)

Thomas James Goblirsch, MD

Assistant Professor of Anesthesiology

Sreekrishna M Goddu, MS, PHD

Associate Professor of Radiation
Oncology

Joel Goebel, MD

Professor of Otolaryngology (primary
appointment)
Vice Chairman of Otolaryngology

Simon P Goedegebuure, MA, PHD

Associate Professor of Surgery (General
Surgery)

Robert S Goell, MA, MD

Assoc Prof Emeritus Of Clinical Ob & Gyn

Katherine Rose Goetzinger, MD

Assistant Professor of Obstetrics and
Gynecology

George W Gokel, PHD

Adjunct Professor of Molecular Biology
and Pharmacology

Andrew S Gold

Instructor in Clinical Medicine

Anne Carol Goldberg, MD

Associate Professor of Medicine

Daniel E Goldberg, MD, PHD

David M and Paula L Kipnis Distinguished
Professor (primary appointment)
Professor of Molecular Microbiology

Gregory I Goldberg, MA, PHD

Professor of Biochemistry and Molecular
Biophysics
Professor of Medicine (Dermatology)
(primary appointment)

Richard I Goldberg, DDENT

Instructor in Clinical Otolaryngology
(DMD)

Seth Goldberg, MD

Assistant Professor of Medicine

Judith P Golden, PHD

Assistant Professor of Anesthesiology

Barry Steven Goldenberg, DDENT, MS

Instructor in Clinical Otolaryngology
(DMD)

Joseph K Goldenberg

Associate Professor of Clinical Pediatrics

Charles A Goldfarb, MD

Professor of Orthopaedic Surgery

Jason S Goldfeder, MD

Assistant Professor of Medicine

Gordon Goldman

Instructor in Clinical Obstetrics and
Gynecology

David Goldmeier, MD

Instructor in Clinical Psychiatry

James M Goldring, PHD, MD

Instructor in Clinical Neurology

Matthew I Goldsmith, MS, MD

Assistant Professor of Genetics
Assistant Professor of Pediatrics (primary
appointment)

Benjamin M Goldstein, MD

Associate Professor of Clinical Medicine

Paul T Golumbek, MS, MD, PHD

Assistant Professor of Pediatrics
Assistant Professor of Neurology (primary
appointment)

Maria Cristina Gonzalez-Mayda, MD

Instructor in Medicine

Daniel M Goodenberger, MD

Professor of Medicine

Gary M Goodman, MD

Assistant Professor of Clinical Pediatrics

Melody Serene Goodman, MS, PHD

Assistant Professor of Surgery (Public
Health Sciences)

Brian A Gordon, MS PSYC, PHD

Instructor in Radiology

J. Eric Gordon, MD

Professor of Orthopaedic Surgery

James M Gordon, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Jeffrey I Gordon, MD

Professor of Developmental Biology
Professor of Pathology and Immunology
(primary appointment)
Dr Robert J Glaser Distinguished
University Professor
Director of the Center for Genome
Sciences
Professor of Medicine

Mae Etsuko Gordon, PHD

Professor of Ophthalmology and Visual
Sciences (primary appointment)
Professor of Biostatistics

Mary Jo Gorman, MD, MBA

Instructor in Clinical Medicine

David I Gottlieb, MA, PHD

Prof Emeritus of Neurobiology

James Dean Gould, MD

Instructor in Clinical Otolaryngology

Jennifer E Gould, MD

Assistant Professor of Radiology

Ramaswamy Govindan, MD

Professor of Medicine

Siddhesh Gowda, MD

Associate Professor of Clinical Medicine

Manu Shri Goyal, MS, MD

Instructor in Radiology

Ronald M Grady, MA, MD

Associate Professor of Pediatrics

Thomas J Graetz, MD

Assistant Professor of Anesthesiology
(primary appointment)

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Barry A Graff, MD

Assistant Professor of Anesthesiology

Laquita A Graham, MD

Instructor in Clinical Pediatrics

Mark Gilbert Grand, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Dorothy K. Grange, MD

Professor of Pediatrics

Gregory Alan Grant, PHD

Professor of Developmental Biology
Professor of Biochemistry in Medicine
(Dermatology) (primary appointment)

Julia D. Grant, PHD

Associate Professor of Psychiatry

Anna Sorensen Graseck, MD, MS

Instructor in Obstetrics and Gynecology

Diana Lee Gray, MD

Associate Dean for Faculty Affairs
Professor of Engineering
Professor of Obstetrics and Gynecology
(primary appointment)
Professor of Radiology

Paul A. Gray, PHD

Assistant Professor of Neurobiology

Margaret Rosanna Gray-Swain, MD

Instructor in Clinical Obstetrics and
Gynecology

Jonathan M Green, MD

Professor of Medicine (primary
appointment)
Associate Dean for Human Studies
Professor of Pathology and Immunology

Kenneth O Green, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Olga Leonidovna Green, MS, PHD

Instructor in Radiation Oncology

Ted Allen Green, MD

Deanna Greene, MS

Instructor in Psychiatry

Aaron Greenspan

Instructor in Clinical Medicine

Mark H Gregory, MD

Assistant Professor of Clinical Medicine

Kevin William Greulich, MD

Instructor in Ophthalmology and Visual
Sciences

Walter Blake Gribben, MD

Instructor in Medicine

Richard T Griffey Jr, MD, M PH

Associate Professor of Emergency
Medicine in Medicine

Nicholas Wayne Griffin, PHD

Instructor in Pathology & Immunology

Malachi Griffith, PHD

Academic Rank held in Genetics (primary
appointment)

Assistant Professor of Genetics

Obi Lee Griffith, PHD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Genetics

Perry W Grigsby, MS, MD, MBA

Professor of Radiation Oncology (primary
appointment)

Professor of Radiology

Professor of Obstetrics and Gynecology

Russell J.I. Groener, MBCHB

Assistant Professor of Anesthesiology

Scott D. Groesch, MD

Instructor in Clinical Medicine

Georgeann Keh-Teng Groh, MD

Instructor in Pediatrics

Jesse Brookshire Groh

Instructor in Clinical Pediatrics

John R Groll

Instructor in Clinical Medicine

Steven J Grondalski, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Ann Marie Gronowski, MS

Professor of Pathology and Immunology
(primary appointment)

Professor of Obstetrics and Gynecology

Meredith P Gronski, OTD

Assistant Professor of Occupational
Therapy (primary appointment)

Assistant Professor of Otolaryngology

Robert John Gropler, MD

Professor of Radiology (primary
appointment)

Associate Professor of Medicine

Associate Professor of Biomedical
Engineering

Richard Warren Gross, AB, MD, PHD

Professor of Medicine (primary
appointment)

Professor of Developmental Biology

Professor of Chemistry

Brenda Jean Grossman, MD, MS

Associate Professor of Pathology and
Immunology (primary appointment)

Associate Professor of Medicine

Jessica Rosenbaum Grubb, MD

Assistant Professor of Medicine (Pending
Executive Faculty Approval)

Robert Lee Grubb III, MD

Associate Professor of Surgery (Urologic Surgery)

Robert L Grubb Jr, MD

Professor of Neurological Surgery
(primary appointment)
Professor of Radiology

Nancy Elise Gruchala, MD

Instructor in Pediatrics

Richard Grucza, MS, PHD

Associate Professor of Psychiatry

Royal Gene Grueneich, PHD

Assistant Professor of Clinical Neurology

Brian Anthony Grus, MD

Instructor in Clinical Medicine

Chi Gu, MS, PHD

Associate Professor of Genetics
Associate Professor of Biostatistics
(primary appointment)

Yuxing Gu

Assistant Professor of Radiation Oncology
(Pending Executive Faculty Approval)

Anthony Herbert Guarino, MA, MD

Associate Professor of Anesthesiology

Carlos J Guevara

Assistant Professor of Surgery (General Surgery)
Assistant Professor of Radiology (primary appointment)

Ryan C Guffey, MD

Assistant Professor of Anesthesiology

Kristin Guilliams, MD

Instructor in Neurology

Guner B Gulmen, MD, PHD

Assistant Professor of Clinical Medicine

Vyjanthanath R. Gunasingham, MD

Instructor in Clinical Medicine

Mark Cobb Gunby

Assistant Professor of Clinical Medicine

Joseph Donald Gunn, MD

Associate Professor of Pediatrics

Jun Guo, MS, PHD

Assistant Professor of Surgery (Pediatric Surgery)

Jitendra K Gupta, MS

Instr Emeritus In Clinical Medicine

Punita Gupta, MPH, MD

Instructor in Radiology

Santosh K Gupta, DC

Assistant Professor of Clinical Pediatrics

Christina A. Gurnett, MD, PHD

Associate Professor of Neurology (primary appointment)
Associate Professor of Orthopaedic Surgery
Assistant Professor of Pediatrics

Maria Gurrieri, DIP

Instructor in Clinical Medicine

Christine Hilleary Gustus, MS

Instructor in Otolaryngology (primary appointment)
Instructor in Audiology and Communication Sciences

Alexandra Gutierrez, MD, M PH

Associate Professor of Medicine

Fernando R Gutierrez, MD

Professor of Radiology

David H Gutmann, MS, PHD, MD

Donald O. Schnuck Family Professor of Neurology (primary appointment)
Professor of Pediatrics
Professor of Genetics
Professor of Neurological Surgery

Chandra Prakash Gyawali, MBBS, MD

Professor of Medicine

Allah B Haafiz

Adjunct Associate Professor of Pediatrics

Ramsey R Hachem, MD

Associate Professor of Medicine

Hicham Hachem Baydoun, MS, PHD

Instructor in Medicine

Brian P Hackett, PHD, MD

Professor of Pediatrics

Matthew D Hageman, MD

Instructor in Clinical Medicine

Andrea Ruth Hagemann

Assistant Professor of Obstetrics and Gynecology

Ian Sean Hagemann, MD, PHD

Assistant Professor of Obstetrics and Gynecology

Assistant Professor of Pathology and Immunology (primary appointment)

Jennifer Christine Hagopian

Adjunct Instructor in Medicine

Ashfaq H Hakim, MBBS, MD

Instructor in Clinical Medicine

Iliia Gueorguev Halatchev, MD

Assistant Professor of Medicine

Sarah Eliza Halcomb, MD

Assistant Professor of Emergency Medicine in Medicine

Malay Haldar, MD, PHD

Instructor in Pathology and Immunology

Angela Marie Hall, PHD

Instructor in Medicine

Bruce Lee Hall, PHD, MBA

Professor of Surgery (General Surgery) (primary appointment)

Professor of Health Care Management (Olin School of Business)

Fellow in the Center for Health Policy

Ira McCarthy Hall, PHD

Associate Professor of Medicine (Pending Executive Faculty Approval) (primary appointment)

Associate Director of the Genome Center

Kathleen Hall, PHD

Professor of Biochemistry and Molecular Biophysics

Lannis Hall, MD, M PH

Assistant Professor of Clinical Radiation Oncology

Laura Evelyn Hall, MD

Instructor in Pediatrics

Dennis E Hallahan, MD

Elizabeth H and James S McDonnell III

Distinguished Professor of Medicine

Head of the Department of Radiation Oncology

Professor of Molecular Microbiology

Professor of Radiation Oncology (primary appointment)

Professor of Cell Biology and Physiology

Professor of Pathology and Immunology

Mark E. Halstead, MD

Associate Professor of Pediatrics

Associate Professor of Orthopaedic Surgery (primary appointment)

Kim P Hamlin, MD

Assistant Professor of Pediatrics

Stephanie M Hammer, MD

Instructor in Clinical Medicine

Marc Randall Hammerman, MD

Chromalloy Professor of Renal Diseases in Medicine (primary appointment)

Professor of Cell Biology and Physiology

Roman E Hammes, MD

Instructor in Clinical Pediatrics

Melanie G Hampton, MD

Assistant Professor of Clinical Pediatrics

Byunghee Henry Han, PHD

Assistant Professor of Neurological
Surgery

Dong Hyun Han

Visiting Instructor in Psychiatry

Dong-Ho Han, MS, PHD

Associate Professor of Medicine

Edward B. Han, PHD

Assistant Professor of Neurobiology
(primary appointment)
Assistant Professor of Anesthesiology

Martha B. Han, PHD

Assistant Professor of Neurobiology

Se Young Han, MD

Instructor in Medicine

Joseph Hanaway, MD

Assistant Professor of Clinical Neurology

Elinor F Hancock

Instructor in Clinical Pediatrics

Scott A Handley, PHD

Assistant Professor of Pathology and
Immunology

Thomas Joseph Hannan, DVM

Instructor in Pathology and Immunology

Ted H Hansen, MS, PHD

Prof Emeritus of Pathology & Immunol

Jason M. Hanson, MD

Instructor in Clinical Otolaryngology

Phyllis I Hanson, MD

Professor of Cell Biology and Physiology

Robin D Hanson, MD, PHD

Instructor in Clinical Pediatrics

Suzanne M Hanson

Assistant Professor of Clinical Pediatrics

Charles B Hantler, MA, MD

Professor of Anesthesiology

Hoosna Haque, MD

Instructor in Clinical Obstetrics and
Gynecology

Zahirul Haque

Instructor in Clinical Medicine

Melissa A. Harbit, MD

Associate Professor of Psychiatry

William B Hardin Jr, MD

Asst Prof Emeritus Of Clinical Neurology

David A. Hardy, MD

Instructor in Surgery (Urologic Surgery)

Archie B Harmon Jr, MA, PHD

Instructor in Otolaryngology

Matthew B Harms, MD

Assistant Professor of Neurology

Michael P. Harms, BE, PHD

Assistant Professor of Psychiatry

George J Harocopos, MD

Assistant Professor of Pathology and
Immunology

Associate Professor of Ophthalmology
and Visual Sciences (primary
appointment)

Simon Haroutounian, MA, PHD

Assistant Professor of Anesthesiology

Alexander D Harris, MA

Adjunct Instructor in Ophthalmology and
Visual Sciences

Charles A. Harris, MD, PHD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Developmental
Biology

Charles R Harris

Instructor in Clinical Ophthalmology and
Visual Sciences

Michael Raymond Harris, MS, PHD

Associate Professor of Pediatrics

Elizabeth Avis Harrison, MD

Instructor in Pediatrics

Thomas J. Harrison Jr, MD

Instructor in Clinical Pediatrics

Kathryn Ming Hart

Instructor in Biochemistry and Molecular Biophysics

William M Hart Jr, MD, PHD

Prof Emeritus of Ophthalmol & Vis Sci

William Hartel

Instructor in Clinical Otolaryngology

David E Hartenbach, MD

Associate Professor of Clinical Pediatrics

Laura Hartman

Mary E Hartman, MD, M PH

Assistant Professor of Pediatrics

Richard Alan Hartman, MD

Associate Professor of Clinical Obstetrics and Gynecology

Thomas D Hartnett, MD

Asst Prof Emeritus of Clinical Psychiatry

Jack Hartstein, MD

Professor of Clinical Ophthalmology and Visual Sciences

John Edward Hartweger

Instructor in Clinical Pediatrics

Sarah McConnell Hartz, PHD, MD

Assistant Professor of Psychiatry

Alan A Harvey

Assistant Professor of Clinical Otolaryngology

Steven Arthur Harvey, MD

Instructor in Clinical Psychiatry

James Larry Harwell, MD

Assistant Professor of Clinical Pediatrics

Jeffrey A Haspel, PHD, MD

Assistant Professor of Medicine (Pending Executive Faculty Approval)

Anisa Hassan, MD

Instructor in Clinical Medicine

Anjum Hassan, MD

Assistant Professor of Pathology and Immunology

Jason J Hassenstab, MS PSYC, PHD

Assistant Professor of Neurology (primary appointment)

Assistant Professor of Psychology

Mary Kent Hastings, MS, DPT

Associate Professor of Orthopaedic Surgery

Associate Professor of Physical Therapy (primary appointment)

Thomas F Hastings, MD

Instructor in Clinical Medicine

J Michael Hatlelid, MD

Associate Professor of Clinical Neurology

Sherrie M Hauff, MD

Professor of Pediatrics

Bruce H Haughey, MBCHB, MS

Joseph B Kimbrough Professor of Otolaryngology

Jay Fredrick Hauser, DDENT

Instructor in Clinical Otolaryngology

James J Havranek, PHD

Assistant Professor of Genetics

William G. Hawkins, MD

Professor of Surgery (General Surgery) (primary appointment)

Neidorff Family and Robert C Packman Professor

Robert J Hayashi, MD

Professor of Pediatrics

Michael E Hayek, MS, MD

Instructor in Clinical Surgery (General Surgery)

Ericka V. Hayes, MD

Assistant Professor of Pediatrics

Heather Hayes, M ED, PHD

Assistant Professor of Audiology and Communication Sciences

Assistant Professor of Otolaryngology (primary appointment)

Director of Deaf Education Studies in Audiology and Communication Sciences

Marcie Harris Hayes, MS, DPT

Associate Professor of Physical Therapy (primary appointment)

Associate Professor of Orthopaedic Surgery

Damon Joseph Louis Hays

Instructor in Clinical Orthopaedic Surgery

Richard D Head, MS

Associate Professor of Genetics (primary appointment)

Associate Professor of Pathology and Immunology

Andrew C Heath, PHD

Professor of Genetics

Spencer T. Olin Professor of Psychology in Psychiatry (primary appointment)

Associate Professor of Psychology

Krysta Lynn Heath, MD

Instructor in Medicine

Jay Paul Heiken, MD

Professor of Radiology

Mark F. Heiland

Siteman Cancer Center

Mark Francis Heiland

Assistant Professor of Clinical Surgery (General Surgery)

James N Heins, MD

Professor of Clinical Medicine (primary appointment)

Adjunct Professor of Medicine

Laura Elaina Heitsch, MD

Assistant Professor of Emergency Medicine in Medicine

Jason M Held, PHD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Anesthesiology

Daniel Luke Helsten

Assistant Professor of Anesthesiology

Mohammad Anas Helwani, MD

Assistant Professor of Anesthesiology

Jeffrey P. Henderson, MD, PHD

Assistant Professor of Molecular Microbiology

Assistant Professor of Medicine (primary appointment)

Katherine Eileen Henderson, MD

Assistant Professor of Clinical Medicine

Kristina Louise Henderson, MD

Instructor in Clinical Medicine

Kara E Hennelly, MD

Assistant Professor of Pediatrics (Pending Executive Faculty Approval)

Nathan Henninger

Instructor in Clinical Pediatrics

William L Herbold, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Cheryl R Herman, MD

Assistant Professor of Radiology

Thomas Eugene Herman, MD

Associate Professor of Radiology

Catherine Hermann, M ENG, MD

Instructor in Clinical Medicine

Mary Jo Hernandez-Zipfel, MD

Instructor in Clinical Pediatrics

Robert E Herold

Assistant Professor of Anesthesiology

Pilar Herrero, MS

Associate Professor of Radiology

Cynthia Joan Herrick, MD

Instructor in Medicine

Virginia M Herrmann, MD

Professor of Surgery (General Surgery)

Tamara G Hershey, PHD

Professor of Neurology

Adjunct Assistant Professor of Psychology
(Courtesy)

Professor of Radiology

Professor of Psychiatry (primary
appointment)

John C Herweg, MD

Assoc Dean Emeritus

Godofredo M Herzog, MD

Assoc Prof Emeritus Of Clinical Ob & Gyn

Jacques A Herzog, MD

Assistant Professor of Clinical
Otolaryngology

Albert E Hesker, MD

Assistant Professor of Clinical Radiology

Jennifer Kristen Hester

Instructor in Clinical Medicine

Jonathan W Heusel, MD, PHD

Associate Professor of Pathology and
Immunology

John E Heuser, MD

Prof Emeritus of Cell Biology/Physiol

Laurel D Hibbs

Instructor in Clinical Obstetrics and
Gynecology

Scot G Hickman, MD

Professor of Medicine

Robert Jerome Hickok

Asst Prof Emeritus of Physical Therapy

Frederick G Hicks, MD

Assistant Professor of Clinical Psychiatry

Stuart T. Higano, MD

Instructor in Clinical Medicine

Charles Wendell Higdon III, PHD

Instructor in Developmental Biology
(Pending Dean's Approval)

SueLin Ming Hilbert, MD

Assistant Professor of Emergency
Medicine in Medicine

Laura Hill

Assistant Professor of Clinical Pediatrics

Travis J Hillen, MS, MD

Assistant Professor of Radiology

Elizabeth Hilliker, MA, MD

Assistant Professor of Surgery (General
Surgery)

Assistant Professor of Emergency
Medicine in Medicine (primary
appointment)

Jennifer M Hinton

Instructor in Clinical Pediatrics

Paul Flack Hintze, MD

Assistant Professor of Clinical Medicine

Keiko Hirose, MD

Associate Professor of Otolaryngology
(primary appointment)

Vice Chairman of Otolaryngology

Associate Professor of Audiology and
Communication Sciences

Associate Professor of Pediatrics

Gary E Hirshberg, MD

Professor of Anesthesiology

Barbara B Hixon

Asst Prof Emeritus Of Biostatistics

Stanley P Hmiel, M PHIL, PHD, MD

Professor of Pediatrics

Sandra Jean Hodel

Instructor in Clinical Pediatrics

Dee Hodge III, MD

Professor of Pediatrics

Didier Hodzic, PHD

Assistant Professor of Ophthalmology and
Visual Sciences (primary appointment)

Assistant Professor of Cell Biology and
Physiology

James R Hoekel, OD

Instructor in Ophthalmology and Visual
Sciences

Grant S. Hoekzema, MD

Instructor in Clinical Medicine

John T Hoff, MD

Instructor in Clinical Obstetrics and
Gynecology

J. Langston Hoffman, MD

Instructor in Clinical Medicine

Lawrence M Hoffman, DDENT

Instructor in Clinical Otolaryngology
(DMD)

Robert J Hoffman, MD

Professor of Clinical Pediatrics

Russell G. Hoffmann, PHD

Instructor in Clinical Pediatrics

Sandra S Hoffmann, MD

Instructor in Clinical Medicine

Kathleen M Hogan, MD

Instructor in Clinical Obstetrics and
Gynecology

Robert Edward Hogan III, MD

Professor of Neurology

Joshua Wade Hogins

Instructor in Clinical Psychiatry

Nancy Melberg Holekamp, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Nicholas Alan Holekamp, MD

Instructor in Clinical Pediatrics

Abby Solomon Hollander, MD

Associate Professor of Pediatrics

Christopher Lee Holley, MD, PHD

Instructor in Medicine

Susan O Holley, PHD, MD

Assistant Professor of Radiology

John Otto Holloszy, MD

Professor of Medicine

Robert Franklyn Holloway Jr

Instructor in Clinical Obstetrics and
Gynecology

Nancy E Holmes, MD

Professor of Clinical Pediatrics

William F Holmes, PHD

Assoc Prof Emeritus Of Biological
Chemistry

Sheldon G Holstad, PHD, PHS

Assistant Professor of Clinical Pharmacy
in Psychiatry (On Staff at Jewish Hospital
and St Louis College of Pharmacy)

Christopher Vincent Holthaus, MD

Assistant Professor of Emergency
Medicine in Medicine

Barbel Holtmann, MD

Associate Professor of Anesthesiology

Lori Rachel Holtz, MD, MS

Assistant Professor of Pediatrics

Sumner Holtz, MD

Associate Professor of Clinical Radiology

David Michael Holtzman, MD

Andrew B. and Gretchen P. Jones
Professor of Neurology (primary
appointment)
Professor of Developmental Biology
Head of the Department of Neurology

Gregory William Holtzman, MS, DPT

Associate Professor of Orthopaedic
Surgery
Associate Director of Clinical Practice in
Physical Therapy
Associate Professor of Physical Therapy
(primary appointment)

Michael J Holtzman, MD

Selma and Herman Seldin Professor of
Medicine (primary appointment)
Professor of Cell Biology and Physiology

Rochelle LeAnn Holtzman, MS, PHD

Instructor in Clinical Pediatrics

Timothy E. Holy, MA, PHD

Associate Professor of Neurobiology

Neal Holzum

Instructor in Clinical Medicine

Augustine Richard Hong, MD

Instructor in Ophthalmology and Visual
Sciences

Barry Allen Hong, MDI, PHD

Professor of Psychiatry (primary
appointment)
Professor of Psychology
Vice Chairman for Clinical Affairs,
Department of Psychiatry
Professor of Medicine

Bruce Jay Hookerman, MD

Assistant Professor Emeritus of Clinical
Medicine (Dermatology) (primary
appointment)
Asst Prof Emeritus of Clin Medicine
(Derm) (primary appointment)

J. Joseph Horan, MD

Instructor in Clinical Pediatrics

Amjad Horani, MD

Instructor in Pediatrics

Barbra A Horn, MD

Instructor in Clinical Medicine

Linda S Horne, MD

Instructor in Clinical Psychiatry

Caroline Clare Horner, MD

Assistant Professor of Pediatrics

Ian Kerst Hornstra, MD, PHD

Assistant Professor of Medicine
(Dermatology)

Timothy Adam Horwedel, PHD

Adjunct Instructor in Medicine

Terri L Hosto, BSW, MSW

Instructor in Neurology

Richard S Hotchkiss, MD

Professor of Anesthesiology (primary
appointment)
Professor of Developmental Biology
Professor of Medicine
Professor of Surgery (General Surgery)

Jianghui Hou, MS

Assistant Professor of Medicine

William Edward Houck, MD

Instructor in Clinical Obstetrics and
Gynecology

Dennis Emil Hourcade, MA, PHD

Professor of Medicine

Stacey L House, PHD, MD

Instructor in Emergency Medicine in
Medicine

Jacqueline Howard

Instructor in Clinical Medicine

Matthew A Howard

Adjunct Assistant Professor of
Neurological Surgery

Randall A Howell, MD

Assistant Professor of Emergency
Medicine in Medicine

Christine M Hrach, BSW, MD

Assistant Professor of Pediatrics

Keith A Hruska, MD

Professor of Pediatrics (primary
appointment)
Professor of Cell Biology and Physiology
Professor of Medicine

Paul W. Hruz, PHD

Associate Professor of Pediatrics (primary
appointment)
Associate Professor of Cell Biology and
Physiology

Ansel Hsiao, PHD

Instructor in Pathology and Immunology

Esther YinHsing Hsiao, MD

Instructor in Neurology

Chyi-Song Hsieh, MD, PHD

Alan A and Edith L Wolff Distinguished
Professor
Associate Professor of Medicine (primary
appointment)
Associate Professor of Pathology and
Immunology

Chung Hsu, MD, PHD

Adjunct Professor of Neurology

Fong Fu Hsu, MS

Professor of Medicine

Hawpeng Stephen Hsu, MD, MS

Assistant Professor of Anesthesiology

Kevin Hsueh, MD

Instructor in Medicine

Hongzhen Hu, PHD

Assistant Professor of Anesthesiology
(Pending Executive Faculty Approval)

Raymond J Hu, MD

Instructor in Clinical Medicine

David H Hua

Instructor in Clinical Obstetrics and
Gynecology

Frederick Szujuei Huang, MD

Associate Professor of Pediatrics

Henry V Huang, PHD

Associate Professor of Molecular
Microbiology

Jiayi Huang, MD

Assistant Professor of Radiation Oncology

Jing-Wei Huang, MD

Professor of Ophthalmology and Visual
Sciences

Ren-Huai Huang, MA, PHD

Instructor in Medicine

Wei-Wei Huang

Instructor in Clinical Medicine
(Dermatology)

Dee Jay Hubbard, MA, MA1

Adjunct Assistant Professor of
Otolaryngology (Speech Pathology)

John W Hubert, MD

Associate Professor of Clinical Medicine

Richard W Hudgens, MD

Prof Emeritus of Psychiatry

James J Hudziak

Adjunct Professor of Psychiatry

Donald V Huebener, DDENT, MS, MA

Prof Emeritus of Surgery

Elizabeth Stack Huebner, MD

Assistant Professor of Medicine

Rocco Hueneke, MD

Assistant Professor of Anesthesiology

James E Huettner, PHD

Professor of Cell Biology and Physiology
(primary appointment)

Professor of Biomedical Engineering

Douglas Lee Huff, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Michael S. Hughes, MA, PHD

Associate Professor of Medicine

Sung Ho Huh, MS, PHD

Instructor in Developmental Biology

Laura Hulbert, MD

Instructor in Clinical Obstetrics and
Gynecology

Monica L Hulbert, MD

Assistant Professor of Pediatrics

Rebecca L Hulett, AB, MD

Assistant Professor of Radiology

Scott James Hultgren, PHD

Helen L Stoever Professor of Molecular
Microbiology

Theresa Human

Instructor in Clinical Neurology

David A Hunstad, MD

Associate Professor of Pediatrics (primary
appointment)

Associate Professor of Molecular
Microbiology

Devyani M. Hunt, MD

Associate Professor of Orthopaedic
Surgery (primary appointment)

Associate Professor of Neurology

Jane Alyce Hunt, MD

Instructor in Pediatrics

Linda Ann Hunt

Adjunct Associate Professor of
Occupational Therapy

Adjunct Associate Professor of Neurology

Steven R Hunt, MD

Associate Professor of Surgery (General
Surgery)

Eva A Hurst, MD

Associate Professor of Medicine
(Dermatology)

Mark Albert Hurt, MD

Instructor in Clinical Medicine
(Dermatology)

Kareem D. Husain, MD

Assistant Professor of Surgery (General
Surgery)

Thy N Huskey, MD

Associate Professor of Neurology

Krzysztof L Hyrc, MS, PHD

Assistant Professor of Neurology

Catherine Ifune, PHD, MD

Associate Professor of Anesthesiology

Richard G. Ihnat, MD

Instructor in Clinical Medicine

Richard J Iken, MD

Instructor in Clinical Pediatrics

Maxenia Garcia Ilagan, PHD

Assistant Professor of Biochemistry and
Molecular Biophysics (primary
appointment)

Assistant Professor of Developmental
Biology

Obeid Noor Ilahi, MD

Associate Professor of Surgery (General
Surgery)

Shin-Ichiro Imai, PHD

Professor of Developmental Biology
(primary appointment)

Professor of Medicine

Carl S Ingber, MD

Instructor in Clinical Pediatrics

Donald R Ingram, MD

Asst Prof Emeritus Of Clin Otolaryngology

Joseph Edward Ippolito, PHD

Instructor in Radiology

Belinda K. Ireland, MD

Adjunct Assistant Professor of Medicine

Susan Allison Ironstone

Instructor in Anesthesiology

Warren Isakow, MD

Associate Professor of Medicine

Jill Christine Isenberg, MS PSYC, PHD

Instructor in Clinical Neurology

Keith E Isenberg, MD

Prof Emeritus of Psychiatry

Selma E.h.o. Ishag, MD, PHD

Assistant Professor of Anesthesiology

Michael J Isserman, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Eva Susanne Istvan

Assistant Professor of Medicine (primary
appointment)

HHMI Specialist II

Akinobu Itoh, MD, PHD

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Jennifer Lynn Ivanovich, MS, MBA

Assistant Professor of Surgery (General
Surgery)

Renee A. Ivens, MHS, DPT

Associate Professor of Physical Therapy
(primary appointment)

Associate Professor of Orthopaedic
Surgery

Yukitoshi Izumi, MD

Professor of Psychiatry

Jerry Jeff Jaboin, MD, PHD

Assistant Professor of Radiation Oncology

Carolyn M Jachna, MD

Assistant Professor of Medicine

Ronald R Jackups Jr., MD, PHD

Assistant Professor of Pediatrics
Assistant Professor of Pathology and
Immunology (primary appointment)

Jeffrey H Jacob, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Saji Jacob, MS, MD, DIP

Instructor in Clinical Obstetrics and
Gynecology

Sindhu Saji Jacob, MD

Assistant Professor of Neurology

Daryl Jacobs, ME, MD

Instructor in Clinical Medicine

Myron H Jacobs, MD

Instructor in Clinical Medicine

Sarah Marie Jacobs, MD

Instructor in Ophthalmology and Visual
Sciences

Arnold Scott Jacobson, MS

Instructor in Clinical Otolaryngology
(DMD)

Steven Jacobson, MD

Instructor in Clinical Medicine

Meagan A. Jacoby, MD, PHD

Assistant Professor of Medicine

Mark F Jacquin, PHD

Professor of Neurology

David M Jaffe, MD

Adjunct Professor of Pediatrics

Sue E Jagler

Instructor in Clinical Pediatrics

Sanjay Jain, PHD, MD

Associate Professor of Medicine (primary
appointment)

Associate Professor of Pathology and
Immunology

Siddharth Vinod Jain, MD

Assistant Professor of Neurology (primary appointment)

Assistant Professor of Pediatrics

Sudhir Kumar Jain, MBBS

Associate Professor of Medicine

Patricia A Jamerson

Instructor in Clinical Pediatrics

Aimee S. James, PHD, M PH

Associate Professor of Surgery (General Surgery)

William P James, MD

Assistant Professor of Radiology

Aleksandar Janca, MD

Adjunct Professor of Psychiatry

James W Janetka, PHD

Associate Professor of Biochemistry and Molecular Biophysics

Judy Lee Jang, MD, MHS

Assistant Professor of Medicine

David P. Jaques

Professor of Surgery (General Surgery)

George Jarad, MD

Assistant Professor of Medicine

Michael R Jarvis, MS, PHD, MD

Professor of Psychiatry (primary appointment)

Vice Chairman for Clinical Affairs,
Department of Psychiatry

Daniel Ragin Jasper, MD

Instructor in Clinical Medicine

Cylene Javidan-Nejad, MD

Associate Professor of Radiology

Patrick Y Jay, MD, PHD

Associate Professor of Genetics

Associate Professor of Pediatrics (primary appointment)

Yasangi Maina Jayasiha, MD

Instructor in Clinical Pediatrics

Donna Beth Jeffe, PHD

Professor of Medicine

Christopher M. Jenkins, PHD

Instructor in Medicine

Jack W Jennings, MS, PHD, MD

Assistant Professor of Radiology

Susan Jerger

Adjunct Research Professor of
Otolaryngology

Xuntian Jiang, PHD

Assistant Professor of Medicine

Sharon Leslie Jick

Instructor in Clinical Ophthalmology and
Visual Sciences

Jeffrey Jim, MS, MD

Assistant Professor of Surgery (General Surgery)

Hongjun Jin, PHD

Instructor in Radiology

Shannon M. Joerger, MD

Instructor in Pediatrics

William Steven Joffe, MD

Asst Prof Emeritus Of Clin Ophthal & Vls
Sci (primary appointment)

Asst Prof Emeritus Of Clin Ophthal & Vls
Sci (primary appointment)

Morris Joftus, MD

Assistant Professor of Clinical Medicine

Cassandra Johnson, MS1

Assistant Professor of Surgery (Public
Health Sciences)

Denise R Johnson, MD

Associate Professor of Clinical Pediatrics

Eric Keith Johnson, MD

Instructor in Medicine

Jeffrey E Johnson, MD

Professor of Orthopaedic Surgery

Joyce D Johnson

Assistant Professor of Clinical Pediatrics

Mark C Johnson, MD

Associate Professor of Pediatrics

Mark C. Johnson, MD

Associate Professor of Clinical Psychiatry

Michael K Johnson, MD

Instructor in Clinical Obstetrics and
Gynecology

Reuben D Johnson, BE, MS1, MD

Assistant Professor of Emergency
Medicine in Medicine (Pending Executive
Faculty Approval)

Staci R. Johnson, MD

Instructor in Clinical Pediatrics

Stephen L Johnson, PHD

Professor of Genetics

William F Johnson

Adjunct Instructor in Medicine

William Lee Johnson, MD

Associate Professor of Clinical Pediatrics
(primary appointment)
Adjunct Associate Professor of Pediatrics

Eugene Malcolm Johnson Jr, PHD

Professor of Developmental Biology
Professor of Neurology (primary
appointment)

Glen P Johnston

Assoc Prof Emeritus Of Clin Ophthal & Vls
Sci

Angela Marie Jones, MD

Instructor in Clinical Pediatrics

Katherine McMullin Jones, MD

Instructor in Pediatrics (Pending Dean's
Approval)

La Rhonda Jones

Instructor in Clinical Psychiatry (Child
Psychiatry)

Larry A Jones, MD, MBA

Assistant Professor of Clinical Pediatrics

Amy M Joseph, MD

Associate Professor of Medicine

Daniel Paul Joseph, PHD, MD

Associate Professor of Clinical
Ophthalmology and Visual Sciences

Susan M. Joseph, MD

Assistant Professor of Medicine

Barbara Jost, MS

Instructor in Clinical Medicine

R. Gilbert Jost, MD

Professor of Radiology

Sandy Lynn Jost

Adjunct Instructor in Obstetrics and
Gynecology

Sarah C. Jost

Adjunct Assistant Professor of
Neurological Surgery

Mark J Jostes, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Randall S Jotte, MD

Associate Professor of Emergency
Medicine in Medicine

Heather Robin Joyce

Instructor in Clinical Pediatrics

Yo-EI S Ju, MD

Assistant Professor of Neurology

John Patrick Judd, MD

Assistant Professor of Obstetrics and
Gynecology

William G Juergens Jr, MD

Assoc Prof Emeritus Of Clinical Medicine

Neringa Juknis, MD

Associate Professor of Neurology

Samuel F. Julian, MD

Instructor in Pediatrics

Erzsebet Jung, MD

Instructor in Clinical Pediatrics

Emily Susan Jungheim, MD

Assistant Professor of Obstetrics and Gynecology

James A Junker, MD

Instructor in Clinical Radiology

Mark M Kaehr, MD

Instructor in Ophthalmology and Visual Sciences

Caroline Holleck Kahle, MD

Assistant Professor of Medicine

Lawrence I Kahn

Prof Emeritus Of Pediatrics

Timothy N Kaiser, MD

Assistant Professor of Clinical Otolaryngology

Sergey Kaliberov, MD, PHD

Assistant Professor of Radiation Oncology

Afrin Nahar Kamal

Instructor in Medicine

Sona Sharad Kamat

Instructor in Clinical Medicine

Vinay Gopal Kamat, MD

Instructor in Clinical Medicine

Stephen A Kamenetzky

Professor of Clinical Ophthalmology and Visual Sciences

Daniel Thomas Kane, MD

Assistant Professor of Anesthesiology

Deborah Shipley Kane, MD

Assistant Professor of Emergency Medicine in Medicine

Pamela B Kane, MD

Instructor in Clinical Pediatrics

Ivan M Kangrga, MD, PHD

Professor of Anesthesiology

Julia Kar, MS1, PHD

Instructor in Surgery (General Surgery)

Humeyra Karacal, MD

Assistant Professor of Ophthalmology and Visual Sciences

Menelaos Karanikolas, MD

Associate Professor of Anesthesiology

Wajiha Parveen Karatela

Instructor in Clinical Psychiatry (Child)

Celeste Marie Karch

Assistant Professor of Psychiatry

Eugenia Kardaris

Instructor in Clinical Otolaryngology (DDS)

Morvarid Karimi, MD

Assistant Professor of Neurology

Robert S Karsh

Professor of Clinical Medicine

Roanne Kay Karzon, M ED, MS, PHD

Adjunct Assistant Professor of Audiology and Communication Science (primary appointment)

Adjunct Assistant Professor of

Otolaryngology

Rojano Kashani, MS, PHD

Instructor in Radiation Oncology

Victoria Kaskutas, OTD

Associate Professor of Occupational Therapy (primary appointment)

Associate Professor of Medicine

Thomas J Kasper

Instructor in Clinical Pediatrics

Michael A Kass, MD, MS

Bernard Becker Professor of
Ophthalmology and Visual Sciences
(primary appointment)
Senior Associate Dean for Human
Research Protection

Farhan Katchi, MD
Instructor in Medicine

Andrew M. Kates, MD
Associate Professor of Medicine

Demetrios Katsikas, MD
Instructor in Clinical Surgery (Urological
Surgery)

Richard T. Katz, MA, MD
Professor of Clinical Neurology

David A Katzman, MD
Instructor in Clinical Medicine

Andrew L. Kau, MD, PHD
Instructor in Medicine

Jenny E Kaufman, MD
Instructor in Clinical Pediatrics

Robert L Kaufman, MD
Assistant Professor of Clinical Medicine

James Alexander Kavanaugh, MS
Instructor in Radiation Oncology

Jack Kayes, MD
Professor Emeritus of Clinical
Ophthalmology and Visual Sciences
(primary appointment)
Prof Emeritus of Clin Ophthalmol & Vis Sci
(primary appointment)

Robert S Kebler, MD
Instructor in Clinical Pediatrics

Dalius Kedainis, MD
Instructor in Clinical Medicine

Elizabeth A Keegan Garrett, M PH, MD
Instructor in Clinical Obstetrics and
Gynecology

Jay Donovan Keener
Associate Professor of Orthopaedic
Surgery

Jacob Brian Keeperman
Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Emergency
Medicine in Medicine

Vladimir Jivkov Kefalov, PHD
Associate Professor of Neurobiology
Associate Professor of Ophthalmology
and Visual Sciences (primary
appointment)

Martin S Keller, MD
Associate Professor of Surgery (Pediatric
Surgery) (primary appointment)
Associate Professor of Pediatrics

Sarah Lynn Keller, MD
Assistant Professor of Obstetrics and
Gynecology

Robert V Kellow
Assistant Professor of Clinical Pediatrics

Amy Frances Kells, PHD, MD
Assistant Professor of Surgery (Plastic
and Reconstructive Surgery)

Brian J Kelly, MD
Assistant Professor of Clinical Pediatrics

Daniel P Kelly, MD
Adjunct Professor of Medicine

James E. Kelly, MA
Instructor in Radiology

John J Kelly, MD
Associate Professor of Medicine (Pending
Executive Faculty Approval)

Michael Patrick Kelly, MD
Assistant Professor of Orthopaedic
Surgery (primary appointment)

Assistant Professor of Neurological
Surgery

James Scott Kemp, MD

Professor of Pediatrics

Michele E Kemp, MD

Associate Professor of Clinical Pediatrics

Charlotte J Kennedy, MD, PHD

Assistant Professor of Clinical Medicine

Robert M Kennedy, MD

Professor of Pediatrics

Rainer Kentner, MD

Assistant Professor of Anesthesiology

Joseph L Kenzora, MD

Associate Professor of Medicine

Deborah Lynn Kerber, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Paul William Kerby, MBBS

Assistant Professor of Anesthesiology

Martin Hurley Kerrigan, MD

Assistant Professor of Medicine

Daniel Kerschensteiner, PHD

Assistant Professor of Ophthalmology and
Visual Sciences (primary appointment)
Assistant Professor of Neurobiology

Salah G. Keyrouz, MD

Associate Professor of Neurology (primary
appointment)
Associate Professor of Neurological
Surgery

Syed Ahmed Khader, MD

Instructor in Clinical Neurology

Ahmed Sultan Khan

Adjunct Instructor in Medicine

Geetika Khanna, MBBS, MS

Associate Professor of Radiology

Sangeeta Khanna

Instructor in Clinical Ophthalmology and
Visual Sciences

Evan David Kharasch, PHD, MD

Russell and Mary Shelden Professor of
Anesthesiology (primary appointment)
Professor of Biochemistry and Molecular
Biophysics

Ed Kheder, MD

Instructor in Medicine

Shahrdad Khodamoradi, MD

Assistant Professor of Anesthesiology

Saaed Khojasteh, MD

Assistant Professor of Clinical Psychiatry

Lynnette C Khoo-Summers, MS, DPT

Associate Professor of Orthopaedic
Surgery
Associate Professor of Physical Therapy
(primary appointment)

Thomas B Kibby, MD, MPH

Instructor in Emergency Medicine in
Medicine (Pending Dean's Approval)

George Kichura, MD

Instructor in Clinical Medicine

William F Kiefer Jr, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Mary Kiehl, AS, MD

Assistant Professor of Clinical Medicine

Kenneth Richard Kilian, MD

Instructor in Clinical Medicine

Kent Leon Killian, MD

Instructor in Clinical Pediatrics

Charles Kilo, MD

Professor of Pathology and Immunology
Professor of Medicine (primary
appointment)

Charles John Kilo, MD

Instructor in Clinical Medicine

Albert H Kim, MA, PHD, MD

Assistant Professor of Neurological Surgery (primary appointment)
Assistant Professor of Neurology
Assistant Professor of Developmental Biology

Albert J Kim, MD

Instructor in Emergency Medicine in Medicine

Alfred Kim, MD, PHD

Instructor in Medicine

Andrew M Kim, DENT, MS

Instructor in Clinical Otolaryngology
Assistant Professor of Clinical Surgery (Plastic and Reconstructive Surgery) (primary appointment)

Brian Kim, MD

Assistant Professor of Medicine (Dermatology)

Daniel Sebom Kim

Instructor in Medicine

In-Kwon Kim, MS, PHD

Assistant Professor of Biochemistry and Molecular Biophysics

Joong Hee Kim, MS, PHD

Instructor in Radiology
Instructor in Neurology (primary appointment)

Seung Kwon Kim, MD

Assistant Professor of Radiology (primary appointment)
Assistant Professor of Surgery (General Surgery)

Helen Young Kim-James, MD

Instructor in Clinical Medicine (Dermatology)

Rosa Anne Kincaid, MD

Instructor in Clinical Medicine

Allison A King, MD

Assistant Professor of Occupational Therapy (primary appointment)
Assistant Professor of Pediatrics

Donald Kevin King, MD

Assistant Professor of Clinical Medicine

Erin L King, MD

Instructor in Clinical Obstetrics and Gynecology

Kevin Patrick King, MD

Instructor in Clinical Medicine

Tessa Marie King, MD

Assistant Professor of Anesthesiology

Tinna P King

Instructor in Clinical Medicine

John P. Kirby, MS

Associate Professor of Surgery (General Surgery)

Erik Paul Kirk, MS

Adjunct Assistant Professor of Medicine

Nigar Kirmani, MD

Professor of Medicine

Neha Navsaria Kirtane, MA, PHD

Assistant Professor of Psychiatry

Sameer M. Kirtane, MD

Instructor in Clinical Medicine

Zulfia Kisrieva-Ware, MD, PHD

Instructor in Radiology

John M Kissane, MD

Retiree - Professor of Pathology and Immunology

Asko I Kivikoski, MD, D SC

Assoc Prof Emeritus Of Ob & Gyn

Laurie Klabi, MD

Instructor in Clinical Obstetrics and Gynecology

Joseph W. Klaesner, MS, PHD

Associate Professor of Physical Therapy
(primary appointment)

Associate Professor of Radiology

Michael K Klebert, BN, MSN, PHD

Instructor in Medicine

Eynav Yafit Klechevsky, PHD

Assistant Professor of Pathology and
Immunology

Robert E Kleiger, MD

Professor of Medicine

Eric E. Klein, MS, PHD

Professor of Radiation Oncology

Jacob Klein, MD

Professor of Clinical Obstetrics and
Gynecology

Robyn Sue Klein, MS, MD, PHD

Associate Professor of Medicine (primary
appointment)

Associate Professor of Pathology and
Immunology

Associate Professor of Neurobiology

Samuel Klein, MD, MS

Professor of Cell Biology and Physiology
Danforth Professor of Medicine (primary
appointment)

Sandra E. Klein, BE, MD

Associate Professor of Orthopaedic
Surgery

Saul Klein, MD

Instructor in Clinical Surgery (Urologic
Surgery)

Seth Jonathan Klein, BSA, MD

Assistant Professor of Radiology

Mark Alan Kleindorfer, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

June Leslie Kleinfeld, DDENT

Instructor in Clinical Otolaryngology
(DMD)

George R Kletzker, MD

Assistant Professor of Clinical
Otolaryngology

Mary E Klingensmith, MD

Professor of Surgery (General Surgery)
(primary appointment)

Mary Culver Distinguished Professor
Vice Chairman for Education, Department
of Surgery

Vivian Marie Kloke, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Linda Marie Klutho, MD

Instructor in Clinical Medicine

Vitaly A Klyachko, MS, PHD

Associate Professor of Cell Biology and
Physiology (primary appointment)

Associate Professor of Biomedical
Engineering

Associate Professor of Neurobiology

Kathleen Marie Kniepmann, DED, M PH

Assistant Professor of Occupational
Therapy (primary appointment)

Assistant Professor of Neurology

Richard D Knight

Instructor in Clinical Pediatrics

Shirley M Knight, MD

Professor of Clinical Pediatrics

Teresa Lee Knight, MS, MD

Instructor in Clinical Obstetrics and
Gynecology

Justin Knittel, MD

Instructor in Anesthesiology

Eric Knoche, MD

Assistant Professor of Medicine (Pending
Executive Faculty Approval)

Harry L Knopf, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Valerie S. Knopik, MA, PHD

Adjunct Assistant Professor of Psychiatry

Norman P Knowlton Jr, MD

Prof Emeritus Of Clinical Medicine

Ronald Joseph Knox, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Ira Joe Kodner, MD

Prof Emeritus of Surgery (General Surg)

Carolyn Koenig, MD

Instructor in Clinical Medicine

Joel S Koenig, MD

Professor of Clinical Pediatrics

Kenneth A Koerner, MD

Associate Professor of Clinical Pediatrics

Ismail Kola, PHD

Adjunct Professor of Medicine

Marin H Kollef, MD

Professor of Medicine

Sri Devi Kolli, MBBS

Instructor in Clinical Medicine

Nikoleta S. Kolovos, MD

Assistant Professor of Pediatrics

Mary E. Koly, MD

Instructor in Clinical Medicine

Yosuke Komatsu

Instructor in Clinical Obstetrics and
Gynecology

Helga Komen, MD

Instructor in Anesthesiology

Katherine L Komendowski, MD

Assistant Professor of Clinical Pediatrics

Jamie L Kondis

Instructor in Pediatrics

Kevin L Konzen, MD

Assistant Professor of Clinical Medicine

Raphael Kopan, MS, PHD

Adjunct Professor of Developmental
Biology

Robert G Kopitsky, MD

Assistant Professor of Clinical Medicine

Kevin Marc Korenblat, MD

Associate Professor of Medicine

Phillip E Korenblat

Professor of Clinical Medicine

Michael S Korenfeld, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Stephen K Kornfeld, MD, PHD

Professor of Developmental Biology

Stuart A Kornfeld, MD

David C and Betty Farrell Professor of
Medicine (primary appointment)
Professor of Biochemistry and Molecular
Biophysics

Alex H Kosloff

Instructor in Clinical Medicine

Lawrence M Kotner, MD

Assoc Prof Emeritus of Radiology

Paul Thomas Kotzbauer, MD, PHD

Associate Professor of Neurology (primary
appointment)
Associate Professor of Developmental
Biology

Olivia I. Koues, PHD

Instructor in Pathology and Immunology
(Pending Dean's Approval)

Attila Kovacs, MD

Associate Professor of Medicine

Maria Kovacs

Visiting Professor of Psychiatry

Sandor J Kovacs, PHD, MD

Professor of Medicine (primary appointment)
Professor of Biomedical Engineering
Professor of Cell Biology and Physiology
Adjunct Professor of Physics

Edward H. Kowert

Assoc Prof Emeritus of Clinical Psychiatry

Beth Ann Koziel, MD, PHD

Assistant Professor of Pediatrics (primary appointment)
Assistant Professor of Genetics

Alexander Kozlov, MS, PHD

Instructor in Biochemistry and Molecular Biophysics

Amanda Kracen

Siteman Cancer Center

Thomas Errol Kraemer, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

James M Krafcik

Instructor in Clinical Pediatrics

Aldi T Kraja, PHD

Associate Professor of Genetics

David Paul Krajcovic, MD

Instructor in Clinical Surgery (General Surgery)

Robert S Kramer

Instructor in Clinical Orthopaedic Surgery

Joseph F Kras, MD

Associate Professor of Anesthesiology

Claudia Krasnoff, MA, MD

Instructor in Clinical Obstetrics and Gynecology

Mark S Krasnoff, MD

Instructor in Clinical Medicine

Frederick Thier Kraus, MD

Adjunct Professor of Obstetrics and Gynecology

Lily Tadayyon Kregenow

Instructor in Clinical Pediatrics

Daniel Kreisel, MD, PHD

Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Professor of Pathology and Immunology

Friederike H. Kreisel, MD

Associate Professor of Pathology and Immunology

Geraldine J. Kress, PHD

Instructor in Neurology (Pending Dean's Approval)

Katherine L Kreusser, MD

Professor of Clinical Pediatrics

Andrzej Modest Krezel, MS

Associate Professor of Biochemistry and Molecular Biophysics (Pending Executive Faculty Approval)

Kristen Louise Kroll, PHD

Associate Professor of Developmental Biology

Ronald J Krone, MD

John E Simon Scholar in Medicine
Professor of Medicine (primary appointment)

Catherine P Krucylak, MD

Assistant Professor of Anesthesiology

Elaine Susan Krul

Adjunct Associate Professor of Medicine

Alexander S. Krupnick, MD

Associate Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Associate Professor of Pathology and Immunology

Thomas Kuciejczyk-Kernan, MD

Instructor in Clinical Medicine

Ralph F Kuhlman, MD

Assistant Professor of Clinical Medicine

Robert E Kuhlman, MD

Asst Prof Emeritus Of Clinical Ortho Surg

Frederick Matthew Kuhlmann, MD

Instructor in Medicine

Anthony Kulczycki Jr, MD

Associate Professor of Medicine (primary appointment)

Associate Professor of Molecular Microbiology

Shashikant Kulkarni, MS, PHD

Associate Professor of Pediatrics

Associate Professor of Genetics

Associate Professor of Pathology and Immunology (primary appointment)

Ashok Kumar, MD

Assistant Professor of Clinical Neurology

Terrance T. Kummer, MD, PHD

Assistant Professor of Neurology

Robin A. Kundra, MD, PHD

Instructor in Clinical Medicine

Denise Kung, MD

Assistant Professor of Clinical Pediatrics

David I. Kuperman, MD

Instructor in Clinical Medicine

Howard I. Kurz, MEE, MD

Professor of Medicine

Linda C Kurz, MA

Res Assoc Prof Emeritus of Biochem & Mol Bio

Abby Kushnir, MD

Instructor in Pediatrics

Vladimir Kushnir, MD

Assistant Professor of Medicine

Sebla Bulent Kutluay, PHD

Assistant Professor of Molecular Microbiology

George B Kyei, MD, MS, PHD

Instructor in Medicine

Michael Kyriakos, MD

Professor of Pathology and Immunology

Adam J. LaBore, MD

Associate Professor of Orthopaedic Surgery (primary appointment)

Associate Professor of Neurology

Michael J Lachtrup, OD

Instructor in Ophthalmology and Visual Sciences

Jennifer S Ladage, MD

Instructor in Clinical Pediatrics

Christine Marie Ladd

Instructor in Clinical Obstetrics and Gynecology

Jack H Ladenson

Oree M Carroll and Lillian B Ladenson

Professor of Clinical Chemistry in

Pathology and Immunology (primary appointment)

Professor of Clinical Chemistry in Medicine

Stacie Sharon Laff, B MUS, MD

Instructor in Clinical Pediatrics

Richard Laforest, MS, PHD

Associate Professor of Radiology

Hing Hung H Lai, MD

Assistant Professor of Surgery (Urologic Surgery) (primary appointment)

Assistant Professor of Anesthesiology

Li-Ling Lai

Instructor in Clinical Pediatrics

Anand Lakshminarasimhachar, MBBS

Assistant Professor of Anesthesiology

Roop Lal

Instructor in Clinical Medicine

Tony C Lam, MD

Instructor in Clinical Obstetrics and Gynecology

Robert Louis Lamberg, MD

Associate Professor of Clinical Ophthalmology and Visual Sciences

Irena Lanc, MS1, PHD

Instructor in Medicine (Pending Dean's Approval)

William M Landau, MD

Prof Emeritus of Neurology

Robert Craig Lander, MD

Instructor in Clinical Orthopaedic Surgery

Michael A. Lane, MS, MD

Assistant Professor of Medicine

Barbara A Lanfer, M ED

Adjunct Instructor in Audiology and Communication Sciences

Catherine Eckels Lang, MS, PHD

Associate Professor of Neurology
Associate Professor of Occupational Therapy

Associate Professor of Physical Therapy (primary appointment)

Susan M Langhorst, ME, PHD

Director Office of Radiation Safety (primary appointment)

Assistant Professor of Radiology

Gregory Mark Lanza, MS, PHD, MD

Oliver M Langenberg Distinguished Professor of Science and Practice of Medicine (primary appointment)
Professor of Biomedical Engineering

Suzanne Elizabeth Lapi, MS, PHD

Associate Professor of Radiology

Paul Arthur Lapoint, AA, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Demetrios G Lappas, MD, PHD

Prof Emeritus Of Anesthesiology

Gina N LaRossa, MD

Assistant Professor of Medicine

Douglas P. Larsen, MD

Assistant Professor of Neurology

David Ernfrid Larson, PHD

Academic Rank held in Genetics (primary appointment)

Instructor in Genetics

Linda J Larson-Prior, MA, PHD

Associate Professor of Radiology (primary appointment)

Associate Professor of Neurology

Shane Joseph LaRue

Assistant Professor of Medicine

John M Lasala, PHD, MD

Professor of Medicine (primary appointment)

Professor of Surgery (Cardiothoracic Surgery)

Andrei Laszlo, MS, PHD

Associate Professor of Radiation Oncology

Chakrapol Lattanand, MD

Assistant Professor of Anesthesiology

Steven A Lauter, MD

Assistant Professor of Clinical Medicine

Kory J. Lavine, MD, PHD

Instructor in Medicine

Russell K Lawrence

Adjunct Instructor in Pediatrics

Steven J Lawrence, MD, MS

Assistant Professor of Medicine

Heather A Lawson, MA, PHD

Instructor in Genetics

Jennifer S Lawton

Professor of Surgery (Cardiothoracic Surgery)

Leland M Laycob, MD

Instructor in Clinical Pediatrics

Patricia Lazaroff, BN, MSN

Adjunct Instructor in Obstetrics and Gynecology

Richard Lee Lazaroff, MD

Professor of Clinical Pediatrics

Helen Marie McGraw Lazear

Instructor in Medicine

Daniel Joseph Leary Jr, MD

Assistant Professor of Clinical Radiology

Paul B L'Ecuyer, MD

Suzanne Nicole L'Ecuyer

Instructor in Clinical Psychiatry (Child Psychiatry)

Caroline Kim Lee, MD

Assistant Professor of Pediatrics

Chris Cheng-Fu Lee, MD, PHD

Assistant Professor of Anesthesiology

Eileen May Lee, MD

Instructor in Medicine

Gary G Lee, DOST

Instructor in Clinical Obstetrics and Gynecology

Jin-Moo Lee, PHD, MD

Professor of Neurology (primary appointment)

Professor of Radiology

Kim Lynette Lee, MD

Instructor in Clinical Medicine

Kirstin Lee Abel Lee, MD

Instructor in Pediatrics

Michelle Lee, MD

Assistant Professor of Radiology

Sena Lee, AB, PHD, MD

Assistant Professor of Medicine (Dermatology)

Steven F Lee, MD

Instructor in Clinical Ophthalmology and Visual Sciences

Wang Sik Lee, MA, PHD

Assistant Professor of Medicine

Stephen S Lefrak, MD

Prof Emeritus of Medicine

Robert B Lehman, MD

Instructor in Clinical Medicine

Ronald A Lehman Jr, MD

Professor of Orthopaedic Surgery

Barbara L. Leighton, MD

Professor of Anesthesiology

Paula M Leiva, MD

Instructor in Radiology

Fanee J Lekkas, MS, MD

Instructor in Clinical Obstetrics and Gynecology

Walter Lemann III, MD

Associate Professor of Clinical Neurology

Lawrence G Lenke, MD

Professor of Neurological Surgery
Jerome J. Gilden M.D. Distinguished Professor of Orthopaedic Surgery (primary appointment)

Deborah J. Lenschow, MD

Associate Professor of Pathology and Immunology

Associate Professor of Medicine (primary appointment)

Eric J Lenze, MD

Professor of Psychiatry

Shannon N Lenze, MA, PHD

Assistant Professor of Psychiatry
David Seamus Leonard, MBCHB, MHA
Assistant Professor of Otolaryngology
Julie C. Leonard, BBA, MD, M PH
Adjunct Associate Professor of Pediatrics
F. Timothy Leonberger, MS, PHD
Instructor in Clinical Medical Psychology
in Psychiatry (On Staff at Malcolm Bliss
Mental Health Center)
Christopher Robert Leon-Guerrero, MD
Assistant Professor of Neurology
Christina Lessov-Schlaggar, PHD
Assistant Professor of Psychiatry
Nigel C Lester, MD
Instructor in Psychiatry
Alison M Leston, PHD, MD
Assistant Professor of Clinical Neurology
Daisy W Leung, PHD
Assistant Professor of Pathology and
Immunology (primary appointment)
Assistant Professor of Biochemistry and
Molecular Biophysics
Eric Claude Leuthardt, MD
Associate Professor of Neurological
Surgery (primary appointment)
Associate Professor of Neurobiology
Marc Stephen Levin, MD
Professor of Medicine
Mark David Levin, MD
Instructor in Pediatrics
Marvin E Levin, MD
Professor of Clinical Medicine
Laurence A Levine, MA, DDENT, MD
Associate Professor of Clinical
Otolaryngology
Mark D Levine, MD

Associate Professor of Emergency
Medicine in Medicine
Edward S Levy, MD
Instructor in Clinical Obstetrics and
Gynecology
Jerome F Levy
Professor Emeritus of Surgery (General
Surgery) (primary appointment)
Prof Emeritus of Surgery (General Surg)
(primary appointment)
Kenneth C Levy, MD
Instructor in Clinical Pediatrics
Morton A Levy, MD
Assoc Prof Emeritus Of Clinical Medicine
Philip Thaler Levy
Adjunct Instructor in Pediatrics
Amanda Lark Lewis, PHD
Assistant Professor of Obstetrics and
Gynecology
Assistant Professor of Molecular
Microbiology (primary appointment)
Collins E Lewis, MD, M PH
Associate Professor Emeritus of
Psychiatry (primary appointment)
Assoc Prof Emeritus Of Psychiatry
(primary appointment)
Lawrence M Lewis, AA, MD
Professor of Emergency Medicine in
Medicine
Scott W Lewis, OD
Adjunct Instructor in Ophthalmology and
Visual Sciences
Warren Graybill Lewis, PHD
Instructor in Medicine
Timothy J Ley, MD
Professor of Genetics
Lewis T and Rosalind B Apple Professor
of Medicine (primary appointment)

Ben Wen Li, MD, PHD

Associate Professor of Medicine

Ellen Li, MD, PHD

Hua Li, PHD

Assistant Professor of Radiation Oncology

Hui Li, MS, PHD

Associate Professor of Radiation
Oncology

Li Li, MD, PHD

Instructor in Clinical Medicine

Mingjie Li, MD, PHD

Assistant Professor of Neurology

Shunqiang Li, PHD

Assistant Professor of Medicine

Tingting Li, MD

Associate Professor of Medicine

Weikai Li, MS, PHD

Assistant Professor of Biochemistry and
Molecular Biophysics

Wenjun Li, MD, MS

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Min Lian, MD, M PH, PHD

Assistant Professor of Medicine

Stephen Yuan-Tung Liang, MD

Assistant Professor of Medicine

Steve Ming-Che Liao, MD

Assistant Professor of Pediatrics

Jeffery Lichtenhan, BAS, MSSH, PHD

Assistant Professor of Otolaryngology

Amy K Licis, MD

Assistant Professor of Neurology

James Walter Lieber, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

David M Lieberman, MD

Assoc Prof Emeritus Of Clinical Medicine

Harvey Liebhaber, MD

Associate Professor of Clinical Medicine

Huiping C Lieser, MA, PHD

Instructor in Occupational Therapy

Charles H Lieu

Instructor in Clinical Medicine

Judith E Lieu, MD

Associate Professor of Otolaryngology

Barry Light, PHD, MD

Associate Professor of Clinical Pediatrics

Anna Lijowska, MD

Assistant Professor of Pediatrics

Stephen Bradley Lillard, MD

Instructor in Clinical Medicine

Michael Lillmars, DDENT

Instructor in Clinical Otolaryngology (DDS)

Kian-Huat Lim, MD, PHD

Assistant Professor of Medicine

David D Limbrick Jr, MD

Associate Professor of Neurological
Surgery (primary appointment)
Associate Professor of Pediatrics

Congxing Lin, PHD

Instructor in Medicine

Hsiu-San Lin, MD, PHD

Professor Emeritus of Radiation Oncology
(primary appointment)
Prof Emeritus of Radiation Oncology
(primary appointment)

John Chao-Chun Lin, MD

Assistant Professor of Pediatrics

Michael Fu-Yen Lin, MS, MD

Assistant Professor of Radiology

Michael Yun Lin, MD

Assistant Professor of Medicine

Yiing Lin, MD, PHD

Assistant Professor of Surgery (General Surgery)

John T Lind, MS, MD

Assistant Professor of Ophthalmology and Visual Sciences

Penelope Alatheia Lind

Adjunct Instructor in Psychiatry

Kathryn Jesseca Lindley, MD

Assistant Professor of Medicine

Brian Richard Lindman, MA

Assistant Professor of Medicine

Gerald P Linette, MD, PHD

Associate Professor of Medicine (primary appointment)

Associate Professor of Neurological Surgery

Christopher J Lingle, PHD

Professor of Anesthesiology (primary appointment)

Professor of Neurobiology

Daniel C Link, MD

Alan A and Edith L Wolff Distinguished Professor of Medicine (primary appointment)

Professor of Pathology and Immunology

Erin Lynn Linnenbringer, MS1, PHD

Instructor in Surgery (Public Health Sciences)

Robert D Lins, MD

Instructor in Clinical Pediatrics

Michael Brayer Lippmann, MD

Professor of Medicine

Mauricio Lisker-Melman, MD

Professor of Medicine

Jay L Liss, MD

Associate Professor of Clinical Psychiatry

Mary Kathryn Liszewski

Assistant Professor of Medicine

Howard S Lite, MA, MD

Instructor in Clinical Medicine

Adam Daniel Littich, MD

Instructor in Medicine

Blake Allen Little, MD

Instructor in Clinical Pediatrics

John Russell Little Jr, MD

Prof Emeritus Of Medicine

Marina Litvin, MD

Instructor in Medicine

Chang Liu, MD, PHD

Instructor in Pathology and Immunology (Pending Dean's Approval)

Jianmei Liu, MD, MS

Instructor in Clinical Medicine

Qi Liu

Instructor in Medicine

Qianjin Liu, MD, PHD

Assistant Professor of Anesthesiology

Qin Liu, PHD

Assistant Professor of Anesthesiology (primary appointment)

Assistant Professor of Ophthalmology and Visual Sciences

Ta-Chiang Liu, MD, PHD

Assistant Professor of Pathology and Immunology

Xinping Liu, MS, PHD

Instructor in Medicine

Ying Liu, MD, PHD

Instructor in Surgery (Public Health Sciences)

Yongjian Liu, MS, PHD

Assistant Professor of Radiology (Pending Executive Faculty Approval)

Rebecca Lobb, PHS

Assistant Professor of Surgery (Public Health Sciences)

Albert C Lockhart, MD, MHS

Associate Professor of Medicine

Ellen M Lockhart, MD

Associate Professor of Anesthesiology (primary appointment)
Vice Chairman of Anesthesiology

Thomas J Lockhart, MD

Assistant Professor of Anesthesiology

Amy Loden, MD

Instructor in Medicine

Jennifer K Lodge, PHD

Vice Chancellor for Research
Associate Dean for Research
Associate Dean for Research
Professor of Molecular Microbiology (primary appointment)
Vice Chancellor for Research

Irfan J Lodhi, MS, PHD

Assistant Professor of Medicine

Lola J Loeb, MA, MD

Instructor in Clinical Obstetrics and Gynecology

Arthur D Loewy, PHD

Professor of Anatomy and Neurobiology

Beverly A Logan-Morrison, MD

Instructor in Clinical Medicine

Timothy M Lohman, PHD

Brennecke Professor of Biophysics in Biochemistry and Molecular Biophysics

Andrea Loiselle, M PH, MD

Instructor in Medicine

Jane Loitman, MS

Assistant Professor of Clinical Neurology (primary appointment)
Instructor in Clinical Medicine

Alan M Londe, MD

Instructor in Clinical Surgery (General Surgery)

Stanley L London, MD

Associate Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)
Assoc Prof Emeritus of Clin Surg (Gen Surg) (primary appointment)

Fanxin Long, MA, PHD

Professor of Orthopaedic Surgery (primary appointment)
Professor of Developmental Biology
Professor of Medicine

Jeremiah Robert Long, MD

Assistant Professor of Radiology

Gregory D Longmore, MS, MD

Professor of Medicine (primary appointment)
Professor of Cell Biology and Physiology

Maurice J Lonsway Jr, MD

Prof Emeritus Of Clinical Pediatrics

James F Loomis Jr, MD, MBA

Instructor in Clinical Medicine

Glenn Lopate, MD

Professor of Neurology

Latisha D Love-Gregory, PHD

Assistant Professor of Medicine

Jerry L Lowder, MD

Associate Professor of Obstetrics and Gynecology

Robert Douglas Lowe, DDENT

Instructor in Clinical Otolaryngology (DMD)

Jeffrey A Lowell, MD

Professor of Surgery (General Surgery) (primary appointment)
Professor of Pediatrics

Esther Jiaxin Lu, MS, PHD

Assistant Professor of Biostatistics
(primary appointment)
Assistant Professor of Surgery (Public
Health Sciences)

Zhi Hong Lu, PHD

Assistant Professor of Surgery (Urologic
Surgery)

Olga Y. Lubman, PHD

Instructor in Pathology and Immunology

Anthony J Lubniewski, MD

Professor of Ophthalmology and Visual
Sciences

Herbert Lubowitz, MD

Associate Professor of Clinical Medicine

Joan L Luby, MD

Professor of Psychiatry (Child Psychiatry)

Brendan Patrick Lucey, MD

Assistant Professor of Neurology

Philip A Ludbrook, MBBS

Professor of Psychiatry

Prof Emeritus of Medicine (primary
appointment)

Professor of Medicine (primary
appointment)

Professor of Radiology

Kenneth M Ludmerer, MA

Professor of Medicine (primary
appointment)

Mabel Dorn-Reeder Distinguished
Professor of the History of Medicine

Mark A Ludwig, MD

Instructor in Clinical Surgery (General
Surgery)

Lauren Michelle Ludwig Lee, MD

Instructor in Clinical Medicine

Gregg T Lueder, MD

Professor of Ophthalmology and Visual
Sciences (primary appointment)

Professor of Pediatrics

Susan L Luedke, MD

Instructor in Clinical Medicine

Scott J Luhmann

Associate Professor of Orthopaedic
Surgery

Peter David Lukasiewicz, PHD

Professor of Ophthalmology and Visual
Sciences (primary appointment)

Professor of Neurobiology

Angela Kumari Lumba, AS, MD

Instructor in Pediatrics

Jingqin Luo, MS, MS1, PHD

Assistant Professor of Biostatistics
(primary appointment)

Assistant Professor of Medicine

Patrick Joseph Lustman, MSW, PHD

Professor of Psychology

Professor of Psychiatry (primary
appointment)

Barbara A Lutey, MD

Assistant Professor of Medicine

John P Lynch, MD

Professor of Medicine

Michael T. Lynskey, MS, PHD

Adjunct Professor of Psychiatry

Alan P Lyss, MD

Associate Professor of Clinical Medicine

Carl A Lyss, MD

Assistant Professor of Clinical Medicine

Cynthia Xiuguang Ma, MD, PHD

Associate Professor of Medicine

Liang Ma, PHD

Associate Professor of Medicine
(Dermatology) (primary appointment)

Associate Professor of Developmental
Biology

Richard W Maack, MD

Instructor in Clinical Otolaryngology

Robert R Mac Donald III, MD

Instructor in Clinical Otolaryngology

Luigi Maccotta, MD, PHD

Assistant Professor of Neurology

Donna Alexandra MacDuff, PHD

Instructor in Pathology and Immunology

Colin Mackenzie

Instructor in Clinical Psychiatry

Lisa Marie Mackey, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Susan E Mackinnon, MD

Professor of Otolaryngology
Professor of Occupational Therapy
Sydney M., Jr. and Robert H. Shoenberg
Professor of Surgery (Plastic and Reconstructive Surgery) (primary appointment)

George Andrew Macones, MD, MS

Mitchell and Elaine Yanow Professor of Obstetrics and Gynecology (primary appointment)
Head of the Department of Obstetrics and Gynecology

Julie Kathleen MacPhee, MD

Instructor in Clinical Medicine

John C. Madden, MD

Instructor in Clinical Pediatrics

Lisa Marie Madden, MD

Assistant Professor of Pediatrics

Pamela A Madden, MS, PHD

Professor of Psychiatry

Tessa E Madden, MD

Associate Professor of Obstetrics and Gynecology

Blair B Madison, PHD

Assistant Professor of Medicine

Jeffrey A Magee

Assistant Professor of Genetics
Assistant Professor of Pediatrics (primary appointment)

William Edwin Magee, MD

Associate Professor of Clinical Medicine

Leonard B Maggi Jr, PHD

Assistant Professor of Medicine

Faidon Magkos, PHD

Assistant Professor of Medicine

Vincent J Magrini, PHD

Academic Rank held in Genetics (primary appointment)
Assistant Professor of Genetics

Jambunathan Mahadevan

Instructor in Clinical Medicine

Christopher A Maher, PHD

Assistant Professor of Medicine (primary appointment)
Assistant Director of The Genome Institute

Mohamed Mahjoub, PHD

Assistant Professor of Medicine (primary appointment)
Assistant Professor of Cell Biology and Physiology

Muhammad Saleem Mahmood, MD

Instructor in Clinical Radiation Oncology

Robert John Mahoney, MD

Assistant Professor of Medicine

Elaine Michelle Majerus, PHD, MD

Associate Professor of Cell Biology and Physiology
Associate Professor of Medicine (primary appointment)

Philip W Majerus, MD

Prof Emeritus of Medicine

John E Majors, PHD

Prof Emeritus of Biochem & Molecular
Biophysic

Majesh Makan, MD

Associate Professor of Medicine

Kamlesh R Makwana, DDENT

Instructor in Clinical Otolaryngology (DDS)

Ranjan P Malhotra, MD

Instructor in Clinical Ophthalmology and
Visual Sciences

Mohsin Ilyas Malik, MBBS

Instructor in Clinical Medicine

Priya Malik, MD

Instructor in Medicine

Christopher Michael Mallow, MD

Instructor in Medicine

Virgil Lee Malmberg, MS, MD

Instructor in Clinical Psychiatry

Horacio M Maluf, MD

Associate Professor of Pathology and
Immunology

Daniel T. Mamah, MD

Assistant Professor of Psychiatry

Maria Maminta-Streiff

Instructor in Clinical Obstetrics and
Gynecology

Mark John Manary, MD

Helene B. Roberson Professor of
Pediatrics

Mary Elizabeth Mani

Instructor in Clinical Obstetrics and
Gynecology

Naganathan B Mani, MBBS, MS

Assistant Professor of Radiology

Hersh Maniar, MD

Associate Professor of Surgery
(Cardiothoracic Surgery) (primary
appointment)

Associate Professor of Medicine

Shivaprasad Gowda Manjappa, MBBS

Instructor in Clinical Medicine

Caroline Mann, MS, MD

Assistant Professor of Medicine
(Dermatology)

Douglas L. Mann, MD

Tobias and Hortense Lewin Professor of
Medicine (primary appointment)
Professor of Cell Biology and Physiology

Marshall S Manne, DDENT, MS

Instructor in Clinical Otolaryngology (DDS)

Peter Bruce Manning, MD

Professor of Surgery (Cardiothoracic
Surgery)

Scott R. Manson, PHD

Instructor in Surgery (Urologic Surgery)

John F Mantovani, MD

Assistant Professor of Clinical Pediatrics
Associate Professor of Clinical Neurology
(primary appointment)

Xianrong Mao, MS, PHD

Instructor in Genetics

Soe S Mar, MD

Associate Professor of Neurology (primary
appointment)
Associate Professor of Pediatrics

Daniel Scott Marcus, PHD

Associate Professor of Radiology

Elaine Rene Mardis, PHD

Professor of Molecular Microbiology
Professor of Genetics

Robert E and Louise F Dunn

Distinguished Professor of Medicine

Academic Rank held in Genetics (primary appointment)

Julie Ann Margenthaler, MD

Associate Professor of Surgery (General Surgery)

Robert P Margolis, MD

Assistant Professor of Clinical Neurology

Sarah K Margolis, MD

Associate Professor of Clinical Medicine

Todd P Margolis, PHD, MD

Alan A and Edith L Wolff Distinguished Professor (primary appointment)
Head of the Department of Ophthalmology and Visual Sciences

Ida Kozak Mariz

Resrch Asst Prof Emeritus Of Medicine

Joanne Markham, MS

Associate Professor of Radiology

Jonas Marschall, MD

Adjunct Assistant Professor of Medicine

Bess Adkins Marshall, MD

Professor of Pediatrics (primary appointment)
Professor of Cell Biology and Physiology

Garland R Marshall, PHD

Professor of Biochemistry and Molecular Biophysics (primary appointment)
Professor of Biomedical Engineering

Jay Phillips Marshall II, MD

Assistant Professor of Clinical Medicine

Ann G Martin, MD

Associate Professor of Medicine (Dermatology)

Carolyn Marie Martin

Assistant Professor of Clinical Obstetrics and Gynecology

John Barlow Martin, MD

Assoc Prof Emeritus Of Clinical Ob & Gyn

Nathan Russell Martin, MD

Assistant Professor of Medicine

Nicholas Gordon Martin

Adjunct Instructor in Psychiatry

Philip Latham Martin, MD

Associate Professor of Clinical Otolaryngology

Thomas F Martin, MD

Associate Professor of Clinical Medicine

Wade H Martin III, MD

Associate Professor of Medicine

Jerald Arthur Maslanko, MD

Instructor in Clinical Medicine

Mary Vest Mason, MD, MBA

Instructor in Clinical Medicine

Muhammad Faraz Masood, MD

Assistant Professor of Surgery (Cardiothoracic Surgery)

Joan Alice Mass, MD

Assistant Professor of Clinical Medicine

Leslie Stewart Massad, MD

Professor of Obstetrics and Gynecology

Matthew J Matava, MD

Professor of Physical Therapy
Professor of Orthopaedic Surgery (primary appointment)

Alicia B Matayoshi

Instructor in Clinical Otolaryngology (DDS)

Stanley Mathew, MBBS

Instructor in Clinical Medicine

F. Scott Mathews, PHD

Prof Emeritus of Biochem & Molec Biophysics

Jose Mathews, MD

Assistant Professor of Psychiatry

Patrice Mathews, MD

Instructor in Clinical Pediatrics

Amit Mathur, MBBS, MD

Professor of Pediatrics

Scot J. Matkovich, PHD

Assistant Professor of Medicine

Anthony J-P Mattaline, DOST

Assistant Professor of Clinical Medicine

Claire Matthews, MA, PHD

Adjunct Assistant Professor of
Otolaryngology (Speech Pathology)

Gregory Warren Mattingly, MD

Assistant Professor of Clinical Psychiatry

Henry E Mattis, MD

Instructor in Clinical Medicine

Marvin M Maurer Jr, MD

Assistant Professor of Clinical Pediatrics

Thin Thin Maw, MBBS, MS

Assistant Professor of Medicine

Ariane E May, M PH, MD

Associate Professor of Clinical Pediatrics

Ben R Mayes Jr, MD

Assistant Professor of Clinical Radiology

John E. Mazuski, MS, MD, PHD

Professor of Surgery (General Surgery)

Gabriel Mbalaviele, MA, PHD

Associate Professor of Medicine

James P Mc Carter, MD, PHD

Adjunct Professor of Genetics

Audrey McAlinden, PHD

Associate Professor of Orthopaedic
Surgery (primary appointment)
Associate Professor of Cell Biology and
Physiology

Rebecca P McAlister, MD

Professor of Obstetrics and Gynecology
(primary appointment)
Associate Dean for Graduate Medical
Education

William H McAlister, MD

Professor of Radiology in Pediatrics
Professor of Radiology (primary
appointment)

James Patterson McAllister, PHD

Professor of Neurological Surgery

John D McAllister, MD

Professor of Anesthesiology (primary
appointment)
Professor of Pediatrics

Christopher M McAndrew, MD

Assistant Professor of Orthopaedic
Surgery

Jina L McAtee

Assistant Professor of Clinical Pediatrics

Mark P. McAvoy, MEE, PHD

Assistant Professor of Radiology

Megan McBride

Instructor in Clinical Pediatrics

Sarah Howe McBride, MS, PHD

Adjunct Instructor in Orthopaedic Surgery

Jennifer Ann McCabe, MD

Instructor in Clinical Obstetrics and
Gynecology

Marcia June McCabe, MA, PHD

Associate Professor of Psychiatry

Kimberli McCallum, MD

Assistant Professor of Clinical Psychiatry
(Child Psychiatry)

Timothy Joseph McCann, MD

Instructor in Clinical Medicine

Margaret McCarthy

Instructor in Clinical Obstetrics and
Gynecology

Scott A McClain, DDENT

Instructor in Clinical Otolaryngology (DDS)

Donte D McClary, MD

Instructor in Clinical Medicine

Collin Matthew McClelland, MD

Assistant Professor of Ophthalmology and Visual Sciences

Jonathan E McConathy, MD

Assistant Professor of Radiology

Jeremy James McCormick, MD

Assistant Professor of Orthopaedic Surgery

Molly Ann McCormick, MD

Assistant Professor of Anesthesiology

Scott McCormick III, MD

Assistant Professor of Clinical Psychiatry

Carolyn Kay McCourt, MD

Assistant Professor of Obstetrics and Gynecology

Douglas E McCoy, MD

Instructor in Clinical Psychiatry

Leslie Rose McCrary-Etuk, MD

Instructor in Clinical Medicine

Vivia Van Dyne McCutcheon, MS

Assistant Professor of Psychiatry

Daniel S McDonald, MD

Instructor in Clinical Obstetrics and Gynecology

Douglas J. McDonald, MD

Professor of Orthopaedic Surgery

Jay R. McDonald

Assistant Professor of Medicine

Debra Ann McDonnell, MS, AS, DPT

Associate Professor of Orthopaedic Surgery

Associate Professor of Physical Therapy (primary appointment)

Mary Kate McDonnell, MHS, DPT

Associate Director of Residencies and Fellowships in Physical Therapy

Associate Professor of Physical Therapy (primary appointment)

Associate Professor of Orthopaedic Surgery

Cheryl Riddle McDonough, MD

Instructor in Medicine

Colleen McEvoy, MD

Assistant Professor of Medicine (Pending Executive Faculty Approval)

Carli Laura McGee, MD

Instructor in Pediatrics

Patricia Navarro McGee

Instructor in Physical Therapy (primary appointment)

Instructor in Orthopaedic Surgery

Bryan Edward McGill, MD

Instructor in Neurology (primary appointment)

Instructor in Pediatrics

Janet B McGill, MD, MA

Professor of Medicine

Murray D McGrady, MD

Instructor in Clinical Otolaryngology

Mark E. McGranahan, MD

Instructor in Clinical Pediatrics

Patricia A McGuire, MD

Instructor in Clinical Surgery (Plastic and Reconstructive Surgery)

Leslie Denise McIntosh, MA

Assistant Professor of Pathology and Immunology

Jonathan L McJunkin

Assistant Professor of Otolaryngology

Oliver McKee, MD

Instructor in Clinical Medicine (Dermatology)

Clark R McKenzie, MD

Instructor in Clinical Medicine

Heather McKenzie, MD

Instructor in Anesthesiology

John W McKinney, MD

Instructor in Clinical Otolaryngology

Joseph K McKinney, MD

Assoc Prof Emeritus Of Clinical Psychiatry

Thomas Casey McKinney, MD

Professor of Clinical Pediatrics

**Robert Carolin McKinstry III, MS, PHD,
MD**

Professor of Radiology (primary
appointment)

Professor of Pediatrics

Robert M McMahon, JD, MD

Instructor in Clinical Medicine

William A McManus, MD

Instructor in Pediatrics

Marie Elizabeth McNeely, PHD

Instructor in Neurology

Instructor in Physical Therapy (primary
appointment)

Colleen Patricia McNicholas, DOST

Assistant Professor of Obstetrics and
Gynecology

Amy McQueen, MA

Assistant Professor of Medicine

Robert Paul Mecham, PHD

Alumni Endowed Professor of Cell Biology
and Physiology (primary appointment)

Professor of Medicine

Professor of Biomedical Engineering

Professor of Pediatrics

Denise Andrea Meckler, MD

Instructor in Clinical Obstetrics and
Gynecology

Gerald Medoff, MD

Professor Emeritus of Medicine (primary
appointment)

Prof Emeritus of Medicine (primary
appointment)

Nalini K Mehta

Instructor in Clinical Pediatrics

Spencer J Melby, MD

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Vincent Michael Mellnick, MD

Assistant Professor of Radiology

Anibal G Melo, MD

Instructor in Clinical Medicine

Gary Jay Meltz, MD

Instructor in Clinical Medicine

Robert S Mendelsohn, MD

Associate Professor of Clinical Medicine

David F Mendelson, MD

Asst Prof Emeritus Of Clinical Neurology

Maithilee D Menezes, MD

Assistant Professor of Otolaryngology

Christine Onsy Menias, MD

Adjunct Professor of Radiology

Steven James Mennerick, PHD

Professor of Psychiatry (primary
appointment)

Professor of Neurobiology

Paul A Mennes, MD

Professor of Clinical Medicine

P Aravindaksha Menon

Instructor in Clinical Pediatrics

David Norman Menton, PHD

Assoc Prof Emeritus Of Anatomy

Ronald L Mera, MD

Instructor in Clinical Medicine

Robert W Mercer, PHD

Professor of Cell Biology and Physiology

Sarah J. Mermelstein, MD

Instructor in Pediatrics

Theodore Merrims, MD

Instr Emeritus In Clinical Ob & Gyn

Diane F Merritt, MD

Professor of Obstetrics and Gynecology

John P Metzler, MD

Associate Professor of Orthopaedic
Surgery (primary appointment)

Associate Professor of Neurology

Thomas M Meuser, PHD

Visiting Professor of Occupational
Therapy

Adam Vogeler Meyer, MD

Instructor in Medicine

Gretchen Ann Meyer, MS, PHD

Assistant Professor of Neurology
Assistant Professor of Physical Therapy
(primary appointment)

Instructor in Biomedical Engineering

Jay L Meyer, MD

Associate Professor of Clinical Psychiatry

Mary Shaughnessy Meyer, MD

Assistant Professor of Clinical Pediatrics

Bryan F Meyers, MD

Patrick and Joy Williamson Endowed
Professor of Surgery (Cardiothoracic
Surgery)

Jerry R Meyers, MD

Assistant Professor of Clinical Surgery
(General Surgery)

Rabya Mian, MBBS

Instructor in Clinical Medicine

Craig Anthony Micchelli, PHD

Associate Professor of Developmental
Biology

Scott Micek, MD

Adjunct Instructor in Medicine

Gina Michael, MD

Instructor in Clinical Medicine

Jeff Michael Michalski, MD, MBA

Carlos Perez Distinguished Professor of
Radiation Oncology (primary appointment)
Vice Chairman of Radiation Oncology

Loren S. Michel, MD, MBA

Associate Professor of Cell Biology and
Physiology

Associate Professor of Medicine (primary
appointment)

Peter Howard Michelson, MD, MS

Associate Professor of Pediatrics

William Samuel Micka, MD

Instructor in Clinical Medicine

John Neal Middelkamp, MD

Prof Emeritus of Pediatrics

Jerry N Middleton, MD

Instructor Emeritus in Clinical Obstetrics
and Gynecology (primary appointment)
Instr Emeritus in Clinical Ob & Gyn
(primary appointment)

Mary Ann Middleton, MD

Assistant Professor of Radiology

William D Middleton, MD

Professor of Radiology

Jenny Lynn Miele, MD

Instructor in Clinical Pediatrics

Francis M Miezyn, MS

Associate Professor of Neurology (primary
appointment)

Associate in Psychology

Associate Professor of Radiology

Mary Kay Migneco, OD

Instructor in Ophthalmology and Visual
Sciences

James R Mikolajczak, MD

Assistant Professor of Clinical Psychiatry

Jeffrey D Milbrandt, MD, PHD

James S McDonnell Professor of Genetics
(primary appointment)

Professor of Medicine

Professor of Neurology

Professor of Pathology and Immunology

Head of the Department of Genetics

Barry David Milder, MD

Associate Professor of Clinical
Ophthalmology and Visual Sciences

Benjamin Milder

Prof Emeritus Of Clinical Ophthalmol &
VIs Sci

Brent William Miller, MD

Professor of Medicine

Charles William Miller, MD

Assistant Professor of Clinical Medicine
(Dermatology)

Donna C Miller, MD

Instructor in Clinical Pediatrics

Gary Arthur Miller, MD

Associate Professor of Orthopaedic
Surgery

Heidi B Miller, MD

Instructor in Clinical Medicine

J. Philip Miller

Tenure Held At-Large in the Medical
School

Professor of Biostatistics (primary
appointment)

Professor of Medicine

James D. Miller, MA

Instructor in Otolaryngology

Instructor in Audiology and

Communication Sciences (primary
appointment)

James E Miller, MD

Prof Emeritus Of Clinical Ophthal & VIs
Sci

Lara Elizabeth Miller, DOST

Instructor in Clinical Medicine

Mark James Miller, PHD

Associate Professor of Medicine (primary
appointment)

Associate Professor of Pathology and
Immunology

Mark L. Miller, BE, MD

Assistant Professor of Orthopaedic
Surgery

Shondra Michelle Miller, PHD

Instructor in Genetics

Suzanne Lee Miller, MD

Instructor in Clinical Pediatrics

Timothy M Miller, MD, PHD

Associate Professor of Neurology

Jule P. Miller Jr

Instructor in Clinical Psychiatry

Jennifer Elaine Miller-Katsafanas, BBA,

DPT

Instructor in Physical Therapy (primary
appointment)

Instructor in Obstetrics and Gynecology

Michelle M Miller-Thomas, MD

Assistant Professor of Radiology

Jason C Mills, AB, MD, PHD

Associate Professor of Developmental
Biology

Associate Professor of Pathology and
Immunology

Associate Professor of Medicine (primary
appointment)

Pamela F Millsap, BN, MSN, RN

Instructor in Neurology

Susan Minchin, MD, PHD

Instructor in Clinical Psychiatry

Graeme Mindel, MBBCH, MS

Instructor in Clinical Medicine

Jeffrey H Miner, PHD

Professor of Cell Biology and Physiology

Professor of Medicine (primary appointment)

Marian A Minor, M PH, PHD

Associate Professor of Occupational Therapy

Khurram Rehman Mirza, MBBS

Instructor in Medicine

Elizabeth Tracy Mishler, MA, AUD

Instructor in Audiology and Communication Sciences (primary appointment)

Instructor in Otolaryngology

Stanley Misler, MS, MD, PHD

Associate Professor of Medicine (primary appointment)

Associate Professor of Cell Biology and Physiology

Associate Professor of Biomedical Engineering

Tehmtan S Mistry, MD

Instructor in Clinical Obstetrics and Gynecology

Kevin Joseph Mitchell, MD

Instructor in Clinical Surgery (General Surgery)

Yoshiko Mito, MS, PHD

Assistant Professor of Pathology and Immunology

Robi D. Mitra, PHD

Associate Professor of Genetics (primary appointment)

Alvin Goldfarb Distinguished Professor of Computational Biology

Makedonka Mitreva, MS, PHD

Assistant Professor of Genetics

Assistant Professor of Medicine (primary appointment)

Bettina Mittendorfer, MS, PHD

Professor of Medicine

Duane L Mitzel, MD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Eugene James Mobley

Adjunct Instructor in Ophthalmology and Visual Sciences

Robert L Mobley, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Stephen M Moerlein, MA, PHD,

PHARMD

Associate Professor of Radiology (primary appointment)

Associate Professor of Biochemistry and Molecular Biophysics

Thalachallour Mohanakumar, PHD

Jacqueline G and William E Maritz
Professor of Surgery (General Surgery) (primary appointment)

Professor of Pathology and Immunology

Professor of Medicine

Durga Prasanna Mohapatra, PHD

Associate Professor of Anesthesiology (Pending Executive Faculty Approval)

C. Scott Molden, MD

Instructor in Clinical Medicine

Jeffrey F Moley

Siteman Cancer Center

Jeffrey F Moley, MD

Professor of Surgery (General Surgery)

Kelle Harbert Moley, MD

James Crane Professor of Obstetrics and Gynecology (primary appointment)

Vice Chairman for Basic Research,
Department of Obstetrics and Gynecology
Associate Professor of Cell Biology and
Physiology

Hector D Molina-Vicenty, MD

Associate Professor of Medicine (primary
appointment)
Associate Professor of Pathology and
Immunology

Christopher Molitor

Instructor in Clinical Pediatrics

David W. Molter, MD

Professor of Otolaryngology

Michael David Monaco, MD

Instructor in Medicine

Joseph B Monahan, PHD

Adjunct Assistant Professor of
Biochemistry and Molecular Biophysics

Steven M Mondschein, MD

Kelly Renee Monk, PHD

Assistant Professor of Developmental
Biology

Ilya E. Monosov, MS, PHD

Assistant Professor of Neurobiology

Jennifer Marie Monroy, MD

Instructor in Medicine

Barbara S Monsees, MD

Professor of Radiology

David M Montani, MD

Instructor in Clinical Psychiatry

Austin F Montgomery

Instructor in Clinical Medicine

Grant William Montgomery

Adjunct Instructor in Psychiatry

Mary Ann Montgomery, MBA, MD

Associate Professor of Clinical Psychiatry

Gail Lynn Moolsintong, MD

Instructor in Clinical Pediatrics

Marc R Moon, MD

John M Shoenberg Professor of Surgery
(Cardiothoracic Surgery)

Aimee M. Moore, MD

Instructor in Pediatrics

Amy M. Moore, MD

Assistant Professor of Surgery (Plastic
and Reconstructive Surgery)

Blake William Moore, PHD

Prof Emeritus Of Biochemistry In
Psychiatry

Darlene A. Moore, MD

Instructor in Clinical Pediatrics

Robert Paul Moore

Assistant Professor of Anesthesiology

Stephen M Moore, MEE

Assistant Professor of Radiology

Alvaro Mora

Instructor in Clinical Obstetrics and
Gynecology

Christopher J Moran, MD

Professor of Radiology (primary
appointment)

Professor of Neurological Surgery

Stewart Edward Moreland, DDENT

Instructor in Clinical Otolaryngology
(DMD)

Kerri A Morgan, MS

Instructor in Occupational Therapy
(primary appointment)
Instructor in Neurology

Mary R Morgan, MD

Instructor in Clinical Pediatrics

Daniel Morgensztern, MD

Associate Professor of Medicine

Sharon Celeste Morley, MD, PHD

Assistant Professor of Pediatrics (primary appointment)
Assistant Professor of Pathology and Immunology

Jeffrey Stuart Mormol

Instructor in Clinical Obstetrics and Gynecology

Daniel R. Morra

Instructor in Clinical Pediatrics

Donald G Morris, MS, MD

Instructor in Clinical Medicine

John Carl Morris, MD

Professor of Pathology and Immunology
Professor of Occupational Therapy
Harvey A and Dorismae Hacker Friedman
Distinguished Professor of Neurology (primary appointment)
Professor of Physical Therapy

Aubrey R Morrison, MBBS

Professor of Medicine (primary appointment)
Professor of Developmental Biology

Jeremiah J Morrissey, PHD

Professor of Anesthesiology

Michael Justin Morrissey, PHD

Instructor in Clinical Neurology

Nima Mosammaparast, PHD, MD

Assistant Professor of Pathology and Immunology

Lisa Mae Moscoso, MD, PHD

Associate Dean for Student Affairs
Assistant Professor of Pediatrics (primary appointment)

Julian C Mosley, MD

Instructor in Clinical Surgery (General Surgery)

Krista L Moulder, PHD

Assistant Professor of Neurology

Hawnwan P Moy, MD

Instructor in Emergency Medicine in Medicine

Randi H Mozenter, MA, PHD

Instructor in Clinical Medical Psychology in Psychiatry

Richard Gerard Mrad

Instructor in Clinical Medicine

Mike Max Mueckler, PHD

Professor of Cell Biology and Physiology (primary appointment)
Professor of Medicine

Janet Gwen Mueller, MD

Assistant Professor of Clinical Pediatrics

Kristen L Mueller

Instructor in Emergency Medicine in Medicine (Pending Dean's Approval)

Margaret M Mueller

Instructor in Clinical Pediatrics

Michael Jeffrey Mueller, PHD

Professor of Physical Therapy (primary appointment)
Division Director of Research in Physical Therapy
Professor of Radiology

Melanie Rose Mueth, MD, MBA

Instructor in Clinical Medicine

Steven Mueth

Instructor in Clinical Pediatrics

Daniel K Mullady

Siteman Cancer Center

Daniel Kast Mullady, MD

Associate Professor of Medicine

Monalisa Mullick, MD

Instructor in Medicine (primary appointment)
Instructor in Pediatrics

Michael E Mullins, MD

Associate Professor of Emergency
Medicine in Medicine

Steven Robert Mumm, MS, PHD

Associate Professor of Medicine

Nabil A Munfakh, MD

Professor of Surgery (Cardiothoracic
Surgery)

Manohara Munimuddappa

Instructor in Clinical Pediatrics

Robert F Munsch, MD

Instructor in Clinical Ophthalmology and
Visual Sciences

Faris Mohammed Murad, MD

Assistant Professor of Medicine

Mark C. Murawski, MD

Nathaniel H Murdock

Associate Professor of Clinical Obstetrics
and Gynecology

George E Murphy, MD

Prof Emeritus Of Psychiatry

Joshua J Murphy, MD

Assistant Professor of Pediatrics

Kenneth M Murphy, MD, PHD

Professor of Pathology and Immunology
(primary appointment)
Howard Hughes Medical Institute
Investigator in Pathology and Immunology
Eugene Opie First Centennial Professor of
Pathology and Immunology

Kevin J Murphy, MD

Professor of Clinical Pediatrics

Theresa L Murphy, PHD

Associate Professor of Pathology and
Immunology

David J Murray, MD

Carol B. and Jerome T. Loeb Professor of
Anesthesiology

Nancy Tye Murray, MS, PHD

Professor of Otolaryngology (primary
appointment)
Professor of Audiology and
Communication Sciences

Gian Marco Musarra

Instructor in Pediatrics

Amy Musiek, MD

Assistant Professor of Medicine
(Dermatology)

Erik S Musiek, PHD PMCG, MD

Assistant Professor of Neurology

Helen I-Yun Mussemann, MD

Instructor in Clinical Obstetrics and
Gynecology

David G Mutch, MD

Ira C and Judith Gall Professor of
Obstetrics and Gynecology

Matthew G Mutch, MD

Associate Professor of Surgery (General
Surgery)

Umadevi Muthyala

Instructor in Clinical Medicine

Sasa Mutic, MS, PHD

Professor of Radiation Oncology

Terence M. Myckatyn, MD

Associate Professor of Surgery (Plastic
and Reconstructive Surgery)

John A Myers, MD

Instructor in Clinical Pediatrics

Raymond I Myers, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Robert J Myerson, PHD, MD

Professor Emeritus of Radiation Oncology
(primary appointment)

Prof Emeritus of Radiation Oncology
(primary appointment)

Indira U Mysorekar, MS, PHD

Associate Professor of Obstetrics and
Gynecology (primary appointment)
Associate Professor of Pathology and
Immunology

Randall Earl Nacke

Instructor in Clinical Ophthalmology and
Visual Sciences

Rakesh Nagarajan, MD, PHD

Associate Professor of Pathology and
Immunology (primary appointment)
Associate Professor of Genetics

Elna M Nagasako, MD

Assistant Professor of Medicine

Peter Nagele, MD

Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Genetics

Venkata S. Nagireddi

Instructor in Clinical Pediatrics

Robert T Naismith II, MD

Associate Professor of Neurology

Tasnim A Najaf, MD

Assistant Professor of Pediatrics

Ayesha Najib

Instructor in Clinical Pediatrics

Rashmi R Nakra

Associate Professor of Clinical Psychiatry

Ilke Nalbantoglu, MD

Assistant Professor of Pathology and
Immunology

Denis Nam, MD

Assistant Professor of Orthopaedic
Surgery

Jyotirmaya Nanda

Instructor in Clinical Medicine

Shannon Nanna

Nicola Napoli

Adjunct Research Assistant Professor of
Medicine

Vamsi R. Narra, MD

Professor of Radiology

Alison C Nash, MD

Professor of Clinical Pediatrics

Michael J. Naughton, MD

Assistant Professor of Medicine

Rosanne S Naunheim, MD

Associate Professor of Emergency
Medicine in Medicine

Robert F Nease Jr, MA, PHD

Adjunct Associate Professor of Medicine

Philip Needleman, MS, PHD

Adjunct Professor of Molecular Biology
and Pharmacology

Burton M Needles, MD

Instructor in Clinical Medicine

John Gail Neely, MD

Professor of Otolaryngology (primary
appointment)
Professor of Occupational Therapy

Michael G P Neimkin, MD

Instructor in Ophthalmology and Visual
Sciences

Lynn G Nelms

Instructor in Clinical Pediatrics

Christopher A Nelson, PHD

Instructor in Pathology and Immunology

Donald Michael Nelson, MD, PHD

Virginia Lang Professor of Obstetrics and
Gynecology

Elliot C Nelson, MD

Professor of Psychiatry

J. Roger Nelson, MD

Asst Prof Emeritus Of Clinical Medicine

Jeffrey Jerome Nepple, MD

Assistant Professor of Orthopaedic Surgery

Jeanne M Nerbonne, PHD

Professor of Medicine (primary appointment)
Alumni Endowed Professor of Molecular Biology and Pharmacology in Developmental Biology

April Erwin Nesin

Instructor in Clinical Pediatrics

Neal Neuman, MD

Instructor in Clinical Surgery (Urologic Surgery)

Rosalind J Neuman, MA, PHD

Prof Emeritus of Psychiatry

Tara Marie Neumayr, MD

Instructor in Pediatrics

Elizabeth P. Newberry, PHD

Assistant Professor of Medicine

Rodney D Newberry, MD

Associate Professor of Medicine

Matthew Newman

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Amy C Ney, MD

Instructor in Clinical Medicine (Dermatology)

Khai Ngo, MD

Instructor in Clinical Pediatrics

Kim Mai Thi Nguyen, MD

Instructor in Medicine

Nguyet Minh Nguyen, MD

Assistant Professor of Medicine

Tu-Dung Thi Nguyen, PHD, MD

Assistant Professor of Pathology and Immunology

Ellen Margaret Nicastrò

Instructor in Clinical Pediatrics

Johanna Grant Nicholas, MA, PHD

Associate Professor of Otolaryngology (primary appointment)
Associate Professor of Audiology and Communication Sciences

Colin G Nichols, PHD

Carl F Cori Professor
Professor of Cell Biology and Physiology (primary appointment)

Paul F Nichols III, MD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Ginger E. Nicol, MD

Assistant Professor of Psychiatry (Child)

Ramzi T Nicolas

Adjunct Associate Professor of Pediatrics

Joan M Niehoff, MD

Associate Professor of Anesthesiology

Carl Helge Nielsen, MD

Professor of Anesthesiology

John Hart Niemeyer

Instructor in Clinical Radiology

Thomas E Niesen, MD

Instructor in Clinical Surgery (General Surgery)

Daniel C Nieva, MD

Assistant Professor of Anesthesiology

Richard James Nissen, DDENT, MS

Assistant Professor of Clinical Surgery (Plastic and Reconstructive Surgery)

Anne Fagan Niven, PHD

Professor of Neurology

Bruce L Nock, MS, PHD

Associate Professor of Neurobiology
Associate Professor of Neurobiology in
Psychiatry (primary appointment)

Camille Elizabeth Noel

Instructor in Radiation Oncology

Joan P Noelker

Instructor in Emergency Medicine in
Medicine (Pending Dean's Approval)

Michael Justin Noetzel, MD

Vice Chair of Pediatric and Developmental
Neurology

Professor of Neurology (primary
appointment)

Professor of Pediatrics

Kevin K. Noguchi, MA, PHD

Assistant Professor of Psychiatry

Michael L Nonet

Associate Professor of Neurobiology

Scott Monroe Nordlicht, MD

Professor of Medicine

Tracy Wynette Norfleet, MD

Instructor in Clinical Medicine

Charles C Norland, MD

Prof Emeritus Of Clinical Medicine

David Craig Norman, MD

Assistant Professor of Clinical Pediatrics

Scott Norris, MD

Assistant Professor of Neurology

Barbara Jean Norton, MHS, PHD

Professor of Physical Therapy (primary
appointment)

Associate Director for Education

Technology in Physical Therapy

Professor of Neurology

Karen K Norton, MD

Associate Professor of Clinical Pediatrics

Deborah Veis Novack, PHD

Associate Professor of Medicine (primary
appointment)

Associate Professor of Pathology and
Immunology

Thomas John Nowotny, MD

Assistant Professor of Clinical Psychiatry

Douglase Susumu Nozaki, MD

Instructor in Clinical Pediatrics

Anthony Ian Nunez

Instructor in Clinical Surgery (Cardio
Surgery)

Marlynn Nunez

Instructor in Clinical Obstetrics and
Gynecology

Sabrina Nunez, PHD

Assistant Professor of Medicine (Pending
Executive Faculty Approval)

Ryan M. Nunley, MD

Associate Professor of Orthopaedic
Surgery

Diana Robertovna Nurutdinova, MD

Assistant Professor of Medicine

Gilbert H Nussbaum, MA, PHD

Assoc Prof Emeritus Of Radiation
Oncology

Samuel R Nussbaum, MD

Professor of Clinical Medicine

Brian Nussenbaum, MD

Christy J. and Richard S. Hawes III
Professor of Otolaryngology (primary
appointment)

Vice Chair for Clinical Affairs, Department
of Otolaryngology

Oroma Beatrice Afiong Nwanodi

Instructor in Clinical Obstetrics and
Gynecology

Muhammad Akram Nyazee

Instructor in Clinical Medicine

Sydney Marie Nykiel-Bailey, MD

Assistant Professor of Anesthesiology

Margaret Mary Oakley, MD

Assistant Professor of Clinical
Anesthesiology (primary appointment)
Instructor in Clinical Orthopaedic Surgery

Kevin Sullivan O'Bryan, MD

Instructor in Pediatrics

Lamar H Ochs, MD

Instr Emeritus In Clinical Medicine

Brendan Joseph O'Connor, MD

Instructor in Psychiatry

Randall Odem, MD

Professor of Obstetrics and Gynecology

Audrey R Odom, PHD, MD

Assistant Professor of Pediatrics (primary
appointment)
Assistant Professor of Molecular
Microbiology

Devin Christopher Odom, MD

Instructor in Medicine

G Patrick O'Donnell, MD

Instructor in Clinical Medicine

Justin O Ogbevdn, MBBS

Instructor in Clinical Pediatrics

Margaret A Ogden, MD

Associate Professor of Otolaryngology

Judith Mosinger Ogilvie, MA, PHD

Adjunct Research Assistant Professor of
Ophthalmology and Visual Sciences

Stephen T. Oh, PHD, MD

Assistant Professor of Medicine

Kevin Kenneth Ohlemiller, PHD

Associate Professor of Otolaryngology
(primary appointment)
Associate Professor of Audiology and
Communication Sciences

Regis James O'Keefe, MD, PHD

Professor of Orthopaedic Surgery (primary
appointment)
Head of the Department of Orthopaedic
Surgery

Chukwuma Mbonu Okoroji

Instructor in Clinical Obstetrics and
Gynecology

Edward Okun, MD

Prof Emeritus Of Clinical Ophthalmol &
VIs Sci

Adewole L. Okunade, PHD

Assistant Professor of Medicine

Folasade Oladapo

Instructor in Anesthesiology (Pending
Dean's Approval)

George A Oliver, MD

Assistant Professor Emeritus of Clinical
Surgery (General Surgery) (primary
appointment)
Asst Prof Emeritus of Clin Surgery (Gen
Surg) (primary appointment)
Asst Prof Emeritus of Clin Surg (Gen
Surg) (primary appointment)

George Charles Oliver, MD

Professor Emeritus of Clinical Medicine
(primary appointment)
Prof Emeritus of Clinical Medicine
(primary appointment)

Paul D Olivo, MD, PHD

Adjunct Assistant Professor of Molecular
Microbiology

Jeffrey Robert Olsen, MD

Assistant Professor of Radiation Oncology

Lindsey Appenzoller Olsen, MS

Instructor in Radiation Oncology

Margaret Olsen, PHD, MPH

Associate Professor of Medicine (primary appointment)

Associate Professor of Surgery (Public Health Sciences)

Eugene Merle Oltz, PHD

Professor of Pathology and Immunology

Karen Laurel O'Malley, MS, PHD

Professor of Neurobiology

Gary H Omell, MD

Assistant Professor of Clinical Radiology

Kenan Rifat Omurtag, MD

Assistant Professor of Obstetrics and Gynecology

Robert F Onder Jr, MD

Assistant Professor of Clinical Medicine

Julie O'Neal, PHD

Instructor in Medicine

Patricia L O'Neal, MD

Prof Emeritus Of Clinical Psychiatry

Jerome H O'Neil Jr, MD

Assistant Professor of Clinical Pediatrics

Patrick Ross O'Neill, PHD

Instructor in Anesthesiology (Pending Dean's Approval)

Michael D Onken, PHD

Assistant Professor of Cell Biology and Physiology

S. Michael Orgel, MD

Instructor in Clinical Medicine

Matthew J Orland, MD

Associate Professor of Clinical Medicine

David M Ornitz, PHD, MD

Alumni Endowed Professor of Developmental Biology

Valerie Orrico

Instructor in Clinical Pediatrics

Rachel C. Orscheln, MD

Assistant Professor of Pediatrics

David William Orbals, MD

Assistant Professor of Clinical Medicine

Irma I Ortiz-Arroyo, MD

Assistant Professor of Clinical Pediatrics

Daniel Scott Ory, MD

Professor of Medicine (primary appointment)

Professor of Cell Biology and Physiology
Alan A and Edith L Wolff Distinguished Professor

Amir Mordechai Oryan

Visiting Assistant Professor of Pediatrics

Tiffany Medlin Osborn, MD, M PH

Associate Professor of Surgery (General Surgery) (primary appointment)

Associate Professor of Emergency Medicine in Medicine

Daniel Akwasi Osei, MD

Assistant Professor of Orthopaedic Surgery

Richard E Ostlund Jr, MD

Professor of Medicine

Alison H Oswald

Instructor in Clinical Pediatrics

F. Thomas Ott, MD

Asst Prof Emeritus Of Clin Ophthl & Vls Sci

Theodore Otti

Instructor in Clinical Medicine

Maryann Otto, MD

Assistant Professor of Anesthesiology

Jiafu Ou, MD

Assistant Professor of Medicine

Edgar Turner Overton, MD

Adjunct Assistant Professor of Medicine

Robert F Owen, MD

Instr Emeritus In Clinical Medicine

William D Owens, MD

Prof Emeritus of Anesthesiology

Akinkunle Owoso, MD

Assistant Professor of Psychiatry

Bradley Alton Ozenberger, PHD

Assistant Professor of Medicine

Vani Pachalla, MD

Instructor in Clinical Medicine

Russell Kent Pachynski

Assistant Professor of Medicine

Robert C Packman, MD

Professor of Clinical Medicine

Camillo Padoa-Schioppa, MS, PHD

Assistant Professor of Neurobiology

Jeffrey Robert Padousis, MD

Instructor in Clinical Ophthalmology and
Visual Science

Ben Julian Palanca, MD

Assistant Professor of Anesthesiology

Ross Ian Palis, MD

Instructor in Clinical Medicine

Robert James Pallow Jr, MD

Assistant Professor of Radiology

Allen S Palmer, DOST

Instructor in Clinical Obstetrics and
Gynecology

Chris M Palmer, MD

Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Emergency
Medicine in Medicine

Hua Pan, MS, PHD

Assistant Professor of Medicine

Vasileios Panagopoulos

Instructor in Clinical Psychiatry

Peter D Panagos, MA, MD

Associate Professor of Neurology
Associate Professor of Emergency
Medicine in Medicine (primary
appointment)

Jennifer Ann Panasci

Instructor in Clinical Pediatrics

Randal C Paniello, MS, MD, MBA

Professor of Otolaryngology

Bijal A. Parikh, PHD, MD

Instructor in Pathology and Immunology

Parag J. Parikh, MD

Associate Professor of Radiation
Oncology (primary appointment)
Associate Professor of Biomedical
Engineering

Sharad P Parikh

Instructor in Clinical Surgery (General
Surgery)

Stephanie Sun-Young Park

Instructor in Clinical Medicine

Tae Sung Park, MD

Shi Hui Huang Professor of Neurological
Surgery (primary appointment)
Professor of Neurobiology
Professor of Pediatrics

Yikyung Park, MS1

Associate Professor of Surgery (Public
Health Sciences)

Becky J Parks

Associate Professor of Neurology

Charles L Parks, MD

Instructor in Clinical Surgery (General
Surgery)

David A Parks, MBA, MD

Associate Professor of Clinical Medicine

Deborah L Parks, MD

Professor of Medicine

Laura Anne Parks, MD

Assistant Professor of Obstetrics and Gynecology

Diana C. Parra Perez, MS, PHD

Instructor in Physical Therapy (primary appointment)

Instructor in Surgery (Prevention and Control)

Jeffrey Andrew Parres, MD

Instructor in Clinical Surgery (Urologic Surgery)

Shadi Parsaei, DOST

Instructor in Medicine

Matthew S Parsons, MD

Assistant Professor of Radiology

Robert T Paschall, MD

Prof Emeritus of Pediatrics

Michael K Pasque, MD

Professor of Surgery (Cardiothoracic Surgery) (primary appointment)
Professor of Radiology
Professor of Biomedical Engineering

Pablo Pastor, PHD, MD

Visiting Instructor in Psychiatry

Dilip H. Patel

Instructor in Clinical Medicine

Kamlesh Babulal Patel, MD

Assistant Professor of Surgery (Plastic and Reconstructive Surgery)

Meera Raman Patel, MD

Instructor in Clinical Obstetrics and Gynecology

Pravinkumar Manjibhai Patel, MD

Instructor in Medicine

Rajiv Nanu Patel, MD

Instructor in Clinical Medicine

Rupa R Patel, M PH

Instructor in Medicine

Anjali K Pathak, MD

Associate Professor of Ophthalmology and Visual Sciences

Amanullah Pathan, MS

Instructor in Clinical Medicine

Debabrata Patra, PHD, MS

Assistant Professor of Orthopaedic Surgery

Bruce Patterson, PHD

Professor of Medicine

G. Alexander Patterson, MD

Joseph C Bancroft Professor of Surgery (Cardiothoracic Surgery)

Robert Harris Paul, MS, PHD

Adjunct Assistant Professor of Neurology

Slavica Pavlovic Djuranovic, DIP, PHD

Instructor in Cell Biology and Physiology

Jacqueline Elise Payton, PHD, MD

Assistant Professor of Pathology and Immunology

Margaret Grace Peak, MA, PHD

Adjunct Assistant Professor of Otolaryngology (Audiology)

Edward J Pearce, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Molecular Microbiology
Professor of Medicine

Erika Laine Pearce, PHD

Associate Professor of Pathology and Immunology

Alan L Pearlman, MD

Prof Emeritus Of Neurology

Anthony Craig Pearlstone, MD

Instructor in Clinical Obstetrics and Gynecology

Susan E Pearson, BFA, MS, PHD, DOST

Instructor in Clinical Medicine

William A Peck, MD

Affiliated Professor of Engineering

Professor of Medicine (primary appointment)

Alan A and Edith L Wolff Distinguished Professor

Director, Center for Health Policy

Jonathan Erik Peelle, BAS, MS PSYC, PHD

Assistant Professor of Otolaryngology (primary appointment)

Assistant Professor of Psychology

David M Peeples, MD

Instructor in Clinical Neurology

Jeffrey F Peipert, MD, MHA, PHD

Robert J. Terry Professor of Obstetrics and Gynecology (primary appointment)

Vice Chairman of Clinical Research, Department of Obstetrics and Gynecology

Patricia A. Penkoske

Instructor in Anesthesiology

Michael W Penney, MD

Assistant Professor of Radiology

Karen J Pentella, MD

Assistant Professor of Clinical Neurology

Marta Yanina Pepino de Gruev, PHD

Assistant Professor of Medicine

Jay S Pepose, MA, PHD, MD

Professor of Clinical Ophthalmology and Visual Sciences

Marybeth Pereira

Associate Professor of Clinical Medicine

Carlos A Perez, MD

Prof Emeritus of Radiation Oncology

Julio E Perez, MD

Professor of Medicine

Enrique Pedro Perinetti, MD, PHD

Instructor in Clinical Surgery (Urologic Surgery)

Stephanie Mabry Perkins, MD

Assistant Professor of Radiation Oncology

Joel S Perlmutter, MD

Professor of Physical Therapy

Professor of Neurology (primary appointment)

Professor of Radiology

Professor of Neurobiology

Professor of Occupational Therapy

John Craig Perlmutter, MD

Associate Professor of Clinical

Ophthalmology and Visual Sciences

Monica S Perlmutter, BSOT, MA, OTD

Associate Professor of Ophthalmology and Visual Sciences

Associate Professor of Occupational Therapy (primary appointment)

Laurence F Perlstein, MD

Instructor in Clinical Medicine

Michael James Pernoud, DDENT

Instructor in Clinical Otolaryngology

Richard J. Perrin, PHD, MD

Assistant Professor of Pathology and Immunology

Alan Pestronk, MD

Professor of Neurology (primary appointment)

Professor of Pathology and Immunology

Steven E Petersen, PHD

James S McDonnell Professor of Cognitive Neuroscience in Neurology (primary appointment)

Professor of Radiology

Professor of Psychology

Professor of Biomedical Engineering

Professor of Neurobiology
Associate Professor of Neurological
Surgery (Neuropsychology)

Linda R Peterson, MD

Associate Professor of Medicine (primary
appointment)
Associate Professor of Radiology

Stephen E Peterson

Instructor in Clinical Psychiatry (Child)

John David Pfeifer, PHD, MD

Professor of Pathology and Immunology
(primary appointment)
Professor of Obstetrics and Gynecology
Vice Chairman for Clinical Affairs of
Pathology and Immunology

Christine T Pham, MD

Associate Professor of Medicine (primary
appointment)
Assistant Professor of Pathology and
Immunology

Daniel Phillips, MD, BE

Assistant Professor of Clinical Neurology

William J Phillips, MD

Assistant Professor of Clinical Medicine

Jane Phillips Conroy, MA, PHD

Professor of Anatomy (primary
appointment)
Professor of Anthropology

Gordon W Philpott

Prof Emeritus Of Surgery (Gen Surg)
(primary appointment)
Prof Emeritus Of Surgery (general Surg)
(primary appointment)

Timothy Charles Philpott, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Supote Phipatanakul, MD

Assistant Professor of Clinical
Otolaryngology

Laura Piccio, MD

Assistant Professor of Neurology

Jay Francis Piccirillo

Professor of Otolaryngology (primary
appointment)
Vice Chairman for Research, Dept of
Otolaryngology
Professor of Medicine
Professor of Occupational Therapy
Professor of Biostatistics

Daniel D Picus, MD

Professor of Radiology (primary
appointment)
Vice Chair for Diagnostic Radiology in
Radiology
Professor of Surgery (General Surgery)

Joel Picus, MD

Professor of Medicine

Stephen J Pieper, MD

Instructor in Clinical Medicine

James Vernon Piephoff, MD

Instructor in Clinical Radiation Oncology

John A Pierce, MD

Prof Emeritus Of Medicine

Linda J Pike, PHD

Professor of Biochemistry and Molecular
Biophysics

Aaron Juan Pile, MD

Instructor in Clinical Obstetrics and
Gynecology

Zachary Scott Pincus, PHD

Assistant Professor of Developmental
Biology
Assistant Professor of Genetics (primary
appointment)

Jorge Pineda, MD

Assistant Professor of Clinical Obstetrics and Gynecology

Roberta G Pineda, MHS

Assistant Professor of Occupational Therapy (primary appointment)
Assistant Professor of Pediatrics

Jose A Pineda Soto, MD

Associate Professor of Pediatrics (primary appointment)
Associate Professor of Neurology

Christopher James Pingel, MD

Instructor in Pediatrics

Bryan Douglas Piotrowski, MD

Instructor in Clinical Medicine

Terrence L Piper, MD

Assistant Professor of Clinical Orthopaedic Surgery

David William Piston, MS, PHD

Professor of Cell Biology and Physiology (primary appointment)
Head of the Department of Cell Biology and Physiology

Jessica E Pittman, M PH

Assistant Professor of Pediatrics

Helen Piwnica-Worms, PHD

Adjunct Professor of Cell Biology and Physiology

Mitchell R Platin, MD

Assistant Professor of Anesthesiology

Daniel S Plax, MD

Assistant Professor of Clinical Pediatrics

Kathryn L. Plax, MD

Professor of Pediatrics

Steven I Plax, MD

Prof Emeritus Of Clinical Pediatrics

Beatrice Plougastel Douglas, PHD

Instructor in Medicine

Santiago Boye Plurad Jr, MD

Assistant Professor of Clinical Pediatrics

Doug Pogue, MD

Instructor in Clinical Medicine

Robert Francis Poirier Jr, MD

Assistant Professor of Emergency Medicine in Medicine

Donovan Polack, MD

Assistant Professor of Clinical Medicine

Gregory Polites, MD

Associate Professor of Emergency Medicine in Medicine

Mary Politi, M PHIL, PHD

Assistant Professor of Surgery (General Surgery)

Juanita C Polito-Colvin, MD

Associate Professor of Clinical Pediatrics

Alex Politsmakher

Assistant Professor of Medicine

David Gerard Politte, MEE, D SC

Assistant Professor of Radiology

Kenneth S Polonsky, MBBCH

Adjunct Professor of Medicine

Katherine P Ponder, MD

Professor of Medicine (primary appointment)
Professor of Biochemistry and Molecular Biophysics

Makhawadee Pongruangporn, MD

Instructor in Clinical Medicine

Harish Ponnuru, MD

Instructor in Clinical Medicine

Gerald Raymond Popelka

Adjunct Professor of Otolaryngology

Steven Paul Poplack, MD

Associate Professor of Radiology

Lee S Portnoff, MA, MD

Assistant Professor of Clinical Medicine
(Dermatology)

Daniel E Potts, MD

Associate Professor of Clinical Medicine

Lisa Gayle Potts, PHD

Assistant Professor of Otolaryngology
(primary appointment)

Assistant Professor of Audiology and
Communication Sciences

William G Powderly, MD

J. William Campbell Professor of Medicine
(primary appointment)

Director for the Institute of Public Health

John A Powell, MD

Assistant Professor of Clinical Medicine
(Dermatology)

Matthew A Powell, MD

Associate Professor of Obstetrics and
Gynecology

Stephanie K Powell, MS, PHD

Instructor in Clinical Neurology

William John Powers, MD

Adjunct Professor of Neurology

Diana A Prablek, MD

Instructor in Clinical Medicine

Lawrence Prablek, MD

Instructor in Clinical Medicine

Simeon Prager

Assistant Professor of Clinical Medicine

Vajravel M Prasad

Adjunct Instructor in Medicine

Heidi Prather, DOST

Professor of Orthopaedic Surgery (primary
appointment)

Professor of Neurology

David J Prelutsky, MD

Associate Professor of Clinical Medicine

Arthur L Prenskey

Prof Emeritus Of Neurology

Rachel M. Presti, PHD

Assistant Professor of Medicine

Claudia Preuschoff, MD

Instructor in Clinical Pediatrics

Elizabeth F Pribor, MD

Associate Professor of Clinical Psychiatry

Madelon T Price, PHD

Resrch Prof Emeritus Of Neurobiology In
Psych

Rumi Kato Price, MA, PHD, MPE

Professor of Psychiatry

Adam L Prickett, MD

Instructor in Ophthalmology and Visual
Sciences

Joseph M Primrose, MD

Assistant Professor of Clinical Emergency
Medicine in Medicine

Fred W Prior, MA, PHD

Professor of Radiology

Jasmina Profirovic, PHD

Adjunct Assistant Professor of Cell
Biology and Physiology

Michael A Province, MA

Professor of Biostatistics
Professor of Genetics (primary
appointment)

John R. Pruett Jr, MD, PHD

Associate Professor of Psychiatry (Child
Psychiatry) (primary appointment)
Associate Professor of Radiology

Cassandra Michelle Pruitt, MD

Assistant Professor of Pediatrics

Robert Allen Pufahl Jr, PHD

Assistant Professor of Medicine

Aaron J Pugh

Adjunct Instructor in Medicine

Debra D Pulley, MME, MD

Associate Professor of Anesthesiology

James A Purdy, MA, PHD

Emeritus Professor of Radiation Oncology
(primary appointment)

Prof Emeritus of Radiation Oncology
(primary appointment)

Varun Puri, MS

Assistant Professor of Surgery
(Cardiothoracic Surgery)

Mabel Louise Purkerson

Prof Emeritus Of Medicine

Edward Puro, MS, PHD, MD

Assistant Professor of Clinical Medicine

Iskra Pusic, MD

Assistant Professor of Medicine

Peter J Putnam, MD

Assistant Professor of Clinical Pediatrics

Jenna M Putzel

Instructor in Clinical Pediatrics

Carlos Angel Puyo, MD

Assistant Professor of Anesthesiology

Usman Qayyum

Instructor in Clinical Medicine

Mujtaba A Qazi

Instructor in Clinical Ophthalmology and
Visual Sciences

Robert Louis Quaas, MD

Instructor in Clinical Pediatrics

Nishath Quader, MD

Assistant Professor of Medicine

Kimberly S Quayle, MD

Professor of Pediatrics

Patricia M Quinley, MD

Instructor in Clinical Medicine

Jennifer Quinn, MD

Instructor in Clinical Pediatrics

James D Quirk, MA

Assistant Professor of Radiology

Abdul H Qureshi, MS

Instructor in Clinical Medicine

John S Rabun, MD

Instructor in Clinical Psychiatry

Brad Alan Racette, MD

Vice Chair of Clinical Affairs, Department
of Neurology

Professor of Neurology (primary
appointment)

Susan B. Racette, PHD

Professor of Physical Therapy (primary
appointment)

Professor of Medicine

Janet Sue Rader, MD

Srinivasan Raghavan

Instructor in Clinical Medicine

Edward Floyd Ragsdale, MD

Instructor in Clinical Radiology

Mohammad H Rahman

Instructor in Clinical Pediatrics

Jodie Rai

Associate Professor of Clinical Obstetrics
and Gynecology

Muhammad Farooq Rai

Assistant Professor of Orthopaedic
Surgery

Marcus E Raichle, MD

Professor of Radiology (primary
appointment)

Professor of Biomedical Engineering

Professor of Psychology

Professor of Neurobiology

Professor of Neurology

Alan A and Edith L Wolff Distinguished

Professor of Medicine

Rithwick Rajagopal, MD

Assistant Professor of Ophthalmology and Visual Sciences

Mark S Rallo

Instructor in Ophthalmology and Visual Sciences

Kathleen G Raman, M PH, MD

Assistant Professor of Surgery (General Surgery)

Vidya Raman

Instructor in Clinical Pediatrics

Pathmawathy T Ramesvara, MS

Instructor in Clinical Pediatrics

Roxane M. Rampersad, MD

Assistant Professor of Obstetrics and Gynecology

Gwendalyn Jan Randolph, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Medicine

Prabha Ranganathan, MBBS

Associate Professor of Medicine

Diane Rankin, MD

Assistant Professor of Clinical Psychiatry

Dabeeru C Rao, MS, PHD

Professor of Biostatistics (primary appointment)

Director of the Division of Biostatistics
Tenure Held At-Large in the Medical School

Professor of Biostatistics in Psychiatry

Professor of Mathematics

Professor of Biostatistics in Genetics

Lesley Kathryn Rao, MD

Assistant Professor of Anesthesiology

Prabakar Kumar Rao, MD

Associate Professor of Ophthalmology and Visual Sciences

Radhika Rao, MD

Instructor in Clinical Psychiatry

Rakesh Rao, MBBS, MD

Assistant Professor of Pediatrics

Ricardo Rao, MD

Instructor in Clinical Surgery (General Surgery)

Srinivasan Dubagunta Rao

Adjunct Instructor in Medicine

U. Ramakrishna Rao, MS

Associate Professor of Medicine

Constantine A Raptis, MD

Assistant Professor of Radiology

Emanuel Rashed, MD

Instructor in Clinical Pediatrics

Antonella Luisa Rastelli, MD

Associate Professor of Medicine (primary appointment)

Associate Professor of Surgery (General Surgery)

Rashmi R Rathor, MD

Assistant Professor of Anesthesiology

Gary A Ratkin, MD

Associate Professor of Clinical Medicine (primary appointment)

Instructor in Clinical Radiation Oncology

Jebadurai Ratnaraj

Assistant Professor of Anesthesiology

Lee Ratner, MA, MD, PHD

Professor of Molecular Microbiology

Alan A and Edith L Wolff Professor of Oncology

Professor of Medicine (primary appointment)

Valerie Ratts, MD

Associate Dean for Admissions

Professor of Obstetrics and Gynecology (primary appointment)

Daniel Rauch, PHD

Assistant Professor of Medicine

V. Nathan Ravi, MS, PHD, MD

Professor of Energy, Environmental and
Chemical Engineering
Professor of Ophthalmology and Visual
Sciences (primary appointment)

Amy J. Ravin, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Wilson Z Ray, MD

Assistant Professor of Neurological
Surgery (primary appointment)
Assistant Professor of Orthopaedic
Surgery

Saadia Taufiq Raza, MD

Assistant Professor of Clinical Medicine
(Dermatology)

Syed A Raza, MD

Assistant Professor of Clinical Psychiatry
(Child Psychiatry)

Babak Razani, MD, PHD

Assistant Professor of Medicine (primary
appointment)
Assistant Professor of Pathology and
Immunology

Sheryl S Ream, MD

Instructor in Clinical Pediatrics

Timothy Patrick Rearden, MS, MD

Instructor in Clinical Medicine

Neil F. Rebbe, MD

Instructor in Clinical Pediatrics

Arhaanth D Reddy

Instructor in Clinical Medicine

Jonathan R Reed, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Nanette Rahee Reed, MD

Assistant Professor of Surgery (General
Surgery) (Pending Executive Faculty
Approval)

Timothy Reed

Instructor in Clinical Pediatrics

Katherine Marie Reeder, PHD

Adjunct Assistant Professor of Medicine

Dominic N Reeds, MD

Associate Professor of Medicine

Susan Robinson Reeds, MD

Instructor in Clinical Medicine

Lester T Reese, MD

Professor of Clinical Medicine
(Dermatology)

Kara Anne Regan, MD

Instructor in Medicine

David E Reichert, PHD

Associate Professor of Radiology

Phillip D Reichert, MD

Instructor in Clinical Pediatrics

Valerie C Reichert, MD

Assistant Professor of Radiology

Angela M. Reiersen, MD, MS PSYC

Assistant Professor of Psychiatry (Child
Psychiatry)

Margaret Reiker, PHD, MD

Instructor in Clinical Medicine

Angela Mary Reining

Instructor in Clinical Obstetrics and
Gynecology

Daniel B. Reising

Instructor in Clinical Psychiatry (Child
Psychiatry)

David Martin Reisler, MD, M PH

Assistant Professor of Clinical Neurology

Craig K Reiss, MD

Professor of Clinical Medicine

Jacqueline Levy Reiss, MD

Instructor in Clinical Medicine

Maria Sara Remedi, MS, PHD

Assistant Professor of Cell Biology and Physiology

Catherine R Remus, MSN, MD

Assistant Professor of Clinical Pediatrics

Kenneth Eugene Remy, MD

Assistant Professor of Pediatrics (Pending Executive Faculty Approval)

Dave A Rengachary, MD

Instructor in Clinical Neurology

Marvin Rennard, MD

Prof Emeritus Of Clinical Ob & Gyn

Hilary Elizabeth Lee Reno, MS, PHD, MD

Assistant Professor of Medicine

Stacey L. Rentschler, MS, PHD, MD

Assistant Professor of Developmental Biology

Assistant Professor of Medicine (primary appointment)

Nicholas R Renz, MD

Instructor in Emergency Medicine in Medicine

Michael P Rettig, PHD

Assistant Professor of Medicine

Alejandro Reyes

Adjunct Assistant Professor of Pathology and Immunology

George H Rezabek, DOST

Instructor in Clinical Pediatrics

Edward K Rhee, MD

Adjunct Assistant Professor of Pediatrics

Noor Riaz, MD

Instructor in Pediatrics

William M Ricci, MD

Professor of Orthopaedic Surgery

John P Rice, MA, PHD

Professor of Biostatistics

Professor of Genetics

Professor of Mathematics in Psychiatry (primary appointment)

Treva Kay Rice, MA, PHD

Professor of Biostatistics (primary appointment)

Professor of Psychiatry

Charles M Rice III, PHD

Adjunct Professor of Molecular Microbiology

Jason T. Rich, MD

Assistant Professor of Otolaryngology

Keith M Rich, MD

Professor of Neurological Surgery (primary appointment)

Professor of Neurobiology

Professor of Radiation Oncology

Michael W Rich, MD

Professor of Medicine

Lois F. Richard, PHD, MD

Assistant Professor of Medicine

Cheryl Richards, MA, PHD

Assistant Professor of Psychiatry

Frank O Richards, MD

Assistant Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)

Asst Prof Emeritus of Clin Surg (Gen Surg) (primary appointment)

Asst Prof Emeritus of Clin Surgery (Gen Surg) (primary appointment)

Thomas F Richardson

Professor of Psychiatry

Clare H Ridley, MD

Assistant Professor of Anesthesiology

William M Riedesel II, MD

Associate Professor of Clinical Psychiatry

Terrence E Riehl, MS, PHD

Associate Professor of Medicine

Amy Elizabeth Riek, MD

Assistant Professor of Medicine

K. Daniel Riew, MD

Professor of Neurological Surgery
Mildred B. Simon Distinguished Professor
of Orthopaedic Surgery (primary
appointment)

Robert D Rifkin, MD

Professor of Medicine

Shale M Rifkin

Assistant Professor of Clinical Surgery
(General Surgery)

Caron E Rigden, BFA, MD

Assistant Professor of Medicine

Lee A Rigg, MD

Associate Professor of Clinical Obstetrics
and Gynecology

Joan K. Riley, PHD

Assistant Professor of Obstetrics and
Gynecology (primary appointment)
Instructor in Medicine
Assistant Professor of Pediatrics

Julie L Ring, DDENT

Instructor in Clinical Otolaryngology (DDS)

Tracy Marie Riordan, MD

Instructor in Clinical Medicine

Stephen L. Ristvedt, PHD

Associate Professor of Psychiatry (primary
appointment)
Associate Professor of Anesthesiology

Jon H Ritter, MD

Professor of Pathology and Immunology
(Pending Executive Faculty Approval)

Terri L Riutcel, MD

Associate Professor of Neurology

Katherine Rivera-Spoljaric, MD, MS

Assistant Professor of Pediatrics

William L. Rives, MS, MD

Assistant Professor of Pediatrics

Robert V Rivlin, MS, DDENT

Instructor in Clinical Otolaryngology
(DMD)

Syed T Rizvi

Assistant Professor of Clinical Psychiatry
(Child Psychiatry)

Necita L Roa, MD

Associate Professor of Anesthesiology

Frank Edward Robbins, MD

Assistant Professor of Anesthesiology

Elisha D.O. Roberson, PHD

Instructor in Medicine (primary
appointment)
Instructor in Genetics

Clifford Grant Robinson, MD

Assistant Professor of Radiation Oncology

Janis B Robinson, MA, MD

Associate Professor of Clinical Pediatrics

Kathryn Ann Robinson, MD

Assistant Professor of Radiology

Paul Arthur Robiolio, M PHIL, MD

Assistant Professor of Clinical Medicine

Ann Marie Rockamann, MD

Instructor in Clinical Obstetrics and
Gynecology

Catherine M Roe, MA, PHD

Assistant Professor of Neurology

M. Reza Rofougaran, MD

Instructor in Clinical Medicine

John Deno Rogakos, MD

Instructor in Clinical Psychiatry (Child Psychiatry)

Buck Edward Rogers, MA, PHD

Professor of Radiation Oncology (primary appointment)

Professor of Radiology

Cynthia E Rogers

Assistant Professor of Psychiatry

H. Bryan Rogers, MD

Instructor in Clinical Medicine

Sharon Alicia Rogers, MS

Instructor in Medicine

Sandeep Rohatgi, MD

Instructor in Clinical Pediatrics

Michael Dennis Rohde, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

James R Rohrbaugh, MD

Associate Professor of Clinical Neurology (primary appointment)

Associate Professor of Clinical Pediatrics

John W Rohrbaugh, PHD

Associate Professor of Psychology

Professor of Psychiatry (primary appointment)

Chinda Vanasin Rojanasathit, MD

Assistant Professor of Clinical Obstetrics and Gynecology

Felice A Rolnick, MD

Instructor in Clinical Medicine

Rizwan Romee

Assistant Professor of Medicine

Arthur G. Romero, PHD

Associate Professor of Medicine

Charles L Roper, MD

Prof Emeritus Of Surgery (Cardio Surg) (primary appointment)

Prof Emeritus Of Surgery (cardiothoracic Surg) (primary appointment)

Ayelet Rosen, MD

Instructor in Pediatrics

Joan Lee Rosenbaum, MS, MD

Professor of Pediatrics

Louis J Rosenbaum, MD

Associate Professor of Clinical

Ophthalmology and Visual Sciences

Isabel L Rosenbloom, MD

Associate Professor of Clinical Pediatrics

Daniel B Rosenbluth, MD

Professor of Medicine (primary appointment)

Professor of Pediatrics

Tracey C and William J Marshall

Professor of Medicine

Anna Roshal, MD

Assistant Professor of Medicine

Ilana Shaina Rosman, MD

Assistant Professor of Pathology and Immunology

Assistant Professor of Medicine

(Dermatology) (primary appointment)

Kelly Ross, MD

Assistant Professor of Pediatrics

William J Ross, MD

Associate Professor of Clinical Pediatrics

Willie Ray Ross, M PH

Associate Dean for Diversity (primary appointment)

Professor of Medicine

Bruce J Roth, MD

Professor of Medicine

Robyn Roth

Instructor in Cell Biology and Physiology

Robert J Rothbaum, MD

Centennial Professor of Pediatrics

Marcos Rothstein, MD

Professor of Medicine

Mark A Rothstein, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Joseph L Roti Roti, PHD

Prof Emeritus of Radiation Oncology

Ernest Tuttle Rouse III, MD

Instructor in Clinical Medicine

Jeremy Rower, MD

Instructor in Clinical Medicine

Tapan Roy, MS

Instructor in Clinical Radiation Oncology

Henry D Royal, MD

Professor of Radiology

Ella Rozin

Instructor in Clinical Pediatrics

Brian G Rubin, MD

Professor of Surgery (General Surgery)
(primary appointment)
Professor of Radiology

David A Rubin, MD

Professor of Radiology

Deborah C Rubin, MD

Professor of Medicine (primary
appointment)
Professor of Developmental Biology

Erin Rubin, MD

Associate Professor of Pathology and
Immunology

Eugene Harold Rubin, PHD

Vice Chairman for Education, Department
of Psychiatry
Professor of Psychology (courtesy)
Professor of Psychiatry (primary
appointment)

Joshua Bennett Rubin, MS, MD, PHD

Associate Professor of Neurology
Associate Professor of Pediatrics (primary
appointment)

Associate Professor of Neurobiology

Myra L. Rubio, MD

Assistant Professor of Medicine

Christina M Ruby-Ziegler, MD

Assistant Professor of Clinical Pediatrics

John Conrad Rudersdorf

Instructor in Clinical Psychiatry (Child)

Martin D Rudloff, MD

Assistant Professor of Clinical Pediatrics

David Rudnick, MD, PHD

Associate Professor of Developmental
Biology
Associate Professor of Pediatrics (primary
appointment)

Daniel G. Rudolph, MD

Instructor in Clinical Pediatrics

Karen Elizabeth Ruecker

Instructor in Clinical Pediatrics

Albert F Ruehl, MS, MD

Assistant Professor of Clinical
Otolaryngology

Michael B Rumelt, MD

Assistant Professor Emeritus of Clinical
Ophthalmology and Visual Sciences
(primary appointment)
Asst Prof Emer of Clinical Ophthal & Vis
Sci (primary appointment)

Brent E Ruoff, MD

Associate Professor of Emergency
Medicine in Medicine

Diane Mary Rup, MA

Instructor in Clinical Pediatrics

Michael B Rusche

Adjunct Instructor in Medicine

John Hall Russell

Professor of Developmental Biology
(primary appointment)
Associate Dean for Graduate Education
for the Division of Biology and Biomedical
Sciences

Tonya D Russell, MD

Associate Professor of Medicine

James Rutherford, MD

Assistant Professor Emeritus of Clinical
Psychiatry (primary appointment)
Asst Prof Emeritus of Clinical Psychiatry
(primary appointment)

Mark A Rutherford, PHD

Assistant Professor of Otolaryngology

Rimma Ruvinskaya, MD

Associate Professor of Neurology

Joseph F Ruwitch Jr, MD

Professor of Clinical Medicine

Marianna B Ruzinova, PHD, MD

Assistant Professor of Pathology and
Immunology

Jo-Ellyn M Ryall, MD

Associate Professor of Clinical Psychiatry

Lisa A Ryan

Instructor in Clinical Pediatrics

Kenneth J Rybicki, MS, PHD, MD

Instructor in Clinical Medicine

Robin C Ryther, PHD

Assistant Professor of Neurology

Nael E. A. Saad, MBBCH

Assistant Professor of Radiology (primary
appointment)
Assistant Professor of Surgery (General
Surgery)

Frank Scott Saccone, PHD

Associate Professor of Psychiatry

Nancy L. Saccone, MS, PHD

Associate Professor of Genetics (primary
appointment)

Associate Professor of Biostatistics

Jerome D Sachar, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Molly Sachdev

Assistant Professor of Medicine (Pending
Executive Faculty Approval)

Adnan Sadiq, MD

Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Surgery
(Cardiothoracic Surgery)

J. Evan Sadler, PHD, MD

Professor of Medicine (primary
appointment)
Professor of Biochemistry and Molecular
Biophysics

Ali Sadoughi, MD

Instructor in Medicine

Mehrdad Saeed-Vafa, MD

Instructor in Clinical Medicine

Angela K Saettele, MD

Instructor in Anesthesiology

Shabbir H Safdar

Professor of Clinical Medicine

Scott Geoffrey Sagett

Instructor in Clinical Ophthalmology and
Visual Sciences

Sonny Satnam Saggarr

Instructor in Clinical Medicine

Sudha Saha, MD

Instructor in Clinical Obstetrics and
Gynecology

Shirley Ann Sahrman, MA, PHD

Professor Emeritus of Physical Therapy
(primary appointment)

Prof Emeritus of Physical Therapy
(primary appointment)

Jacqueline Mitsouko Saito, MD
Assistant Professor of Surgery (Pediatric
Surgery)

Kaori A. Sakurai
Instructor in Clinical Medicine

Monica Sala-Rabanal, PHD
Instructor in Cell Biology and Physiology

Berette A Salazar, MD
Assistant Professor of Clinical Psychiatry

Llewellyn Sale Jr, MD
Prof Emeritus Of Clinical Medicine

Lawrence B Salkoff, PHD
Professor of Genetics
Professor of Neurobiology (primary
appointment)

Mickey L Salmon, MD
Instr Emeritus In Clinical Ophthal & Vls
Sci

Alec N Salt, MS, PHD
Professor of Otolaryngology

Christine Joan Salter, DC, MD
Instructor in Clinical Medicine

Robert J Saltman, MD
Associate Professor of Clinical Medicine

John Mark Samet, MD
Instructor in Clinical Medicine

Dmitri Samovski, PHD
Instructor in Medicine

Charles Michael Samson, MD
Assistant Professor of Pediatrics

Lawrence E Samuels, MD
Instructor in Clinical Medicine
(Dermatology)

Souzan Sanati, MD

Assistant Professor of Pathology and
Immunology

Guadalupe Sanchez, MD
Instructor in Clinical Medicine
(Dermatology)

Luis A Sanchez, MD
Professor of Surgery (General Surgery)
(primary appointment)
Gregorio A. Sicard Distinguished
Professor
Professor of Radiology

Linda J Sandell, MS, PHD
Mildred B Simon Research Professor of
Orthopaedic Surgery (primary
appointment)
Professor of Cell Biology and Physiology

Gretchen A Sander, MD
Instructor in Clinical Pediatrics

Gurdarshan Singh Sandhu, MD
Assistant Professor of Surgery (Urologic
Surgery)

Mark Steven Sands, PHD
Professor of Medicine (primary
appointment)
Professor of Genetics

Kristen Marie Sanfilippo, MHS
Instructor in Medicine

Daniel Jose Santa Cruz, MD
Instructor in Clinical Medicine
(Dermatology)

Lakshmi Santanam, PHD
Associate Professor of Radiation
Oncology

Celia Maria Santi Grau Perez, MD, PHD
Assistant Professor of Neurobiology

Paul Santiago, MD
Associate Professor of Neurological
Surgery (primary appointment)

Associate Professor of Orthopaedic Surgery

Carlos Alfonso Quilala Santos, MD

Assistant Professor of Medicine

Richard Albert Santos, PHD

Assistant Professor of Medicine

Evelio E. Sardina, MS, PHD, MD

Instructor in Clinical Medicine

Carolyn E. Sartor, MS, PHD

Adjunct Assistant Professor of Psychiatry

Norman Sartorius

Adjunct Professor of Psychiatry

Yo Sasaki, MS, PHD

Assistant Professor of Genetics

Diana M Sater-Roukoz

Instructor in Clinical Pediatrics

Chihiro Sato, MS, PHD

Instructor in Neurology

Donald C Sauer

Assistant Professor Emeritus of Clinical Surgery (General Surgery) (primary appointment)

Asst Prof Emeritus of Clin Surg (Gen Surg) (primary appointment)

Scott Saunders, MD, PHD

Associate Professor of Pediatrics (primary appointment)

Associate Professor of Developmental Biology

Brian J. Saville, MD

Instructor in Clinical Pediatrics

Blaine M Sayre, MD, M PH

Professor of Clinical Pediatrics

Gregory Stephen Sayuk, MD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Psychiatry

Lawrence R Schacht, MD

Instructor in Clinical Medicine

Joseph Schachter, MD

Assistant Professor of Clinical Pediatrics

Anneliese M Schaefer, BBA, PHD

Associate Professor of Neurology

Andras Schaffer, MD, PHD

Assistant Professor of Pathology and Immunology (primary appointment)

Assistant Professor of Medicine (Dermatology)

Jean E. Schaffer, MD

Virginia Minnich Distinguished Professor of Medicine (primary appointment)

Professor of Developmental Biology

Gerwin Schalk

Adjunct Assistant Professor of Neurological Surgery

Richard O. Schamp, MD

Instructor in Clinical Medicine

Kenneth B Schechtman, MS, MA

Associate Professor of Biostatistics (primary appointment)

Research Associate Professor of Medicine
Tenure Held At-Large in the Medical School

Tim B Schedl, PHD

Professor of Genetics

Jennifer Lynn Scheer, MD

Instructor in Clinical Medicine

Robert F Scheible, MD

Assistant Professor of Clinical Radiology

Lawrence M. Scheier

Adjunct Professor of Psychiatry

Stefano Schena, MD, PHD

Assistant Professor of Surgery (Cardiothoracic Surgery)

Mark Scheperle, MD

Instructor in Clinical Medicine

Alvin K Schergen, MD

Instructor in Clinical Medicine

Jeffrey Frank Scherrer, PHD

Adjunct Associate Professor of Psychiatry

Thomas Schiff, DDENT

Professor Emeritus of Diagnostic Services

Joel D. Schilling, PHD, MD

Assistant Professor of Medicine (primary appointment)

Assistant Professor of Pathology and Immunology

Suzanne E. Schindler, MD, PHD

Instructor in Neurology

Bradley L Schlaggar, MD, PHD

Professor of Radiology

Professor of Psychiatry

A Ernest and Jane G Stein Professor of Neurology (primary appointment)

Professor of Pediatrics

Professor of Neurobiology

Howard J Schlansky, MD

Instructor in Clinical Pediatrics

Milton J Schlesinger, PHD

Prof Emeritus Of Molecular Microbiology

Paul Henry Schlesinger, MD, PHD

Associate Professor of Cell Biology and Physiology

Sondra Schlesinger, PHD

Prof Emeritus Of Molecular Microbiology

Margaret Ann Schmandt, MD

Associate Professor of Clinical Pediatrics

Tania L Schmid, MD

Instructor in Clinical Medicine

Robert Edward Schmidt, MD, PHD

Professor of Pathology and Immunology

Richard Urban Schmidt Jr

Instructor in Emergency Medicine in Medicine

David Schnadower, MD, M PH

Associate Professor of Pediatrics

John Stone Schneider, BBA, MD

Assistant Professor of Otolaryngology

Robert Jay Schneider, MD

Assistant Professor of Clinical Medicine

Jacquelyn C Schnidman, MD

Instructor in Clinical Pediatrics

Erin R. Schockett, MD

Instructor in Clinical Medicine

Noah C Schoenberg, MD

Instructor in Medicine

Perry Lee Schoenecker, MD

Professor of Orthopaedic Surgery

James R Schreiber, MD

Prof Emeritus of Ob & Gyn

Robert D Schreiber, PHD

Professor of Molecular Microbiology

Alumni Professor of Pathology and Immunology (primary appointment)

Richard E Schrick, MEE, MD

Instructor in Clinical Otolaryngology

Charles R Schrock, MD

Associate Professor of Anesthesiology

Mark Andrew Schroeder, MD

Assistant Professor of Medicine

Douglas J Schuerer, MD

Associate Professor of Surgery (General Surgery)

Richard B Schuessler, MS, PHD

Professor of Surgery (Cardiothoracic Surgery) (primary appointment)

Associate Professor of Biomedical Engineering

Laura Graves Schuettpelz, PHD, MD

Assistant Professor of Developmental Biology
Assistant Professor of Pediatrics (primary appointment)

Alexander E Schuetz, MD

Instructor in Clinical Medicine

Maryls E Schuh, MD

Instructor in Clinical Surgery (General Surgery)

Jeffrey I Schulman, MD, MBA

Instructor in Clinical Psychiatry (Child Psychiatry)

Earl R Schultz, MD

Associate Professor of Clinical Psychiatry
Professor of Clinical Neurology (primary appointment)

Stephen Schuman, MD

Instructor in Clinical Medicine

Frederick W Schwagger, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Alan L Schwartz, PHD, MD

Head of the Department of Pediatrics
Professor of Developmental Biology
Harriet B Spoehrer Professor of Pediatrics (primary appointment)

Benjamin D Schwartz, PHD, MD

Adjunct Professor of Medicine
Professor of Clinical Medicine (primary appointment)

David B Schwartz, PHD, MA, MD

Associate Professor of Medicine

Evan Stuart Schwarz

Assistant Professor of Emergency Medicine in Medicine (Pending Executive Faculty Approval)

Julie K Schwarz, MD, PHD

Assistant Professor of Cell Biology and Physiology
Assistant Professor of Radiation Oncology (primary appointment)

Sally J Schwarz, MS

Professor of Radiology

Allen Sclaroff, DENT

Professor of Clinical Otolaryngology (Oral Surgery)

Leslie A Scott

Instructor in Clinical Obstetrics and Gynecology

Mitchell G Scott, MS, PHD

Clinical Research Assistant Professor of Medicine
Professor of Pathology and Immunology (primary appointment)

Lynne M Seacord, MD

Associate Professor of Medicine

Homayoun Sedighi, DENT

Assistant Professor of Clinical Surgery (Plastic and Reconstructive Surgery)

Colleen Erika Seematter

Instructor in Clinical Pediatrics

Christopher G Seep, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Adelita Segovia Langley

Assistant Professor of Clinical Psychiatry (Child Psychiatry)

David Brian Seibel, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Karen Seibert, MA, PHD

Professor of Pathology and Immunology (primary appointment)
Professor of Genetics

David Seltzer, MD

Assistant Professor of Emergency
Medicine in Medicine

Jay R Seltzer, MD

Assistant Professor of Clinical Medicine

Clay F Semenkovich, MD

Professor of Medicine (primary
appointment)

Herbert S Gasser Professor

Professor of Cell Biology and Physiology

Janice Semenkovich, MD

Associate Professor of Radiology

Deepali Prabir Sen, MBBS, MD

Assistant Professor of Medicine

Abdoulaye Sene, PHD

Instructor in Ophthalmology and Visual
Sciences

Robert M Senior, MD, MLA

Professor of Cell Biology and Physiology

Professor of Medicine (primary
appointment)

Debra L Seoane, MD

Instructor in Clinical Surgery (General
Surgery)

Diane S Sepich, PHD

Assistant Professor of Developmental
Biology

Joseph Michael Seria, MD

Instructor in Clinical Medicine

James Serot, MD

Assistant Professor of Anesthesiology

Harvey Serota, MD

Instructor in Clinical Medicine

James F Sertl, MD

Instructor in Clinical Medicine

Donald G Sessions

Prof Emeritus Of Otolaryngology

Martha Papay Sewall, MD

Instructor in Clinical Pediatrics

Bryan Norbert Sewing, MD

Instructor in Psychiatry (Pending Dean's
Approval)

Anne R Seyer, MD

Instructor in Clinical Obstetrics and
Gynecology

Gary D Shackelford, MD

Prof Emeritus of Radiology

Penelope G Shackelford, MD

Prof Emeritus Of Pediatrics

Cherilynn Maria Reynolds Shadding

Academic Rank held in Genetics (primary
appointment)

Assistant Professor of Genetics

Jeffery Scott Shafer, MD

Adjunct Instructor in Emergency Medicine
in Medicine

Gaurav Kirit Shah, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Manthan Shah

Instructor in Ophthalmology and Visual
Sciences

Purvi Shah, MD

Assistant Professor of Pediatrics

Shabana Shahanavaz, MD

Assistant Professor of Pediatrics

Sonia Malhotra Shahrawat, MD

Instructor in Anesthesiology

Jahangheer S. Shaik, MS, MS1, PHD

Instructor in Molecular Microbiology

Courtney Shands III, MD

Instructor in Clinical Surgery (Urologic
Surgery)

Karl Shanker, DDENT

Instructor in Clinical Otolaryngology (DDS)

Anthony Lee Shanks II, MD

Assistant Professor of Obstetrics and Gynecology

Benjamin J. Shannon, PHD

Instructor in Radiology

William D Shannon, MS

Professor of Biostatistics
Professor of Biostatistics in Medicine (primary appointment)
Assistant Professor of Biostatistics in Mathematics

Jieya Shao, PHD

Assistant Professor of Medicine

Larry J Shapiro, MD

Executive Vice Chancellor for Medical Affairs (primary appointment)
Dean of the School of Medicine
Spencer T and Ann W Olin Distinguished Professor of Pediatrics

Akash Sharma, MD

Assistant Professor of Radiology

Anshuman Sharma, MD

Professor of Anesthesiology

Aseem Sharma, MBBS

Associate Professor of Radiology

Girdhar G Sharma, MS1

Assistant Professor of Radiation Oncology

Rajiv Kumar Sharma

Adjunct Instructor in Medicine

Vijay Sharma, MS, PHD

Associate Professor of Radiology

Gerald Stephen Shatz, MD

Assistant Professor of Clinical Medicine

Andrey S Shaw, MD

Howard Hughes Medical Institute
Investigator in Pathology and Immunology

Emil R. Unanue Professor of Immunobiology in Pathology and Immunology (primary appointment)

Eleanor Maria Shaw, MD

Assistant Professor of Clinical Pediatrics

Paul Joseph Shaw, MA, PHD

Associate Professor of Neurobiology

Nidal Shawahin

Instructor in Clinical Medicine

Kathleen C Sheehan, PHD

Assistant Professor of Pathology and Immunology

Vidal T. Sheen, MD

Instructor in Clinical Medicine

Paul W Sheffner, MD

Assistant Professor of Clinical Psychiatry

David M. Sheinbein, MD

Associate Professor of Medicine (Dermatology)

Amy Lynn Sheldahl, MD

Assistant Professor of Medicine

Christian T Sheline, PHD

Adjunct Research Associate Professor of Neurology

Megan Elizabeth Shelton

Instructor in Clinical Pediatrics

Hua Shen, MD, MS, PHD

Instructor in Orthopaedic Surgery

Jie Shen, MS, PHD

Instructor in Orthopaedic Surgery

Mounir M Shenouda

Instructor in Clinical Medicine

Shalini Shenoy, MBBS, MD

Professor of Pediatrics

Surendra Shenoy, MD, PHD

Professor of Surgery (General Surgery)

Andrew John Shepherd, PHD

Instructor in Anesthesiology

Ross William Shepherd, MBBS, MD

Adjunct Professor of Pediatrics

James Banks Shepherd III, MD

Associate Professor of Ophthalmology and Visual Sciences

John Joseph Sheridan, MD

Instructor in Clinical Orthopaedic Surgery

Anup Shashindra Shetty, MD

Instructor in Radiology

Priya Saigal Shetty, MD

Instructor in Clinical Ophthalmology and Visual Sciences

Arsham Sheybani, MD

Assistant Professor of Ophthalmology and Visual Sciences

Elizabeth Fowler Sheybani, MD

Instructor in Radiology

Steven M Shields, MD

Assistant Professor of Clinical Ophthalmology and Visual Sciences

Alan Shiels, PHD

Professor of Ophthalmology and Visual Sciences (primary appointment)
Professor of Genetics

Adrian Shifren, MBBCH, MS

Assistant Professor of Medicine

Joshua S Shimony, PHD, MD

Associate Professor of Radiology

Haina Shin, PHD

Assistant Professor of Medicine (Pending Executive Faculty Approval)

Jimann Shin, MS, PHD

Instructor in Developmental Biology

Marwan Shinawi, MD

Associate Professor of Pediatrics

Cara L Shirai, MS, PHD

Instructor in Medicine

Min-Yi Katherin Shiue, MD

Instructor in Clinical Pediatrics

Koresh Isaac Shoghi, MS, PHD

Associate Professor of Radiology

Monica Shokeen, MBA, PHD

Assistant Professor of Radiology

Bernard L Shore, MD

Professor of Clinical Medicine

Howard Newton Short, MD

Instructor in Clinical Ophthalmology and Visual Sciences

Mary Ann Shortal, MS

Adjunct Instructor in Audiology and Communication Sciences

Michael Shoykhet, PHD, MD

Assistant Professor of Pediatrics

Hui Hua Shu, MD

Instructor in Radiology

Lovy Shukla-Solus, MD

Instructor in Pediatrics

Gordon L Shulman, MS, PHD

Professor of Neurology

Robert B Shuman, MD

Associate Professor of Clinical Medicine

Sherry E Shuman

Associate Professor of Clinical Medicine

Timothy L Shurtleff, MS

Instructor in Neurosurgery

Instructor in Occupational Therapy (primary appointment)

Eli R Shuter, MD

Associate Professor of Clinical Neurology

Laurence David Sibley, PHD

Professor of Molecular Microbiology (primary appointment)

Alan A and Edith L Wolff Distinguished Professor

Gregorio A Sicard, MD

Professor of Surgery (General Surgery) (primary appointment)
Professor of Radiology

Barry Alan Siegel, MD

Professor of Radiology (primary appointment)
Vice Chair for Nuclear Medicine in Radiology
Professor of Medicine

Cary Lynn Siegel, MD

Professor of Radiology

Marilyn J Siegel, MD

Professor of Radiology in Pediatrics
Professor of Radiology (primary appointment)

Carla J Siegfried, MD

Professor of Ophthalmology and Visual Sciences

Christine A Sigman, MD

Instructor in Clinical Medicine

Charles D Signorelli, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Hrvoje Sikic, MS, PHD

Visiting Professor of Ophthalmology and Visual Sciences

Jennifer N Silva, MD

Assistant Professor of Pediatrics

Matthew J Silva, ME, PHD

Julia and Walter R Peterson Professor of Orthopaedic Research (primary appointment)
Assistant Professor of Biomedical Engineering

Todd B Silverman

Instructor in Clinical Neurology

Barbara Sue Silverstein, MSW, PHD

Assistant Professor of Clinical Psychiatry (Child Psychiatry)

Julie Martha Silverstein, MD

Assistant Professor of Medicine (primary appointment)
Assistant Professor of Neurological Surgery

Randy B Silverstein

Instructor in Clinical Medicine

Nicholas James Silvestros, OD

Instructor in Ophthalmology and Visual Sciences

Matthew Leon Silveira, MD, MS1

Assistant Professor of Surgery (General Surgery)

Connie Darlene Simmons

Instructor in Clinical Pediatrics

Joel Rahman Simmons

Assistant Professor of Radiation Oncology

Nathan M Simon, MS, MD

Professor Emeritus of Clinical Psychiatry (primary appointment)
Prof Emeritus of Clinical Psychiatry (primary appointment)

Paul S Simons, MD

Associate Professor of Pediatrics

Joseph Rogers Simpson, PHD, MD

Professor Emeritus of Radiation Oncology (primary appointment)
Prof Emeritus of Radiation Oncology (primary appointment)

Kathleen Elizabeth Simpson, MD

Assistant Professor of Pediatrics

Reed Earl Simpson, MD

Assistant Professor of Clinical Psychiatry

David R Sinacore, MHS, PHD

Professor of Medicine
Professor of Physical Therapy (primary appointment)

Associate Director of Postdoctoral Fellowships in Physical Therapy

Robert W Sindel, MD

Instructor in Clinical Medicine

Sanford S Sineff, MD

Assistant Professor of Emergency Medicine in Medicine

Barry A. Singer

Assistant Professor of Clinical Neurology

Gary Singer, MD

Assistant Professor of Clinical Medicine

Gautam K Singh, MBBS, MD

Professor of Pediatrics

Gurcharan J Singh, MD

Instructor in Clinical Medicine

Itender Singh, PHD

Assistant Professor of Neurological Surgery

Jasvinder Singh, MD

Associate Professor of Medicine

Preet P Singh, MBBS

Assistant Professor of Medicine (Pending Executive Faculty Approval)

Carl Jeffrey Sippel, PHD, MD

Assistant Professor of Clinical Pediatrics

David Siroospour, MD

Assistant Professor of Clinical Surgery (General Surgery)

James C Sisk, MD

Assoc Prof Emeritus Of Clin Medicine (Derm)

Richard G Sisson, MD

Assoc Prof Emeritus Of Clin Surg (Gen Surg) (primary appointment)

Assoc Prof Emeritus Of Clinical Surg (gen Sur) (primary appointment)

Kelsey Alayne Sisti, MD

Instructor in Pediatrics

Harold B Sitrin, MD

Assistant Professor of Clinical Pediatrics

Clayton D. Skaggs, DC

Adjunct Instructor in Obstetrics and Gynecology

James B Skeath, PHD

Professor of Genetics

Celette Sugg Skinner, MA, PHD

Adjunct Assistant Professor of Radiology

Donald A Skor, MD

Professor of Clinical Medicine

Alan Joseph Skoultchi, MS, MD

Instructor in Clinical Pediatrics

Eduardo Slatopolsky, MD

Joseph Friedman Professor of Renal Diseases in Medicine

Barry Sleckman, MD

Conan Professor of Pathology and Immunology

Bradley Thomas Smith

Instructor in Clinical Ophthalmology and Visual Sciences

Carl Hugh Smith, MD

Prof Emeritus of Pediatrics

Carolyn Anne Delaney Smith, MD

Assistant Professor of Pediatrics

Emily Louise Smith, MD

Asst Prof Emeritus of Radiology

Gordon Ian Smith, MS, PHD

Assistant Professor of Medicine

James B Smith, MD

Assoc Prof Emeritus Of Clinical Psychiatry

Jennifer H. Smith, MD

Instructor in Clinical Obstetrics and Gynecology

Joshua C Smith

Instructor in Clinical Pediatrics

Kirk E Smith, AS

Instructor in Radiology

Matthew Vernon Smith, MD

Assistant Professor of Orthopaedic Surgery

Morton Edward Smith, MD

Associate Dean Emeritus for Post-Graduate Education
Professor Emeritus of Ophthalmology and Visual Sciences (primary appointment)
Lecturer in Ophthalmology and Visual Sciences
Lecturer in Pathology and Immunology
Prof Emeritus Of Ophthalmol & Vls Sci (primary appointment)

Nancy Bloom Smith, MS, DPT

Associate Professor of Orthopaedic Surgery
Associate Professor of Physical Therapy (primary appointment)

Peter Gaillard Smith, ME, PHD, MD

Assistant Professor of Clinical Otolaryngology

Raymond P Smith

Instructor in Clinical Medicine

Stacey L Smith, MD

Assistant Professor of Clinical Psychiatry

Timothy Robert Smith, MD

Instructor in Clinical Medicine

Timothy W. Smith, MD

Associate Professor of Medicine

Christopher D Smyser, MD

Assistant Professor of Neurology

Matthew D Smyth, MD

Associate Professor of Neurological Surgery (primary appointment)
Associate Professor of Pediatrics

Barbara Joy Snider, MD, PHD

Associate Professor of Neurology

Jules M Snitzer, DDENT, MS

Instructor in Clinical Otolaryngology (DDS)

Claud Randall Snowden, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Abraham Z Snyder, PHD, MD

Associate Professor of Neurology
Professor of Radiology (primary appointment)

Lawrence H Snyder, AB, MS

Professor of Neurobiology

Michael C Snyder

Adjunct Instructor in Medicine

Alison K Snyder-Warwick

Assistant Professor of Surgery (Plastic and Reconstructive Surgery)

Rupinder Kaur Sodhi, MD

Instructor in Medicine

Allen D Soffer, MD

Instructor in Clinical Medicine

Richard S Sohn, MD

Assoc Prof Emeritus of Neurology

Nareshkumar J Solanki

Assistant Professor of Clinical Pediatrics

Lilianna Solnica-Krezel, MS, PHD

Professor of Developmental Biology (primary appointment)
Head of the Department of Developmental Biology
Alan A and Edith L Wolff Professor of Developmental Biology

Stephanie Rose Solomon, PHD

Adjunct Assistant Professor of Medicine

Steven Lee Solomon

Assistant Professor of Clinical Radiology

Rand Washburn Sommer, MD

Associate Professor of Clinical Medicine

Mitchell S. Sommers, PHD

Professor of Psychology (primary appointment)

Chair, Human Research Protection Office

Richard Brian Sommerville, MD

Assistant Professor of Neurology

Sheng-Kwei Song, MS, PHD

Professor of Radiology

Tammy Shim Sonn, MD

Associate Professor of Obstetrics and Gynecology

Umang Sood, MD

Instructor in Pediatrics

Craig H Sorce, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Florentina Soto Lucas, PHD

Assistant Professor of Ophthalmology and Visual Sciences

Hani Charles Soudah, MD, PHD

Associate Professor of Clinical Medicine

William F Southworth, MD

Assistant Professor of Clinical Medicine

James Joseph Spadaro Jr, MD

Assistant Professor of Clinical Medicine

Michael L Spearman, MD

Instructor in Clinical Medicine

Gershon J Spector, MD

Professor of Otolaryngology

William Marshall Spees, PHD

Assistant Professor of Radiology

David H. Spencer, PHD, MD

Instructor in Pathology and Immunology
(Pending Dean's Approval)

John Spertus

Adjunct Professor of Medicine

Tara V. Spevack, MS, PHD

Instructor in Clinical Neurology

Robert D Spewak, MD

Instructor in Clinical Pediatrics

Craig A Spiegel, MD

Assistant Professor of Clinical Pediatrics

Timothy Eric Spiegel, MD

Assistant Professor of Psychiatry (Child Psychiatry)

Philip Charles Spinella, MD

Associate Professor of Pediatrics

John Charles Spitler, MD

Assistant Professor of Anesthesiology

Dirk M Spitzer, PHD

Instructor in Surgery (General Surgery)

Theresa M Spitznagle, MHS, DPT

Associate Professor of Physical Therapy
(primary appointment)

Associate Professor of Obstetrics and Gynecology

Jennifer E. Sprague, MD, PHD

Instructor in Pediatrics

Mark H Spurrier, MD

Instructor in Clinical Ophthalmology and Visual Sciences

Mythili Srinivasan, MS, PHD, MD

Associate Professor of Pediatrics

Chotchai Srisuro, MD

Associate Professor of Clinical Obstetrics and Gynecology

Danielle R St Leger

Instructor in Clinical Pediatrics

Erik Christian Stabell, MD

Instructor in Clinical Medicine

Robert Peter Stachecki, MD

Instructor in Radiology

Kristin Voellinger Stahl, MD

Instructor in Clinical Neurology

Philip Damien Stahl, PHD

Edward Mallinckrodt Jr Professor
Emeritus

Klaus J Staisch, MD

Assoc Prof Emeritus of Clinical Ob & Gyn

Christina Leigh Stallings, MA, MS, PHD

Assistant Professor of Molecular
Microbiology

Sarah A Stange, MD

Instructor in Pediatrics

Thaddeus S. Stappenbeck, PHD, MD

Professor of Pathology and Immunology
(primary appointment)
Professor of Developmental Biology

Susan L Stark, MS, PHD

Assistant Professor of Occupational
Therapy (primary appointment)
Assistant Professor of Neurology

Norman P Steele, MD

Instructor in Clinical Pediatrics

Katherine Marie Steffen, MD, MHS

Instructor in Pediatrics

Alan Joel Stein, MD

Assistant Professor of Clinical Surgery
(Urologic Surgery)

Paul M Stein, MD

Professor of Clinical Medicine

Phyllis K Stein, M ED, PHD

Associate Professor of Medicine

Richard Ian Stein, PHD

Assistant Professor of Medicine

Joseph H Steinbach, PHD

Russell and Mary Shelden Professor of
Anesthesiology (primary appointment)
Professor of Neurobiology
Professor of Biomedical Engineering

Holly L Steiner, MD

Assistant Professor of Obstetrics and
Gynecology

Leena Lata Stemler, MD

Instructor in Pediatrics

James Derek Stensby, MD

Instructor in Radiology

William F Stenson, MD

Dr Nicholas V Costrini Professor of
Medicine

Barbara B Sterkel

Adjunct Associate Professor of Medicine

Randall S Sterkel, MD

Assistant Professor of Clinical Pediatrics

Kara Ellen Sternhell-Blackwell, MA, MD

Assistant Professor of Medicine
(Dermatology)

Lynne M Sterni, MD

Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Pediatrics

Tracey Wagner Stevens, MD

Assistant Professor of Anesthesiology

Sheila Stewart-Wigglesworth, PHD

Associate Professor of Cell Biology and
Physiology (primary appointment)
Associate Professor of Medicine

Arthur Waldo Stickle Jr, MD

Asst Prof Emeritus Of Clin Ophthalmol &
VIs Sc (primary appointment)
Asst Prof Emeritus Of Clin Ophthal & VIs
Sci (primary appointment)

Anita R Stiffelman

Associate Professor of Clinical Pediatrics

Wayne A Stillings, MD

Assistant Professor of Clinical Psychiatry

Jennifer S Stith, MS, PHD, MSW

Associate Director of Professional Curriculum in Physical Therapy
Associate Professor of Physical Therapy (primary appointment)
Division Director for Education in Physical Therapy
Associate Professor of Neurology

Nathan O. Stitzel, MD, PHD

Instructor in Medicine

Marissa Christine Stock, MD

Keith Evan Stockerl-Goldstein, MD

Associate Professor of Medicine

Daniel Charles Stoeckel

Instructor in Clinical Surgery

James Andrew Stokes, MD

Instructor in Clinical Medicine

Janis Marie Stoll, MD

Instructor in Pediatrics

Michael Gary Stone, MD

Instructor in Clinical Medicine

John A Stoppale, MD

Instructor in Clinical Obstetrics and Gynecology

Gregory A Storch, MD

Ruth L. Siteman Professor of Pediatrics (primary appointment)
Professor of Molecular Microbiology
Professor of Medicine

Gary D Stormo, MA, PHD

Joseph Erlanger Professor
Professor of Computer Science
Professor of Genetics (primary appointment)
Professor of Biomedical Engineering

Molly Jean Stout, MD

Assistant Professor of Obstetrics and Gynecology

Eric A Strand, MD

Associate Professor of Obstetrics and Gynecology

Steven M Strasberg, MD

Pruett Professor of Surgery (General Surgery) (primary appointment)
Associate Professor of Cell Biology and Physiology

Robert H Strashun, MA, MD

Associate Professor of Clinical Pediatrics

William L Straube, MEE

Associate Professor of Radiation Oncology

Susan Kay Strecker, MA, DPT

Assistant Professor of Pediatrics
Assistant Professor of Physical Therapy (primary appointment)

M. Anne Street, MA, MD

Assistant Professor of Clinical Pediatrics

James W Strickland, MD

Visiting Professor of Orthopaedic Surgery

James F Strieter, OD, MBA

Adjunct Instructor in Ophthalmology and Visual Sciences

Catherine Striley

Asjunct Assistant Professor of Psychiatry

Cristina Strong, PHD

Assistant Professor of Medicine (Dermatology)

Seth A Strobe, MD, M PH

Assistant Professor of Surgery (Urologic Surgery)

Malcolm H Stroud, MD

Prof Emeritus Of Otolaryngology

Robert C Strunk, MD, MS

Professor of Pediatrics

Judith M. Stucki-Simeon, MD

Instructor in Clinical Pediatrics

Christopher Michael Sturgeon, PHD

Assistant Professor of Developmental
Biology

Assistant Professor of Medicine (primary
appointment)

Xinming Su, MS, PHD

Instructor in Medicine

Xiong Su, PHD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Cell Biology and
Physiology

Yi Su, PHD

Instructor in Radiology

Brian K Suarez, MA, PHD

Prof Emeritus of Psychiatry

Rosa M Suarez-Solar, MD

Instructor in Clinical Pediatrics

Hamsa Subramanian

Instructor in Clinical Medicine

Priya Sudarsanam, PHD

Assistant Professor of Genetics

Sangita Sudharshan, MD

Instructor in Medicine

Abbe L Sudvarg

Instructor in Clinical Obstetrics and
Gynecology

Lisa Suffian, MD

Instructor in Clinical Pediatrics

Toshifumi Sugatani, DDEnt, PHD

Instructor in Pediatrics

**Alexander L Sukstansky, MS, PHD, D
SC**

Associate Professor of Radiology

Hani Suleiman, MD

Instr in Pathology and Immunology

Shelby A Sullivan, MD

Assistant Professor of Medicine

Kaharu Sumino, MD, PHD, M PA

Assistant Professor of Medicine

William Craig Summers, MD

Instructor in Clinical Medicine

Brian Patrick Sumner, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Walton Sumner II, MD

Associate Professor of Medicine

Baozhou Sun, MS, PHD

Instructor in Radiation Oncology

Peng Sun, MS, PHD

Instructor in Radiology

Yun Ju Sung, PHD

Associate Professor of Biostatistics
(primary appointment)

Associate Professor of Psychiatry

Herbert Sunshine, MD

Instructor in Clinical Surgery (Urologic
Surgery)

In Sook Sunwoo, MD

Instr Emeritus in Neurology

Mosmi Natverlal Surati, MD

Instructor in Medicine

Rama Suresh, MBBS

Assistant Professor of Medicine

Jagdish C Suri, MD

Assistant Professor of Clinical Psychiatry
(Child Psychiatry)

Vinod Suri

Instructor in Clinical Psychiatry (Child
Psychiatry) (Full-Time at Hawthorn
Children's Psychiatric Hospital)

Noah Susman, MD

Prof Emeritus Of Clinical Radiology

Siobhan Sutcliffe, MHS, MS, PHD

Associate Professor of Surgery (General Surgery)

Rudee Suwannasri, MD

Instructor in Clinical Medicine

Bridgette B Svancarek, MD

Instructor in Emergency Medicine in Medicine

Dragan M Svrakic, MD, PHD

Professor of Psychiatry

Sanjay Joshua Swamidass, MA, PHD, MD

Assistant Professor of Pathology and Immunology (primary appointment)
Assistant Professor in Computer Science and Engineering

Kenneth V Swanson

Instructor in Clinical Ophthalmology and Visual Sciences

Robert A Swarm, MD

Professor of Anesthesiology

Wojciech A. Swat, MS, PHD

Associate Professor of Pathology and Immunology

Stuart C Sweet, PHD, MD

W. Mckim O. Marriott Professor of Pediatrics

Amanda Sweetland

Instructor in Clinical Pediatrics

Elzbieta Anna Swietlicki, MS, PHD

Instructor in Medicine

Susan C. Sylvia

Instructor in Clinical Pediatrics

William J. Symons, MD

Assistant Professor of Surgery (General Surgery)

Martha Zorko Szabo, MD

Assistant Professor of Anesthesiology (Pending Executive Faculty Approval)

Steven D Taff, MS

Assistant Professor of Occupational Therapy (primary appointment)
Assistant Professor of Medicine

Paul H Taghert, PHD

Professor of Neurobiology

Mohammad Tahir, MD

Instructor in Clinical Medicine

Yuan-Chuan Tai, MEE, PHD

Associate Professor of Radiology

Chandrakant Tailor, MD

Assistant Professor of Clinical Radiology

Akiko Takeda, PHD

Assistant Professor of Pathology and Immunology

Benjamin R Tan, MD

Associate Professor of Medicine

David Tan, MD

Assistant Professor of Emergency Medicine in Medicine

Mini Tandon, MD

Assistant Professor of Psychiatry (Child Psychiatry)

Chi-Tsai Tang, MD

Assistant Professor of Orthopaedic Surgery

Simon Tang, MS, PHD

Assistant Professor of Orthopaedic Surgery

Kongsak Tanphaichitr, MD

Professor of Clinical Medicine

Richard S Tao, MD, MIM

Instructor in Emergency Medicine in Medicine

Lawrence R Tarbox, AA, PHD

Assistant Professor of Radiology

Phillip Irwin Tarr, MD

Melvin E Carnahan Professor of Pediatrics
(primary appointment)
Professor of Molecular Microbiology

Sandra L Tate, MD

Instructor in Clinical Neurology

Sharlene A Teefey, BN, MD

Professor of Radiology

Steven L Teitelbaum, MD

Professor of Medicine
Messing Professor of Pathology and
Immunology (primary appointment)

Rene Tempelhoff, MD

Professor of Neurological Surgery
Professor of Anesthesiology (primary
appointment)

Marissa Morningstar Tenenbaum, MD

Assistant Professor of Surgery (Plastic
and Reconstructive Surgery)

Melissa Dawn Tepe, MS, MD

Instructor in Clinical Obstetrics and
Gynecology

Arnold S Tepper, MD

Instructor in Clinical Medicine

Raghu P Terkonda, MD

Assistant Professor of Anesthesiology

Jessie L Ternberg, PHD, MD

Prof Emeritus Of Surgery (Ped Surg)
(primary appointment)
Prof Emeritus Of Surgery (pediatric Surg)
(primary appointment)

Wanda T Terrell, MD

Associate Professor of Clinical Medicine

Kristen A Terrill

Instructor in Clinical Pediatrics

Paul M Tesser, PHD, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Larissa Bryka Thackray

Assistant Professor of Medicine

Donna T Thackrey, MD

Instructor in Clinical Pediatrics

Premal H Thaker, MD, MS

Associate Professor of Obstetrics and
Gynecology

Isolde E Thalmann, MA, PHD

Research Professor Emeritus of
Otolaryngology (primary appointment)
Resrch Prof Emeritus of Otolaryngology
(primary appointment)

Ruediger Thalmann, MD

Professor Emeritus of Otolaryngology
(primary appointment)
Lecturer in Otolaryngology
Prof Emeritus of Otolaryngology (primary
appointment)

George K. Thampy, MD

Instructor in Clinical Medicine

Stanley E Thawley, MD

Associate Professor of Otolaryngology

Marie Angele Theard, MD

Assistant Professor of Anesthesiology

Daniel Leonidas Theodoro, MD

Assistant Professor of Emergency
Medicine in Medicine

J. Allen Thiel, MD

Associate Professor of Clinical Medicine

Stephen Thierauf

Instructor in Clinical Pediatrics

Kwee L Thio, MD, PHD

Associate Professor of Neurology (primary
appointment)
Associate Professor of Pediatrics

Associate Professor of Neurobiology

Mark S Thaelke, MD, PHD

Associate Professor of Medicine

Maria A Thomas, PHD, MD

Assistant Professor of Radiation Oncology

Matthew A Thomas, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Scott M. Thomas, MD

Instructor in Pediatrics

Lewis J Thomas Jr, MD

Prof Emeritus Of Biomedical Computing In
Ibc

Jean Alfred Thomas Sr., MD

Instructor in Clinical Obstetrics and
Gynecology

Stavros Thomopoulos, MS, MS1, PHD

Professor of Orthopaedic Surgery (primary
appointment)
Professor of Biomedical Engineering
Professor of Mechanical Engineering &
Materials Science

Jeffrey Bryant Thompson, MD

Instructor in Clinical Obstetrics and
Gynecology

M. Bryant Thompson, MD

Associate Professor of Clinical Obstetrics
and Gynecology

Robert W Thompson, MD

Professor of Radiology
Professor of Surgery (General Surgery)
(primary appointment)
Professor of Cell Biology and Physiology

Wade L Thorstad, MD

Associate Professor of Radiation
Oncology

Dinesh Thotala, MS, PHD

Assistant Professor of Radiation Oncology

Jean Holowach Thurston, MD

Prof Emeritus Of Pediatrics

Erik P Thyssen, MD

Assistant Professor of Clinical Medicine

LinLin Tian, PHD

Instructor in Neurology

Lawrence S Tierney

Associate Professor of Clinical Medicine

Jeffrey P Tillinghast, MD

Associate Professor of Clinical Medicine

Mary A Tillman, MD

Professor of Clinical Pediatrics

Jeffrey B. Titus, MA, PHD

Assistant Professor of Clinical Neurology

Albro C Tobey, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Malcolm Tobias, MS, PHD

Instructor in Radiology (Pending Dean's
Approval)

Garry S Tobin, MD

Associate Professor of Medicine

Jerry Tobler, PHD, MD

Instructor in Clinical Radiology

Randall W Tobler, MD

Assistant Professor of Clinical Obstetrics
and Gynecology

Alexandre Todorov, M ED, PHD

Professor of Psychiatry

Robert W Tolan Jr., MA

Instructor in Clinical Pediatrics

Niraj Harish Tolia, PHD

Associate Professor of Molecular
Microbiology (primary appointment)
Associate Professor of Biochemistry and
Molecular Biophysics

Douglas M Tollefsen, MD, PHD

Assistant Professor of Biochemistry and
Molecular Biophysics
Professor of Medicine (primary
appointment)
Professor of Pathology and Immunology

Michael H. Tomasson, MD

Associate Professor of Genetics
Associate Professor of Medicine (primary
appointment)

Silvestre A Tomeldan Jr, MD

Instr Emeritus in Anesthesiology

Adetunji Toriola, PHD

Assistant Professor of Surgery (General
Surgery)

Ralph J Torrence, MD

Instructor in Clinical Surgery (Urologic
Surgery)

Robert R Townsend, MD, MS, PHD

Professor of Medicine (primary
appointment)
Professor of Cell Biology and Physiology

Elizabeth A Tracy, MD

Instructor in Clinical Medicine

Scott A. Trail, MD

Instructor in Clinical Pediatrics

Erica J Traxel, MD

Assistant Professor of Surgery (Urologic
Surgery)

Yvonne Perle Treece, AA, MD

Instructor in Clinical Obstetrics and
Gynecology

Indi Trehan, MD, MPH

Assistant Professor of Pediatrics

Norman Edwin Trevathan III, MD, MS

Adjunct Professor of Neurology

Sandeep Kumar Tripathy

Assistant Professor of Medicine

Heather L. True, MS, PHD

Associate Professor of Cell Biology and
Physiology

William R. True, MA, PHD, M PH

Adjunct Professor of Psychiatry

Elbert P Trulock III, MD

Rosemary and I Jerome Flance Professor
of Pulmonary Medicine in Medicine

Linda Mei-Lin Tsai, MD

Associate Professor of Ophthalmology
and Visual Sciences

Garland R Tschudin, MD

Instructor in Clinical Pediatrics

Thomas F Tse, MD

Instructor in Clinical Medicine

George S Tseng, MD

Assistant Professor of Anesthesiology

Christina Irene Tsien, MD

Professor of Radiation Oncology

Zhude Tu, MS, PHD, MS1

Associate Professor of Radiology

Garth D Tubbs

Asst Prof Emeritus Of Occupational
Therapy

David J Tucker, MD

Assistant Professor of Clinical Medicine

Dolores R Tucker, MD

Assistant Professor of Clinical Medicine
(Dermatology)

Stacey S Tull, M PH, MD

Assistant Professor of Clinical Medicine
(Dermatology)

Thomas H Tung, MD

Associate Professor of Surgery (Plastic
and Reconstructive Surgery)

John W Turk, MD, PHD

Professor of Pathology and Immunology

Professor of Medicine (primary appointment)
Alan A and Edith L Wolff Professor of Endocrinology

Michael P Turmelle, MD

Associate Professor of Pediatrics

Yumirle Padron Turmelle, AA, MD

Associate Professor of Pediatrics

Isaiah Turnbull, MD, MS

Assistant Professor of Surgery (General Surgery)

Anitra D Turner, MD

Instructor in Ophthalmology and Visual Sciences (Pending Dean's Approval)

Jacqueline Sue Turner, MD

Instructor in Clinical Obstetrics and Gynecology

Peter G Tuteur, MD

Associate Professor of Medicine

Methodius Gamuo Tuuli, M PH, MBBS

Assistant Professor of Obstetrics and Gynecology

Robert Lawrence Tychsen, MD

Professor of Ophthalmology and Visual Sciences (primary appointment)
Professor of Neurobiology
Professor of Ophthalmology and Visual Sciences in Pediatrics
John F Hardesty MD Distinguished
Professor of Ophthalmology and Visual Sciences

Stacy Lynne Tylka, MS, DPT

Instructor in Physical Therapy (primary appointment)
Assistant Professor of Orthopaedic Surgery

Ellen Twining Tyson, MA

Asst Prof Emeritus Of Occupational Therapy

April L Tyus

Instructor in Clinical Pediatrics

Rosalie May Uchanski, MS, PHD

Assistant Professor of Audiology and Communication Sciences
Assistant Professor of Otolaryngology (primary appointment)

Robert C. Uchiyama, MD

Instructor in Clinical Medicine

John H Uhlemann, MD

Instructor in Medicine (Dermatology)

Emil Raphael Unanue

Paul and Ellen Lacy Professor of Pathology and Immunology

Ravindra Uppaluri, MD, PHD

Associate Professor of Otolaryngology

Fumihiko Urano, MD, PHD

Samuel E Schechter Associate Professor of Medicine (primary appointment)
Associate Professor of Pathology and Immunology

Mwiza Ushe, MD, MS

Assistant Professor of Neurology

Elizabeth C Utterson, MD

Assistant Professor of Pediatrics

Geoffrey L Uy, MD

Associate Professor of Medicine

Akshaya J Vachharajani, MBBS, MD

Associate Professor of Pediatrics

Justin Marinus Vader, MD

Assistant Professor of Medicine

Brij R Vaid, MD

Instructor in Clinical Medicine

Lora Maureen Valente, MS, PHD

Associate Professor of Otolaryngology
(primary appointment)
Director of Audiology Studies in Audiology
and Communication Sciences
Associate Professor of Audiology and
Communication Sciences

Michael Valente, MS, PHD

Professor of Audiology and
Communication Sciences
Professor of Otolaryngology (Audiology)
(primary appointment)

Albert Lee Van Amburg III, MD

Assistant Professor of Clinical Medicine

Dorothy J. Van Buren, PSYD

Assistant Professor of Psychiatry

Linda R Van Dillen, MS, PHD

Professor of Physical Therapy (primary
appointment)
Associate Director of Musculoskeletal
Research in Physical Therapy
Professor of Orthopaedic Surgery

Michele Van Eerdewegh, MD

Instructor in Clinical Psychiatry

David C Van Essen, PHD

Professor of Biomedical Engineering
Alumni Endowed Professor of
Neurobiology (primary appointment)

George Frederick Van Hare III, MD

Louis Larrick Ward Professor of Pediatrics

Gregory Paul Van Stavern, MD

Associate Professor of Ophthalmology
and Visual Sciences (primary
appointment)
Associate Professor of Neurology

Renee Bailey Van Stavern, MD

Associate Professor of Neurology

Brian Andrew Van Tine, MD, PHD

Assistant Professor of Medicine

Jeffrey A. Vander Kooi, MD

Instructor in Clinical Psychiatry

Andrea Vannucci, MD

Associate Professor of Anesthesiology

Michelle B Vanstone, MA, MD

Instructor in Pediatrics

Swarup Varaday, MBBS

Assistant Professor of Anesthesiology

Arun S. Varadhachary, PHD, MD

Assistant Professor of Neurology

Gil M Vardi, MD

Assistant Professor of Clinical Medicine

Edward F Vastola, MD

Prof Emeritus Of Neurology

Suresh Vedantham, MD

Professor of Radiology (primary
appointment)
Professor of Surgery (General Surgery)

Chandu Vemuri

Assistant Professor of Surgery (General
Surgery)

Emmanuel A Venkatesan

Associate Professor of Clinical Medicine

Thomas J Veraldi, DDENT, MS

Instructor in Clinical Otolaryngology

Angela M. Verdoni, MS, PHD

Instructor in Medicine

William Vermi

Adjunct Assistant Professor of Pathology
and Immunology

Laird Henry Vermont

Instructor in Clinical Pediatrics

Zachary Andrew Vesoulis, MD

Instructor in Pediatrics

Garry M. Vickar

Instructor in Clinical Psychiatry

Zevidah Vickery, MD

Instructor in Clinical Obstetrics and Gynecology

Wayne A Viers, MD

Associate Professor of Clinical Otolaryngology

Monika Vig, MS, PHD

Assistant Professor of Pathology and Immunology

Kiran Raj Vij, MD

Assistant Professor of Pathology and Immunology

Assistant Professor of Medicine (primary appointment)

Ravi Vij, MBBS

Associate Professor of Medicine

Anitha Vijayan

Professor of Medicine

Dennis T Villareal, MD

Adjunct Associate Professor of Medicine

Herbert W Virgin IV, MD, PHD

Head of the Department of Pathology and Immunology

Professor of Molecular Microbiology

Mallinckrodt Professor of Pathology and Immunology (primary appointment)

Professor of Medicine

Harry John Visser, MD

Instructor in Clinical Orthopaedic Surgery

Andrei G Vlassenko, MD, PHD

Assistant Professor of Radiology

Katie Dieu Thu Vo, MD

Associate Professor of Radiology

Erin Foster Voegtli, OTD

Assistant Professor of Neurology

Assistant Professor of Psychiatry

Assistant Professor of Occupational Therapy (primary appointment)

Adam Mark Vogel, BE, MD

Assistant Professor of Surgery (Pediatric Surgery)

Gary Lee Vogel, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Joseph Paul Vogel, PHD

Associate Professor of Molecular Microbiology

David Edward Vollman, MD

Assistant Professor of Ophthalmology and Visual Sciences

Gershon Ram Volotzky, MD

Assistant Professor of Anesthesiology

Oksana Volshteyn, MD

Professor of Medicine

Professor of Neurology (primary appointment)

Benjamin Allen Voss, MD

Instructor in Clinical Medicine

Gino J Vricella, MD

Assistant Professor of Surgery (Urological Surgery)

Stanley G Vriezelaar, MD

Instructor in Clinical Medicine

James J Wachter, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Harry Lee Wadsworth, MD

Instructor in Clinical Medicine

Daniel G Wagner, MD

Instructor in Clinical Obstetrics and Gynecology

Jason Cass Wagner, MD

Assistant Professor of Emergency Medicine in Medicine

Jean V Wagner

Instructor in Clinical Pediatrics

Richard L Wahl, MD

Head of the Department of Radiology
Elizabeth E Mallinckrodt Professor of
Radiology (primary appointment)
Director of the Edward Mallinckrodt
Institute of Radiology

Gabriel Waksman, PHD

Adjunct Professor of Biochemistry and
Molecular Biophysics

Stanley M Wald, MD

Associate Professor of Clinical Medicine

Mary C. Waldron, PHD

Adjunct Assistant Professor of Psychiatry

William B. Waldrop, MD

Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Pediatrics

Howard S Walker, MD

Instructor in Clinical Surgery
(Cardiothoracic Surgery)

J. Leslie Walker, MD

Asst Prof Emeritus Of Clinical Ob & Gyn

Sara Walker, MD

Instructor in Clinical Psychiatry

Leonard Lewis Wall, MD, MS

Professor of Obstetrics and Gynecology
(primary appointment)
Professor of Anthropology

Lindley Bevelle Wall, MD

Assistant Professor of Orthopaedic
Surgery

Colleen M Wallace, MD

Assistant Professor of Pediatrics (primary
appointment)
Director, Humanities Program

David Wallace, MD

Instructor in Clinical Medicine

Jerold W Wallis, MS

Associate Professor of Radiology (primary
appointment)

Associate Professor of Biomedical
Engineering

David A Walls, MD

Instructor in Clinical Medicine

Sarah N. Walsh

Instructor in Clinical Medicine
(Dermatology)

Matthew John Walter, MD

Associate Professor of Genetics
Associate Professor of Medicine (primary
appointment)

William Lee Walter, MD

Assistant Professor of Clinical
Ophthalmology and Visual Sciences

Donald E Walter Jr, OD

Adjunct Instructor in Ophthalmology and
Visual Sciences

Richard Coburn Walters, MD

Instructor in Clinical Medicine
(Dermatology)

Stephen R Waltman, MBA, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Bruce J Walz, MD

Associate Professor of Clinical Radiation
Oncology

Jennifer Anne Wambach, MD

Assistant Professor of Pediatrics

Caihong Wang, PHD

Instructor in Obstetrics and Gynecology

David Wang, PHD

Associate Professor of Pathology and
Immunology
Associate Professor of Molecular
Microbiology (primary appointment)

Jean S Wang, MD, PHD

Associate Professor of Medicine (primary appointment)

Associate Professor of Surgery (General Surgery)

Lawrence L. Wang, MD, PHD

Instructor in Clinical Medicine (Dermatology)

Ting Wang, MS, PHD

Assistant Professor of Genetics (primary appointment)

Assistant Professor of Computer Science and Engineering

Xiaoli Wang, MD, MS, PHD

Assistant Professor of Pathology and Immunology

Xiaowei Wang, PHD

Assistant Professor of Radiation Oncology

Yong Wang, PHD

Assistant Professor of Obstetrics and Gynecology (primary appointment)

Assistant Professor of Radiology

Andrea Wang-Gillam, MD

Assistant Professor of Medicine

Saiama Naheed Waqar, MD

Assistant Professor of Medicine

Mark Edward Warchol

Professor of Otolaryngology (primary appointment)

Professor of Audiology and Communication Sciences

Professor of Neurobiology

Barbara B. Warner, MS, MD

Professor of Pediatrics

Brad W. Warner, MD

Jessie L. Ternberg, M.D., PhD.

Distinguished Professor of Pediatric Surgery in Surgery (Pediatric Surgery) (primary appointment)

Professor of Pediatrics

Corinna Hendrell Warren, MD

Instructor in Clinical Medicine

David K. Warren, MD, MPH

Associate Professor of Medicine

James C Warren, MD, PHD

Prof Emeritus Of Ob & Gyn

Wesley Charles Warren, MS, PHD

Associate Professor of Genetics

Academic Rank held in Genetics (primary appointment)

Lukas Delbert Wartman, MD

Assistant Professor of Medicine

Andrzej J. Wasiak, MD, PHD

Assistant Professor of Clinical Medicine

Gary Michael Wasserman, MD

Assistant Professor of Clinical Obstetrics and Gynecology

Mark S Wasserman

Instructor in Clinical Obstetrics and Gynecology

Scott P Wasserstrom, MA, MD

Instructor in Clinical Medicine

Erika Waters, MS PSYC, PHD, M PH

Assistant Professor of Surgery (General Surgery)

Mark A Watson, MD, PHD

Associate Professor of Pathology and Immunology

Michael S Watson, MS, PHD

Adjunct Professor of Pediatrics

Andrew M. Wayne, MD

Instructor in Clinical Neurology

Jason Dean Weber, PHD

Associate Professor of Cell Biology and Physiology

Associate Professor of Medicine (primary appointment)

H. James Wedner, MD

Phillip & Arleen Korenblat Professor of Allergy and Immunology in Medicine

Ling Wei, MD

Adjunct Research Assistant Professor of Neurology

Xiaochao Wei, PHD

Instructor in Medicine

Conrad Christian Weihi, PHD, MD

Associate Professor of Neurology

Kevin D Weikart, MD

Instructor in Clinical Medicine

Gary J Weil, MD

Professor of Molecular Microbiology
Professor of Medicine (primary appointment)

Katherine N Weilbaecher, MD

Professor of Medicine (primary appointment)
Professor of Pathology and Immunology
Professor of Cell Biology and Physiology

Carla Joy Weinheimer

Associate Professor of Medicine

David L Weinstein, MD

Associate Professor of Clinical Obstetrics and Gynecology

Leonard B Weinstock

Assistant Professor of Clinical Surgery (General Surgery)
Associate Professor of Clinical Medicine (primary appointment)

Benjamin David Weintraub

Instructor in Clinical Pediatrics

Steven Jay Weintraub, MS, MD

Assistant Professor of Medicine

Edmond Weisbart

Assistant Professor of Clinical Medicine

Judith L. Weisenberg, MD

Assistant Professor of Neurology

Alan N Weiss, MD

Professor of Medicine

Calvin H Weiss, DDENT

Instructor in Clinical Otolaryngology (DDS)

Don Weiss, MD, MS

Instructor in Clinical Pediatrics

Edward P Weiss, PHD

Adjunct Research Assistant Professor of Medicine

Howard I Weiss, MD

Assistant Professor of Clinical Neurology

Michael D Weiss, MD

Assistant Professor of Surgery (General Surgery)

Peter Douglas Weiss

Instructor in Clinical Medicine

Stuart Weiss, MD

Professor of Clinical Neurology

Michael J Welch

Siteman Cancer Center

John Sutton Welch, PHD, MD

Assistant Professor of Medicine

Timothy P Welch, MD

Assistant Professor of Pediatrics
Assistant Professor of Anesthesiology (primary appointment)

Valerie B. Welch, MD

Instructor in Clinical Pediatrics

Reuben R Welch II, M ED, PHD

Associate Professor of Psychiatry

Jason R Wellen, MD

Assistant Professor of Surgery (General Surgery)

Lynn Ellis Welling

Adjunct Associate Professor of Medicine

Zila Welner, MD

Associate Professor of Clinical Psychiatry
(Child Psychiatry)

Michael C Wendl, MS, D SC, PHS

Assistant Professor of Mechanical
Engineering & Materials Science
Assistant Professor of Mathematics
Assistant Professor of Genetics
Academic Rank held in Genetics (primary
appointment)
Assistant Professor of Genetics
Assistant Professor of Genetics

Pamela M. Wendl, MS

Assistant Professor of Orthopaedic
Surgery
Assistant Professor of Physical Therapy
(primary appointment)

Alvin S Wenneker, MD

Professor of Clinical Medicine

Nicole Joy Werner, MS, PHD

Associate Professor of Neurology

Jennifer Marie Wessels, MD

Instructor in Clinical Medicine

Brian T Wessman, MD

Assistant Professor of Anesthesiology
(primary appointment)
Assistant Professor of Emergency
Medicine in Medicine

Jennifer Corinne Wessman, MD

Instructor in Pediatrics

Peter Westervelt, MD, PHD

Associate Professor of Medicine

Richard D Wetzel, MDI, PHD

Prof Emeritus of Psychiatry

Stephen Alan Wexler, MD

Professor of Clinical Ophthalmology and
Visual Sciences

Philip J Weyman, MD

Associate Professor of Clinical Radiology

Alexander Weymann, MD

Assistant Professor of Pediatrics

Alison J Whelan, MD

Professor of Medicine (primary
appointment)
Senior Associate Dean for Education
Professor of Pediatrics

Andrew J White, MS, MD

Associate Professor of Pediatrics

Brad C White, MD

Instructor in Clinical Surgery (Urologic
Surgery)

Brian Stephen White, PHD

Assistant Professor of Medicine

Bruce I White, MD

Instructor in Clinical Surgery (Plastic and
Reconstructive Surgery)

Frances V White, MS, MD

Associate Professor of Pediatrics
Associate Professor of Pathology and
Immunology (primary appointment)

Michael Aaron White, MS, PHD

Assistant Professor of Genetics

Neil Harris White, MD

Professor of Pediatrics (primary
appointment)
Professor of Medicine

Nicole Izetta White, MD

Instructor in Clinical Pediatrics

Karen Whiteside

Instructor in Clinical Pediatrics

John Bair Whitfield

Adjunct Instructor in Psychiatry

Michael Peter Whyte

Professor of Medicine (primary appointment)
Professor of Genetics
Professor of Pediatrics

Burton M Wice, PHD
Associate Professor of Medicine

Martin B Wice, MD, MS
Associate Professor of Neurology

Cynthia A Wichelman, MD
Course Director for the Mini-Medical School
Associate Professor of Emergency Medicine in Medicine (primary appointment)
Course Director for the Mini-Medical School
Course Director for the Mini-Medical School

Karen Mori Wickline
Associate Professor of Pediatrics

Samuel A Wickline, MD
Professor of Biomedical Engineering
Professor of Medicine (primary appointment)
James R Hornsby Family Professor of Medicine
Adjunct Professor of Physics
Professor of Cell Biology and Physiology

Richard Harris Wieder, MD
Assistant Professor of Ophthalmology and Visual Sciences

John F Wiedner, MD
Instructor in Clinical Medicine

Kimberly N Wiele, MD
Assistant Professor of Radiology

Deborah A Wienski
Instructor in Clinical Medicine

Walter G Wiest, MS, PHD

Prof Emeritus Of Biochem In Ob & Gyn

Tanya M Wildes, MD
Assistant Professor of Medicine

Troy S Wildes, MD
Assistant Professor of Anesthesiology

Katherine Anne Henzler Wildman, PHD
Adjunct Associate Professor of Biochemistry and Molecular Biophysics

Denise Wilfley, PHD
Professor of Psychiatry (primary appointment)
Professor of Medicine
Professor of Psychology
Professor of Pediatrics
Scott Rudolph University Professor

Jennifer Alisse Wilkinson
Instructor in Medicine

Robert S Wilkinson, MA, PHD
Prof Emeritus of Cell Biology/Physiol

Denise Michelle Willers, MD
Assistant Professor of Obstetrics and Gynecology

Kristine G Williams, MD, MPH
Assistant Professor of Pediatrics

Nancy J Williams, MD
Instructor in Clinical Medicine

George A Williams III, MA, MD
Assistant Professor of Clinical Medicine

R. Jerome Williams Jr, MD
Associate Professor of Clinical Medicine

Marcia Christine Willing, MS, D SC
Professor of Pediatrics

David B Wilson, MD, PHD
Associate Professor of Pediatrics (primary appointment)
Associate Professor of Developmental Biology

Matthew Stewart Wilson

Instructor in Clinical Psychiatry

Monita Elaine Wilson, MS, PHD

Associate Professor of Medicine

Richard K Wilson, PHD

Academic Rank held in Genetics (primary appointment)

Professor of Molecular Microbiology

Professor of Genetics

Alan A and Edith L Wolff Distinguished

Professor of Medicine

Patrick H Win

Instructor in Clinical Medicine

David William Windus, MD

Professor of Medicine

Robert David Winfield, MD

Assistant Professor of Surgery (General Surgery)

Brooke Allison Winner, MD

Assistant Professor of Obstetrics and Gynecology

Anke Christiane Winter, MA

Assistant Professor of Surgery (Public Health Sciences) (primary appointment)

Assistant Professor of Anesthesiology

Karen Winters

Associate Professor of Medicine (primary appointment)

Director of the Student and Employee

Health Service - Medical Campus

Franz J Wippold II, MD

Professor of Radiology

Paul Edward Wise, MD

Associate Professor of Surgery (General Surgery)

Chad Alan Witt, MD

Assistant Professor of Medicine

Keith Frederic Woeltje, MD, PHD

Professor of Medicine

Mary Kaye Wojczynski, PHD

Assistant Professor of Genetics

Anna Wolaniuk, PHD, MD

Instructor in Clinical Obstetrics and Gynecology

Loralee Jane Wold, MD

Instructor in Clinical Pediatrics

Michael L Wolf, OD

Adjunct Instructor in Ophthalmology and Visual Sciences

Timothy J Wolf, OTD

Assistant Professor of Occupational Therapy (primary appointment)

Assistant Professor of Neurology

Edward M Wolfe, MD

Instructor in Clinical Medicine (Dermatology)

Brett D Wolff, MD

Associate Professor of Anesthesiology

Gerald Wolff, MD

Assistant Professor of Clinical Medicine

Patricia Ann Wolff, MD

Professor of Clinical Pediatrics

Edwin D Wolfgram, MD

Assistant Professor of Clinical Psychiatry

Nathan E Wolins, PHD

Assistant Professor of Medicine

Fay Yeh Womer, MD

Assistant Professor of Psychiatry

Michael Wong, MD, PHD

Professor of Pediatrics

Professor of Neurobiology

Allen P and Josephine B Green Professor of Pediatric Neurology (primary appointment)

Ming-Fong Agnes Wong, MD, PHD

Adjunct Professor of Ophthalmology and
Visual Sciences

Wing Kai Wong

Assistant Professor of Occupational
Therapy (primary appointment)
Assistant Professor of Neurology

Albert S Woo, MD

Assistant Professor of Surgery (Plastic
and Reconstructive Surgery)

John A Wood, MD

Associate Professor of Clinical Medicine

Matthew D Wood, MS, PHD

Assistant Professor of Surgery (Plastic
and Reconstructive Surgery)

Pamela K Woodard, MD

Professor of Radiology

Terry A Woodford-Thomas, MS, PHD

Adjunct Research Assistant Professor of
Pathology and Immunology

Thomas A Woolsey, MD

Prof Emeritus of Neurological Surgery

Hasani Omar Wooten, MS

Assistant Professor of Radiation Oncology

Parker H Word, MD

Instr Emeritus In Clinical Ob & Gyn

David F Wozniak, MA, PHD

Professor of Psychiatry (primary
appointment)
Adjunct Associate Professor of
Psychology

Megan Elizabeth Wren, MD

Associate Professor of Medicine

Brenton Alan Wright, MD

Assistant Professor of Neurology

Jeffrey M Wright, MD

Assistant Professor of Clinical Medicine
(primary appointment)
Assistant Professor of Clinical Pediatrics

Neill Marshall Wright, MD

Professor of Orthopaedic Surgery
Herbert Lourie Professor of Neurological
Surgery (primary appointment)

Rick Wayne Wright, MD

Asa C. & Dorothy W. Jones Distinguished
Professor

Gregory Frederick Wu, MD, PHD

Assistant Professor of Pathology and
Immunology
Assistant Professor of Neurology (primary
appointment)

Xiaobo Wu, MD

Assistant Professor of Medicine

Heather E. Wuebker, MD

Instructor in Clinical Obstetrics and
Gynecology

Kathie R Wuellner, MD

Associate Professor of Clinical Pediatrics

Christopher Wuertz, MD

Assistant Professor of Clinical Psychiatry

Hayley Wurzel, MD

Assistant Professor of Clinical Pediatrics

Kristine M Wylie, PHD

Instructor in Pediatrics

Todd N Wylie, MD

Instructor in Pediatrics

Xiaoming Xia, MS, PHD

Assistant Professor of Anesthesiology

Yan Xie, MD, MS

Instructor in Medicine

Chengjie Xiong, MS

Professor of Neurology
Professor of Mathematics
Professor of Biostatistics (primary
appointment)

Jinbin Xu, ME, PHD

Instructor in Radiology

Mai Xu, MD, MS, PHD

Instructor in Medicine

Dmitriy A Yablonskiy, MS, PHD, D SC

Professor of Radiology (primary appointment)

Adjunct Professor of Physics

Christina Marie Yadao

Instructor in Clinical Pediatrics

Sridhar Yaddanapudi, MS

Instructor in Radiation Oncology

Tatyana Aleksandrovna Yakusheva, MS, PHD

Instructor in Otolaryngology

Naga M Yalla, MD

Instructor in Medicine

Kelvin A Yamada

Professor of Neurology (primary appointment)

Professor of Pediatrics

Tomoko Yamada, MS, PHD

Instructor in Neurobiology

Ken Yamaguchi, MS, MD

Professor of Orthopaedic Surgery

Heping Yan, MD, MS

Assistant Professor of Radiation Oncology

Yan Yan, MD, MHS

Associate Professor of Biostatistics

Associate Professor of Surgery (General Surgery) (primary appointment)

Deshan Yang, MS, PHD

Assistant Professor of Radiation Oncology

Kui Yang, ME, PHD

Instructor in Medicine

Qin Yang, MD, PHD

Associate Professor of Radiation Oncology

Hiroko Yano, MS, PHD

Assistant Professor of Neurological Surgery (primary appointment)

Assistant Professor of Genetics

Assistant Professor of Neurology

Motoyo Yano, PHD, MD

Assistant Professor of Radiology

Kevin E Yarasheski, MA, PHD

Professor of Medicine (primary appointment)

Professor of Cell Biology and Physiology

Professor of Physical Therapy

Nabeel Rasheed Yaseen, MD, PHD

Associate Professor of Pathology and Immunology

Mona Yassin, MD

Instructor in Clinical Pediatrics

William D Yates, MD

Instructor in Clinical Surgery (General Surgery)

Timothy Teng-Kay Yau, MD

Assistant Professor of Medicine

Kai Ye

Academic Rank held in Genetics (primary appointment)

Assistant Professor of Genetics

Branden Edward Yee, MD

Assistant Professor of Anesthesiology

Xiaobin Yi, MD

Assistant Professor of Anesthesiology

Yongjun Yin, PHD

Instructor in Developmental Biology

Wayne M Yokoyama, MD

Sam and Audrey Loew Levin Professor of Medicine (Rheumatology) (primary appointment)

Professor of Pathology and Immunology

Howard Hughes Medical Institute
Investigator in Medicine

Andrew Seungjo Yoo, MS, PHD

Assistant Professor of Developmental
Biology

Jun Yoshino, PHD

Assistant Professor of Medicine (primary
appointment)

Assistant Professor of Developmental
Biology

Zhongsheng You, MS, PHD

Assistant Professor of Cell Biology and
Physiology (primary appointment)

Assistant Professor of Medicine

Alexander H Young, MD

Assistant Professor of Anesthesiology

Anna Rebecca Young

Instructor in Anesthesiology

Julia Catherine Young

Instructor in Clinical Pediatrics

Robert A Young, MS, MD, JD

Instructor in Clinical Surgery (Plastic and
Reconstructive Surgery)

Haifaa Tawifiq Younis, MD

Instructor in Clinical Obstetrics and
Gynecology

Cecilia H Yu, MD

Assistant Professor of Clinical Pediatrics

Jinsheng Yu, MS, MD, PHD

Instructor in Genetics

Simon Yu, MD

Instructor in Clinical Medicine

Feliciano Buenviaje Yu Jr, MD, MHS, M

PH

Associate Professor of Pediatrics

Liya Yuan, MS, PHD

Instructor in Neurological Surgery

Peng Yuan, PHD

Assistant Professor of Cell Biology and
Physiology

Carla Marie Yuede, PHD

Instructor in Neurology

Roger D. Yusen, MD

Associate Professor of Medicine

Sean H Yutzy

Adjunct Professor of Clinical Psychiatry

Craig Mitchell Zaidman

Assistant Professor of Neurology (primary
appointment)

Assistant Professor of Pediatrics

Alan Zajarias, MD

Associate Professor of Medicine (primary
appointment)

Associate Professor of Surgery
(Cardiothoracic Surgery)

Sandra G.H. Zakroff

Instructor in Clinical Obstetrics and
Gynecology

John F. Zalewski, MD

Instructor in Clinical Medicine

Paul Battista Zanaboni, PHD, MD

Associate Professor of Anesthesiology

Mohamed A Zayed, PHD, MD

Assistant Professor of Surgery (General
Surgery)

Allyson R Zazulia

Associate Professor of Radiology

Associate Professor of Neurology (primary
appointment)

Associate Dean for Continuing Medical
Education

Lukas P Zebala, MD

Assistant Professor of Orthopaedic
Surgery (primary appointment)

Assistant Professor of Neurological
Surgery

John M Zempel, MD

Associate Professor of Neurology (primary
appointment)

Associate Professor of Pediatrics

Jessica Ann Zenga, MD

Assistant Professor of Anesthesiology

Aurora Denise Zertuche-Sanchez

Instructor in Clinical Pediatrics

Bo Zhang, PHD

Assistant Professor of Developmental
Biology (Pending Executive Faculty
Approval)

Haixia Zhang, MD, MS, PHD

Instructor in Cell Biology and Physiology

Tiezhi Zhang, PHD

Assistant Professor of Radiation Oncology

Yong Zhang, MD, MS, PHD

Instructor in Medicine

Guoyan Zhao, MS, PHD

Assistant Professor of Pathology and
Immunology

Shiying Zhao, MME, PHD

Adjunct Associate Professor of Radiology

Tianyu Zhao, MS, PHD

Instructor in Radiation Oncology

Jie Zheng, MS, PHD

Associate Professor of Radiology

Dong Zhou, MS, MS1, PHD

Instructor in Radiology

Yanjiao Zhou, PHD

Instructor in Pediatrics

Yu Zhou, MS, PHD

Instructor in Anesthesiology

Jian Zhu, PHD

Instructor in Medicine

Lirong Zhu, MD, PHD

Instructor in Clinical Neurology

Robert E Ziegler, MD, PHD

Assistant Professor of Clinical Medicine
(Dermatology)

Amy Christine Zimmermann, MD

Instructor in Clinical Pediatrics

Darryl Thomas Zinck

Instructor in Clinical Obstetrics and
Gynecology

Matthew David Zinn, MD

Instructor in Pediatrics

Bernd Heinrich Zinselmeyer, PHD

Instructor in Pathology and Immunology

Gregory Joseph Zipfel, MD

Associate Professor of Neurology
Associate Professor of Neurological
Surgery (primary appointment)

Imran Zoberi, MD

Associate Professor of Radiation
Oncology

Bridget Bilyeu Zoeller, MD

Assistant Professor of Pediatrics

Charles F Zorumski, MD

Head of the Department of Psychiatry
Samuel B. Guze Professor of Psychiatry
(primary appointment)
Professor of Neurobiology

Dequan Zou, ME, MS, D SC

Professor of Physical Therapy (primary
appointment)
Professor of Radiology

Wei Zou, MA, PHD

Assistant Professor of Pathology and
Immunology

Andrew C. Zuckerman

Instructor in Clinical Pediatrics

Darryl Adam Zuckerman, MD

Assistant Professor of Radiology (primary appointment)

Assistant Professor of Surgery (General Surgery)

Gary R Zuckerman, DOST

Assoc Prof Emeritus of Medicine

Medical Students

Alphabetical Listing

Note: As of July 23, 2015. This may not be a complete listing. Some students may have elected to withhold directory information.

Tsehay Bekele Abebe

, '
Program: Doctor of Medicine
First Year Medical Student

Torgom Abraamyan

Glendale CA
BS, University of California- '12
Program: Doctor of Medicine
Elective Year

Damien Abreu

BS, Yale University '10
Program: MSTP
Second Year Research

Gabriela Farahdokht Abrishamian-

Garcia

, '
Program: Doctor of Medicine
First Year Medical Student

Temidayo Modupe Adebisi

St Louis MO
BS, U of Illinois at Chicago '09
Program: Doctor of Medicine
2015 Graduate

Pediatrics

Jackson Memorial Hospital
Miami FL

Aouod Quang Agenor

BH, Jean-de-Brebeuf '07
Program: Doctor of Medicine
Elective Year

Gerald Kwesi Aggrey

Durham NC
BS, Indiana University-Bloomi '11
Program: Doctor of Medicine
2015 Graduate
Orthopaedic Surgery
Duke University Medical Center
Durham NC

Ji Won Ahn

BA, Williams College '12
Program: Doctor of Medicine
Elective Year

Ehiole Ogboma Akhrome

BS, Emory University '12
Program: MSTP
Second Year Research

Joshua Brandon Alinger

St.Louis MO
BS, Oregon State University '12
Program: MSTP
First Year Research

Bilal Al-Khalil

BS, Georgia Institute of Tech '12
Program: Doctor of Medicine
Clinical Clerkship Year

Brannon Yap Altenhofen

Saint Louis MO
BS, University of California- '11
Program: Doctor of Medicine (5 Year)
Clinical Clerkship Year

Fatima Iman Alvi

, '
Program: Doctor of Medicine
First Year Medical Student

Rina Yamada Amatya

Saint Louis MO
, '
Program: Doctor of Medicine
First Year Medical Student

Chinwendu Amazu

St. Louis MO
BS, U of Maryland-BaltimoreCo '14
Program: MSTP
Second Year Medical Student

Tonya Wei An

Rancho Santa Fe CA
BS, Washington University in '11
Program: Master of Arts/Doctor of
Medicine
Elective Year

Britt Juul Andersen

BS, University of Maryland-Ba '11
Program: MSTP
Second Year Research

Samuel Michal Anderson

Phoenix AZ
BS, Arizona State University- '05
Program: Doctor of Medicine (5 Year)
2015 Graduate
Pathology
University of New Mexico School of
Medicine
Albuquerque NM

Anna Arnaud

, '
Program: Doctor of Medicine
First Year Medical Student

Adam Brody Aronson

Los Angeles CA
BS, University Of Southern Ca '09
Program: Doctor of Medicine
2015 Graduate
Plastic Surgery
Medical College of Wisconsin Affil
Hospitals
Milwaukee WI

Manoj Arra

St. Louis MO
BS, Rensselaer Polytechnic '13
Program: MSTP
Second Year Medical Student

Moises William Arriaga

BS, Brown University '13
Program: MSTP
First Year Research

Jordan Jerrell Atkins

Houston TX
BS, Morehouse College '10
Program: MD/MPHS
2015 Graduate
Internal Medicine
Barnes-Jewish Hospital
St. Louis MO

Diane Jewon Aum

BA, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Christine Elise Averill

, '
Program: Doctor of Medicine
First Year Medical Student

Marina Avetisyan

St. Louis MO
BA, Johns Hopkins University '09
Program: MSTP
Fifth Year Research

Colin Bacorn

BS, Rice University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Asante Badu

BA, Harvard University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Wajeeh Rahim Bakhsh

Glendale Hts IL
BA, Northwestern University '11
Program: Doctor of Medicine
2015 Graduate
Orthopaedic Surgery
University of Rochester/Strong Memorial
Rochester NY

Moises Baltazar Garcia

St Louis MO
BA, Florida Atlantic Universi '10
Program: Doctor of Medicine

Anchal Bansal

Hoover AL
BS, Washington University in '11
Program: Doctor of Medicine
Elective Year

Derek Arthur George Barisas

, '
Program: MSTP
First Year Medical Student

Jennifer Sigrid Barklund

St Louis MO
BA, College Of Saint Catherin '08
Program: Doctor of Medicine
2015 Graduate
Colorado Health Foundation
Denver CO
Dermatology
University of Colorado
Aurora CO

Erica Kay Barnell

St. Louis MO
BS, Cornell University '13
Program: MSTP
Second Year Medical Student

Tyler Marques Bauman

Albany WI
BS, Univ of Wisconsin-Madison '13
Program: Doctor of Medicine
Second Year Medical Student

Desiree Cherie Baumgartner

Bartlesville OK
BS, University Of Oklahoma No '11
Program: Doctor of Medicine
2015 Graduate
Psychiatry
Barnes-Jewish Hospital
St. Louis MO

Kevin Timothy Baumgartner

BS, Stanford University '11
Program: Doctor of Medicine
2015 Graduate
Emergency Medicine
Barnes-Jewish Hospital
St. Louis MO

Chelsea Ann Bayer

St. Louis. MO
BS, Gustavus Adolphus College '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
Barnes-Jewish Hospital
St. Louis MO

Bronwyn Stidley Bedrick

Albuquerque NM
, '
Program: Doctor of Medicine
First Year Medical Student

Casey Michelle Beleckas

BS, Emory University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Zachary Walter Beller

Des Plaines IL
, '
Program: MSTP
First Year Medical Student

Miriam Rose Ben Abdallah

Webster Groves MO
BA, Washington University in '12
Program: Doctor of Medicine
Clinical Clerkship Year

Lawrence Nathaniel Philip Benjamin

Salt Lake City UT
BA, Harvard University '11
Program: Doctor of Medicine
Elective Year

Nicole Suzanne Benzoni

Sioux City IA
BS, Iowa State University '12
Program: MD/MPHS
Clinical Clerkship Year

Julia Marie Berg

Eden Prairie MN

BA, Harvard University '14
Program: Doctor of Medicine
Second Year Medical Student

Ari Nachum Berlin

BS, Rice University '12
Program: Doctor of Medicine
Elective Year

Michael David Bern

Roanoke VA
BS, Duke University '11
Program: MSTP
Second Year Research

Kayla Berry

BA, Harvard University '13
Program: MSTP
First Year Research

Alexander Barton Beyer

Seattle WA
BS, Washington U in St. Louis '10
Program: MD/MPHS
2015 Graduate
Emergency Medicine
University of Michigan Hospitals
Ann Arbor MI

Miles Jordan Bichanich

Stanley WI
BS, University of Minnesota-T '11
Program: Doctor of Medicine
Elective Year

Nyabosamba Gati Binagi

Whitewater WI
BA, Yale University '11
Program: Doctor of Medicine
2015 Graduate
Diagnostic Radiology
Aurora St. Lukes Medical Center
Milwaukee WI

Katherine Corey Bishop

Prompton PA

BS, Bucknell University '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
Duke University Medical Center
Durham NC

John William Blackett

New York NY
BA, Johns Hopkins University '10
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
New York Presbyterian Hospital-Columbia
New York NY

Gregory William Bligard

BS, University of Iowa '10
Program: MSTP
Fourth Year Research

Laura Annette Bliss

BS, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Allison Marie Blonski

Waukesha WI
BA, University of Minnesota-T '12
Program: Doctor of Medicine
Elective Year

Steven Louis Bokshan

Saint Louis MO
BS, University of Michigan-An '11
Program: Doctor of Medicine
2015 Graduate
Orthopaedic Surgery
Rhode Island Hospital/Brown University
Providence RI

Lucy Bollinger

Boulder CO
BA, Case Western Reserve Univ '12

Program: Master of Arts/Doctor of
Medicine
Master of Arts

Sean Logan Boone

Geneva IL
BS, Ohio State University-Mai '11
Program: Doctor of Medicine (5 Year)
Elective Year

Amanda Leigh Boozalis

Victoria TX
BA, Washington University '14
Program: Doctor of Medicine
Second Year Medical Student

Andrea Marie Boss

, '
Program: Doctor of Medicine
First Year Medical Student

Brian Andrew Bouchard

BS, Davidson College '12
Program: Doctor of Medicine
Elective Year

Flannery Elisabeth Bowman

, '
Program: Doctor of Medicine
First Year Medical Student

Jay Aaron Bowman-Kirigin

BS, Westminster College of Sa '11
Program: MSTP
Second Year Medical Student

Matthew Ryan Brier

St. Louis MO
BS, Univ Of Texas At Dallas '09
Program: MSTP
Fourth Year Research

Lindsey Michelle Brier

BS, University of Houston '14
Program: MSTP
Second Year Medical Student

Cristopher Allan Crofton Briscoe

Richmond Heights MO
BA, U of Southern California '05
Program: Doctor of Medicine
Second Year Medical Student

Natalia Brito Rivera

San Juan PR
BS, Cornell University '11
Program: MD/MPHS

Lauren Elizabeth Broestl

Walnut Creek CA
BA, U of California-Berkeley '11
Program: MSTP
Second Year Medical Student

Adrienne Michelle Brower-Lingsch

Greenville SC
BS, Duke University '10
Program: Doctor of Medicine
2015 Graduate
Child Neurology
Cincinnati Children's Hospital
Cincinnati OH

Carl Thomas Bruce

Saint Louis MO
BA, George Washington Univer '11
Program: Doctor of Medicine
2015 Graduate
Jewish Hospital
Cincinnati OH
Ophthalmology
University of Cincinnati
Cincinnati OH

Brent Steven Bruck

BS, Creighton University '13
Program: Master of Arts/Doctor of
Medicine
Master of Arts

Samuel Joshua Brunwasser

, '

Program: MSTP
First Year Medical Student

Nora Catherine Burdis

BS, Rice University '14
Program: Doctor of Medicine
Second Year Medical Student

Lindsay Burton

BA, Harvard University '07
Program: Doctor of Medicine
Clinical Clerkship Year

Alice Cai

Tucson AZ
BS, University of Arizona '12
Program: Doctor of Medicine
Elective Year

Tamara Cameo

, '
Program: Doctor of Medicine
First Year Medical Student

Ravi Varkki Chacko

BS, Columbia University In Th '10
Program: MSTP
Third Year Research

Varun Chalivendra

Champaign IL
BA, Washington University in '07
Program: Master of Arts/Doctor of
Medicine
2015 Graduate
Otolaryngology
Stanford University Programs
Stanford CT

Andrew Lee Chang

Rockville MD
BS, University Of Maryland-Co '11
Program: MSTP
Third Year Research

Jodie Chang

Potomac MD

BA, Cornell University '13

Program: Doctor of Medicine

Clinical Clerkship Year

Randy Owen Chang

Saratoga CA

BS, Univ of California-LA '12

Program: Doctor of Medicine

Second Year Medical Student

Anita Nandkumar Chary

Savoy IL

BS, U of IL-Urbana-Champaign '08

Program: MSTP

Clinical Clerkship Year

Mary Christina Chavarria

,

Program: Doctor of Medicine

First Year Medical Student

Yulong Chen

San Francisco CA

BA, University Of California- '09

Program: MSCI/MD

Elective Year

Ishita Chen

Saint Louis MO

BS, University of Toledo '05

Program: Doctor of Medicine

Clinical Clerkship Year

Raymond Edward Chen

Chesterfield MO

BS, Duke University '12

Program: Doctor of Medicine

Elective Year

Simon Boyi Chen

BS, University of Toronto '12

Program: Doctor of Medicine

Elective Year

Howard Chang-Hao Chen

BS, Washington University '14

Program: Doctor of Medicine

Second Year Medical Student

Eileen Chen

,

Program: Doctor of Medicine

First Year Medical Student

Robert Chen

,

Program: MSTP

First Year Medical Student

Teresa Hsiao-Tien Chen

St. Louis MO

,

Program: Doctor of Medicine

First Year Medical Student

Lily Chen

,

Program: Doctor of Medicine

First Year Medical Student

Tiffany Lillian Cheng

Santa Clara CA

BA, University of California- '11

Program: Doctor of Medicine

Elective Year

Jenny Zhao Cheng

Richmond

BS, University of British Col '13

Program: Doctor of Medicine

Clinical Clerkship Year

William Deyang Cheng

Bar Harbor ME

BA, Washington University in '13

Program: Doctor of Medicine

Clinical Clerkship Year

Neena Rose Cherayil

Media PA

BA, Swarthmore College '11

Program: Doctor of Medicine
2015 Graduate
Neurology
Hospital of the University of Philadelphia
Philadelphia PA

Christopher John Chermide-Scabbo

, '
Program: MSTP
First Year Medical Student

Stephen Wen-Yan Chi

Fairfax VA
BS, College Of William And Ma '10
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Barnes-Jewish Hospital
St. Louis MO

Tingying Chi

St. Louis MO
BA, Harvard University '12
Program: Doctor of Medicine
Clinical Clerkship Year

Leslie Ying Chiang

Fremont CA
BA, University Of California- '10
Program: Master of Arts/Doctor of
Medicine
2015 Graduate
Pediatrics
University of California, San Diego
San Diego CA

Alicia E. Chionchio

Smithtown NY
BS, State University of New Y '12
Program: Doctor of Medicine
Elective Year

Danielle Louise Chirumbole

Chattanooga TN
, '

Program: Doctor of Medicine
First Year Medical Student

Ami Chung-Hui Chiu

BS, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Cheuk Ho Jeffrey Choi

, '
Program: Doctor of Medicine
First Year Medical Student

Madeleine Blair Chollet

St. Charles MO
BA, Rice University '06
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Stanford University Programs
Stanford CT

Chris Alison Chou

Medina WA
BA, University of Washington '11
Program: Doctor of Medicine
Elective Year

Eleanor Rachel Christenson

Fox Point WI
BS, Fordham University '14
Program: Doctor of Medicine
Second Year Medical Student

Elizabeth Kay Christiansen

Milwaukee WI
BA, Bowdoin College '12
Program: Doctor of Medicine
Second Year Medical Student

Cheryl Shuay-Ru Chu

Rowland Heights CA
BA, University of California- '10
Program: Doctor of Medicine
Elective Year

Christopher Lim Chung

Lafayette CA
BS, University Of California- '09
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Barnes-Jewish Hospital
St. Louis MO

Reece Evan Clark

St. Louis MO
, '
Program: Doctor of Medicine
First Year Medical Student

Julian Vukovich Clarke

, '
Program: Doctor of Medicine
First Year Medical Student

Frances Wynne Clow

BA, Stanford University '09
Program: Doctor of Medicine
Clinical Clerkship Year

Nathaniel Dow Coddington

BA, University of Virginia-Ma '13
Program: Doctor of Medicine
Clinical Clerkship Year

Kevin Michael Cohen

, '
Program: Doctor of Medicine
First Year Medical Student

Jordan Janae Cole

BS, University of Arizona '13
Program: Doctor of Medicine
Clinical Clerkship Year

Lyndsey Dyan Cole

BS, University of Arizona '13
Program: Doctor of Medicine
Clinical Clerkship Year

Avril Kaye Coley

Brooklyn NY

BS, Davidson College '14
Program: Doctor of Medicine
Second Year Medical Student

Miranda Denise Colletta

DeSoto TX
BS, University Of Texas At Au '11
Program: Doctor of Medicine
2015 Graduate
Otolaryngology
Medical College of Wisconsin Affil
Hospitals
Milwaukee WI

Emily Elaine Connor

Manchester IA
BA, Drake University '12
Program: Doctor of Medicine
Elective Year

Rachel Sarah Corbin

BS, Yale University '11
Program: Doctor of Medicine
Clinical Clerkship Year

Sarah Renee Cortez

Clarkston MI
BS, University of Michigan-An '10
Program: MD/MPHS
2015 Graduate
Obstetrics and Gynecology
Wayne State University/Detroit Medical
Ctr
Detroit MI

David Graham Cotter

Henderson NV
BS, Univ of Nevada-Las Vegas '08
Program: MSTP
2015 Graduate
University of Nevada Affiliated Hospitals
Las Vegas NV
Dermatology
University of California, San Diego

San Diego CA

Travis CreveCoeur

BS, Florida State University '13
Program: Doctor of Medicine
Second Year Medical Student

Kevin Cross

Clayton MO
BA, Vanderbilt University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Victoria Hui-Lin Cui

, '
Program: Doctor of Medicine
First Year Medical Student

Brian Michael Cusworth

St. Charles MO
, '
Program: Doctor of Medicine
First Year Medical Student

David Yaw Amoah Dadey

St. Louis MO
BS, Morehouse College '10
Program: MSTP
Clinical Clerkship Year

Jonathan Forrest Dalton

St. Louis MO
BA, Dartmouth College '12
Program: Doctor of Medicine
Second Year Medical Student

Giuseppe Salvatore D'Amelio

BS, Fordham University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Mary Dandulakis

Wilmington NC
BS, Univ of North Carolina '14
Program: Doctor of Medicine
Second Year Medical Student

Na Le Dang

St Louis MO
BA, Wesleyan University '11
Program: MSTP
Second Year Research

Elizabeth Daniels

BA, St John's College (Annapo '11
Program: Doctor of Medicine
Second Year Medical Student

Agnes Z Dardas

WORCESTER MA
BA, Harvard University '12
Program: Doctor of Medicine

Jyotirmoy Husayn Das

Gainesville FL
BS, University of Florida '13
Program: Doctor of Medicine
Clinical Clerkship Year

Emily Christine Davis

BA, Georgetown University '09
Program: Doctor of Medicine
Second Year Medical Student

Michael Brandon Del Valle

Pace FL
BS, University of South Flori '14
Program: Doctor of Medicine
Second Year Medical Student

Juan Ramon Deliz Gonzalez

, '
Program: Doctor of Medicine
First Year Medical Student

Francis Deng

Bristow VA
BA, Harvard University '12
Program: Doctor of Medicine
Elective Year

George Olen Denny

St. Louis MO
BS, Saint Louis University-Ma '11

Program: MSCI/MD

Elective Year

Kshitij Anil Desai

St. Louis MO

BA, Washington U in St Louis '14

Program: Doctor of Medicine

Second Year Medical Student

Cori Lynn DeSanto

Mexico NY

BS, College Of William And Ma '10

Program: Doctor of Medicine

2015 Graduate

Pediatrics

St. Louis Children's Hospital

St. Louis MO

Robert Warren DesPain

St. Louis MO

BS, Davidson College '11

Program: Doctor of Medicine

2015 Graduate

General Surgery

Walter Reed National Military Medical Ctr

Bethesda MD

Aristides George Diamant

, '

Program: Doctor of Medicine

First Year Medical Student

Paolo Dib

St. Louis MO

ND, Boston University '

Program: Doctor of Medicine

Second Year Medical Student

Chad Joseph Donahue

St. Louis MO

BS, University of Massachuset '08

Program: MSTP

First Year Research

Jarrold August Dornfeld

Saint Louis MO

BS, University of Iowa '10

Program: MD/MPHS

2015 Graduate

Emergency Medicine

Barnes-Jewish Hospital

St. Louis MO

Scott M Douglas

Nicholasville KY

BS, University Of Kentucky '09

Program: Doctor of Medicine

Alaric Wences D'Souza

BS, Yale University '14

Program: MSTP

Second Year Medical Student

Umber Dube

Ottawa, Ontario

BS, University of Waterloo '13

Program: MSTP

First Year Research

Jennifer Thanh Duong

San Jose CA

BA, University of California- '12

Program: Doctor of Medicine

Clinical Clerkship Year

Vivek Durai

Naperville IL

BA, Northwestern University '11

Program: MSTP

Third Year Research

Lucas Alexander Dvoracek

Wheeling WV

BS, West Liberty State Colleg '11

Program: Doctor of Medicine

2015 Graduate

Plastic Surgery

University of Pittsburgh Medical Center

Pittsburgh PA

Rachel Helen Dvorak

, '

Program: MSTP
First Year Medical Student

Gregory Charles Ebersole

BS, Ohio State University-Mai '09
Program: Doctor of Medicine
2015 Graduate
Barnes-Jewish Hospital
St. Louis MO

David Patrick Ebertz

, '
Program: Doctor of Medicine
First Year Medical Student

John Steven Ekman

Ventura CA
BA, Harvard University '12
Program: MSTP
First Year Research

Roy Leonard Emanuel, Jr.

Missouri City TX
BS, University Of Houston '09
Program: Doctor of Medicine
2015 Graduate
Did not match in specialty choice

Baris Can Ercal

St. Louis MO
BA, Harvard University '10
Program: MSTP
Fourth Year Research

Stephen Paul Erickson

St. Louis MO
BS, Northwestern College-MN '12
Program: Doctor of Medicine
Second Year Medical Student

Krisztina Elise Escallier

BS, University Of California- '08
Program: Doctor of Medicine
2015 Graduate
Anesthesiology

Barnes-Jewish Hospital
St. Louis MO

Amirhossein Esmaeeli

Carbondale IL
BS, Washington University in '11
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Emory University School of Medicine
Atlanta GA

Kow Akaa Essuman

York PA
BS, Temple University '10
Program: Master of Arts/Doctor of
Medicine
Master of Arts

Anastasia Bierut Evanoff

, '
Program: Doctor of Medicine
First Year Medical Student

Elyse Aufman Everett

St. Louis PA
BH, University Of Pittsburgh- '09
Program: Doctor of Medicine
2015 Graduate
Neurology
Barnes-Jewish Hospital
St. Louis MO

William Harvey Everett

Morton MS
BS, Millsaps College '11
Program: MSTP
Third Year Research

Jessica Fan

BS, University of California- '13
Program: Doctor of Medicine
Clinical Clerkship Year

Jennifer Rachel Farley

St. Louis MO
BA, Whitman College '12
Program: Doctor of Medicine
Second Year Medical Student

Fayola Francesca Fears

, '
Program: Doctor of Medicine
First Year Medical Student

Daniel Scott Feng

Troy MI
BA, Washington University in '11
Program: MD/MPHS
Elective Year

Ian Michael Ferguson

BA, U of California-Berkeley '09
Program: Doctor of Medicine
Second Year Medical Student

Estefania Fernandez

Allen TX
BS, University of Texas at Au '11
Program: MSTP
Second Year Research

Amarilyns Fernandez Maldonado

St. Louis MO
BS, Cornell University '13
Program: Doctor of Medicine
Second Year Medical Student

Caroline Rose Fischer

Cedar Rapids IA
BA, Coe College '12
Program: Doctor of Medicine
Elective Year

Jerry Fong

Norcross GA
BS, Washington University in '13
Program: MSTP
First Year Research

Lindsay Michelle Forbes

BS, Duke University '10
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Northwestern McGaw Medical Center
Chicago IL

Ronald Joseph Fowle Grider

BA, Illinois Wesleyan Univers '12
Program: MSTP
Second Year Research

Gregory Chandler Fox

Saint Louis MO
BS, Baylor University '13
Program: MSTP
First Year Research

Brianna Rachel Fram

Haddonfield NJ
BA, University of Pennsylvani '12
Program: Doctor of Medicine
Elective Year

Daniel David Friedman

Skokie IL
, '
Program: Doctor of Medicine
First Year Medical Student

Ann Catherine Frisse

St. Louis MO
BA, Barnard College '11
Program: Doctor of Medicine
Elective Year

Bradley Alexander Fritz

Independence OH
BS, Case Western Reserve Univ '10
Program: MSCI/MD
2015 Graduate
Anesthesiology
Barnes-Jewish Hospital
St. Louis MO

Stephen Ernest Fuest

Penfield NY
BS, Niagara University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Hilary Yablon Gallin

BS, Yale University '10
Program: Doctor of Medicine

Robert Joseph Gallo

Modesto CA
, '
Program: Doctor of Medicine
First Year Medical Student

Paul Gowdy Gamble

BA, University of Pennsylvania '11
Program: Master of Arts/Doctor of
Medicine
Clinical Clerkship Year

Margery Gang

Novi MI
, '
Program: Doctor of Medicine
First Year Medical Student

Charise Joy Garber

Lancaster PA
BA, Eastern Mennonite College '12
Program: MSTP
Second Year Research

Rachel Gartland

Pittsford NY
BS, University of Pittsburgh '13
Program: Doctor of Medicine
Clinical Clerkship Year

Kevin Phillip Garza

Coppell TX
, '
Program: Doctor of Medicine
First Year Medical Student

Tianjia Jessie Ge

Palo Alto CA
BS, California Institute of T '12
Program: Doctor of Medicine

Seren Michelle Gedallovich

Cooper City FL
BA, Barnard College '13
Program: Doctor of Medicine
Second Year Medical Student

Ashley Miranda Gefen

BS, McGill University '12
Program: Doctor of Medicine
Elective Year

Taylor Elizabeth Geisman

St. Charles MO
BS, University of Dayton '13
Program: Doctor of Medicine
Clinical Clerkship Year

Paul Edward George

Saint Charles MO
BS, Tulane University Of Loui '07
Program: Doctor of Medicine (5 Year)
Elective Year

Elizabeth Anne Germino

St. Louis MO
BS, Washington U in St. Louis '08
Program: MSTP
Fifth Year Research

Rahel Ghiorghis Ghenbot

Germantown MD
BH, University Of Minnesota-T '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
Ohio State University Medical Center
Columbus OH

Colton Gits

BA, Northwestern University-E '12
Program: Doctor of Medicine

Clinical Clerkship Year

Jeffrey Alan Gluckstein

Claremont CA

BS, Franklin W. Olin College '10

Program: Doctor of Medicine

Elective Year

Tracey Lynn Godbold

St. Louis MO

BA, Wellesley College '07

Program: Doctor of Medicine

Elective Year

Arjun C Gokhale

BA, Cornell University '11

Program: Doctor of Medicine

Clinical Clerkship Year

Rachel Lauren Goldberg

LEXINGTON MA

BA, Univ of Pennsylvania '14

Program: Doctor of Medicine

Second Year Medical Student

Alexander Reuben Goldberg

, '

Program: Doctor of Medicine

First Year Medical Student

Jared Vega Goodman

BS, Emory University '13

Program: MSTP

First Year Research

Elizabeth Ann Graesser

, '

Program: Doctor of Medicine

First Year Medical Student

Jose Gabriel Grajales

Toa Alta PR

BS, University of Puerto Rico '12

Program: MSTP

Second Year Research

Gary E Grajales Reyes

BS, University Of Puerto Rico '10

Program: MSTP

Fourth Year Research

Jacob Kalman Greenberg

Scarsdale NY

BA, Washington University in '09

Program: MSCI/MD

2015 Graduate

Neurological Surgery

Barnes-Jewish Hospital

St. Louis MO

Daniel Seth Greenstein

St. Louis MO

BA, Middlebury College '05

Program: Doctor of Medicine

Elective Year

Harleen Kaur Grewal

saint louis MO

BA, Boston University '13

Program: Doctor of Medicine

Clinical Clerkship Year

Natalie Elizabeth Griffin

, '

Program: Doctor of Medicine

First Year Medical Student

Steven Joseph Grigsby

Springfield IL

, '

Program: MSTP

First Year Medical Student

Whitney Rose Grither

Saint Louis MO

BA, Johns Hopkins University '09

Program: MSTP

Fourth Year Research

Jacob William Groenendyk

Williamsport MD

BA, Covenant College '14

Program: Doctor of Medicine

Second Year Medical Student

Andrew Paul Groves

St. Louis MO
BS, Northwestern University-E '12
Program: Doctor of Medicine
Elective Year

Ridhima Rao Guniganti

St Louis MO
BA, Columbia University in th '13
Program: Doctor of Medicine
Clinical Clerkship Year

Mindy Guo

BS, Univ of Southern Cal '14
Program: Doctor of Medicine
Second Year Medical Student

Chuner Guo

Danville CA
BS, Univ of North Carolina '14
Program: MSTP
Second Year Medical Student

Anjlie Anil Gupta

Cerritos CA
BA, University of Southern Ca '14
Program: Doctor of Medicine
Second Year Medical Student

LeMoyne Michael Habimana-Griffin

Alexandria IN
BS, Rose-Hulman Institute Of '11
Program: MSTP
Third Year Research

Douglas Hall

Chesterfield MO
BS, Vanderbilt University '14
Program: Doctor of Medicine
Second Year Medical Student

Rachel Nicole Hamilton

, '
Program: Doctor of Medicine
First Year Medical Student

Rowland Hua Han

BS, University of Pennsylvani '13
Program: Doctor of Medicine
Clinical Clerkship Year

Vivek Hitendra Hansalia

, '
Program: Doctor of Medicine
First Year Medical Student

Jeffrey Hansen

, '
Program: MSTP
First Year Medical Student

Eric Paul Hanson

BS, Drake University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Alex Michael Hanson

, '
Program: Doctor of Medicine
First Year Medical Student

Jessica Meng Jia Hao

, '
Program: Doctor of Medicine
First Year Medical Student

Nowrin Haque

Town & Country MO
BA, Washington U in St Louis '14
Program: Doctor of Medicine
Second Year Medical Student

Stephen August Hawn

, '
Program: Doctor of Medicine
First Year Medical Student

Leonard Brian Settle Hickman

, '
Program: Doctor of Medicine
First Year Medical Student

Stephanie Higgins

Lake Oswego OR
BA, Washington University in '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
University of Connecticut School of
Medicine
Farmington CT

Kelly Kathrene Hill

Fairfax VA
BS, Washington University in '12
Program: MSTP
Second Year Research

Jessica Kimberley Holttum

Mukilteo WA
BA, University of Washington '13
Program: Doctor of Medicine
Clinical Clerkship Year

Thomas Sanghuyn Hong

BS, U of Cal - San Diego '09
Program: Doctor of Medicine
Second Year Medical Student

Yijia Hong

, '
Program: Doctor of Medicine
First Year Medical Student

Christine Horan

Floral Park NY
, '
Program: Doctor of Medicine
First Year Medical Student

Alexandra Noel Houston-Ludlam

, '
Program: MSTP
First Year Medical Student

Seth Green Howdeshell

BA, Truman State University '08
Program: Doctor of Medicine

Clinical Clerkship Year

Shannon Leigh Hritz

BS, Houghton College '13
Program: Doctor of Medicine
Clinical Clerkship Year

Samantha Anne Hsieh

St. Louis MO
BA, Washington U in St Louis '13
Program: MSTP
Second Year Medical Student

Tina Hsu

, '
Program: Doctor of Medicine
First Year Medical Student

Xiaoqing Huang

Franklin Park NJ
BA, Princeton University '08
Program: MSTP
Fourth Year Research

Lingling Huang

Nanning
BS, Foreign College Not Coded '09
Program: Doctor of Medicine
Second Year Medical Student

Andrew Everett Oliver Hughes

Fairfax VA
BS, College of William & Mary '08
Program: MSTP
Fifth Year Research

Putzer Joseph Hung

BS, Brown University '10
Program: MSTP
Third Year Research

Ari Roy Huverserian

BA, University of Pennsylvania '11
Program: Doctor of Medicine
Elective Year

Tien-Phat Vuong Huynh

BS, University of California- '11

Program: MSTP
Second Year Research

Abiye Lawrence Ibiebele

Boyd MD
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Sarah Katherine Zeller Ihnen

University City MO
BA, Indiana Univ-Bloomington '03
Program: MSTP
2015 Graduate
Pediatrics
St. Louis Children's Hospital
St. Louis MO

Uzoh Erick Ikpeama

BH, University Of Pittsburgh- '11
Program: Doctor of Medicine
2015 Graduate
University of Texas Southwestern Med
School
Dallas TX
Physical Medicine & Rehabilitation
Baylor College of Medicine
Houston TX

Celina Rose Jacobi

Glen Ellyn IL
BA, Vanderbilt University '12
Program: Doctor of Medicine
Elective Year

Jordan Michael Jacquez

St. Louis MO
BS, Duke University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Nhila Jagadeesan

Schererville IN

BS, Indiana University-Purdue '11
Program: Doctor of Medicine
2015 Graduate

Internal Medicine
Barnes-Jewish Hospital
St. Louis MO

Radhika Jain

St. Louis MO
BA, Harvard University '14
Program: Doctor of Medicine
Second Year Medical Student

Nirbhay Suman Jain

, '
Program: Doctor of Medicine
First Year Medical Student

Bayan Thomas Jalalizadeh

Carrollton TX
BS, Washington University in '12
Program: Doctor of Medicine
Elective Year

Rohan Ariel Jalalizadeh

Carrollton TX
BS, Washington University in '12
Program: Doctor of Medicine
Elective Year

Andrew Philip Jallouk

St. Louis MO
BH, Vanderbilt University '10
Program: MSTP
Clinical Clerkship Year

Michael Gardner James

St. Louis MO
BS, University of Winnipeg '12
Program: Doctor of Medicine
Clinical Clerkship Year

Jared James

BS, Truman State University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Kavon Mohammad Javaherian

Lexington KY
BS, Univ of North Carololina '14
Program: Doctor of Medicine
Second Year Medical Student

Joyce Ji

Superior CO
BS, Brown University '11
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Barnes-Jewish Hospital
St. Louis MO

Naomi Yiyi Jiang

Northborough MA
BS, Massachusetts Institute O '11
Program: Doctor of Medicine
2015 Graduate
Barnes-Jewish Hospital
St. Louis MO
Radiation Oncology
University of California, Los Angeles
Los Angeles CA

Allan Jiang

BH, McMaster University '11
Program: Doctor of Medicine
2015 Graduate
Psychiatry
Barnes-Jewish Hospital
St. Louis MO

Diana Jiang

Beverly MA
BS, Cornell University '13
Program: Doctor of Medicine
Second Year Medical Student

Sally Jo

St Louis MO
BS, Emory University '13
Program: Doctor of Medicine

Second Year Medical Student

Linda Marie Johnson

Roscoe IL
BS, University Of Illinois At '09
Program: MSTP
Fourth Year Research

Shane Johnson

St. Louis MO
, '
Program: Doctor of Medicine
First Year Medical Student

William Johnston

, '
Program: Doctor of Medicine
First Year Medical Student

Kai Eka Jones

Tulsa OK
, '
Program: Doctor of Medicine
First Year Medical Student

Yusef Jamal Jordan

, '
Program: Doctor of Medicine
First Year Medical Student

Neel Shailendra Joshi

St. Louis MO
BA, Washington University in '10
Program: Doctor of Medicine
2016 Graduate

Wumesh K.C.

BS, Univ of CO, Boulder '06
Program: MSTP
2015 Graduate
Internal Medicine
Hospital of the University of Pennsylvania
Philadelphia PA

Jacqueline Celeste Kading

Highlands Ranch CO

, '
Program: Doctor of Medicine
First Year Medical Student

Vasilios Kalas

Orland Park IL
BS, University Of Chicago '10
Program: MSTP
Fourth Year Research

Po wei Kang

, '
Program: MSTP
First Year Medical Student

Lillian Kang

, '
Program: Doctor of Medicine
First Year Medical Student

Kristen Michelle Kapalka

West Chester PA
BS, Case Western Reserve Univ '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
Christiana Care
Newark DE

Nicholas William Karlow

Valley Park MO
BA, Washington U in St Louis '13
Program: Doctor of Medicine
Second Year Medical Student

Monica Kasbekar

Matthews NC
BS, University Of Virginia-Ma '10
Program: MSTP
Fourth Year Research

Sarah Kathryn Kaufman

Dallas TX
BA, University Of California- '09
Program: MSTP
Fourth Year Research

Daniel Martin Kaufman

Chatsworth CA
BS, University Of California- '11
Program: MSTP
Third Year Research

Johanna Rose Kaufman

Dix Hills NY
BA, Washington University in '12
Program: Doctor of Medicine
Elective Year

Alexandra Marie Keane

Leawood KS

, '
Program: Doctor of Medicine
First Year Medical Student

Chelsea Ann Kebodeaux

Olathe KS
BA, Washington University in '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
Christiana Care
Newark DE

Jawad Khalifeh

, '
Program: Doctor of Medicine
First Year Medical Student

Taleef Raza Khan

Creve Coeur MO
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Sunaina Khandelwal

BS, University Of Maryland-Ba '11
Program: MSTP
Third Year Research

David Hyunghwa Kim

Las Vegas NV
BS, Yale University '10

Program: Doctor of Medicine
2015 Graduate
Rush University Medical Center
Chicago IL
Anesthesiology
Rush University Medical Center
Chicago IL

Judith Ann Kim

Paramus NJ
BA, Harvard University '11
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
New York Presbyterian Hospital-Columbia
New York NY

Janice S Kim

Syosset NY
BS, Yale University '12
Program: Doctor of Medicine
Clinical Clerkship Year

Elizabeth Kim

, '
Program: Doctor of Medicine
First Year Medical Student

Vanessa Lynn Kleckner

New Brighton MN
BA, St. Olaf College '12
Program: MSCI/MD

Roger Davies Klein

BA, College Of Wooster '11
Program: MSTP
Third Year Research

Erin Elizabeth Klein

, '
Program: Doctor of Medicine
First Year Medical Student

Dylan Girard Kluck

Boulder CO
BA, University Of California- '10

Program: Doctor of Medicine
2015 Graduate
Orthopaedic Surgery
University of California, San Diego
San Diego CA

Brent Alexander Knight

St. Louis MO
BS, Whitworth University '09
Program: Doctor of Medicine
Elective Year

James Jiann-Yeu Ko

Cockeysville MD
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Julia Helen Kolodziej

BS, Berry College '14
Program: Doctor of Medicine
Second Year Medical Student

Tracie Yiqing Kong

, '
Program: Doctor of Medicine
First Year Medical Student

Katerina Sunn Konstantinoff

BA, University of Chicago '14
Program: Doctor of Medicine
Second Year Medical Student

Victor Joseph Wade Kovac

Saint Louis MO
BA, University of Minnesota '11
Program: Doctor of Medicine
Second Year Medical Student

Andrew W. Kraft

University City MO
BA, Washington University in '09
Program: MSTP
Fourth Year Research

Sangitha Krishnan

BS, University of California- '13

Program: Doctor of Medicine
Clinical Clerkship Year

Varintra Edlyn Krisnawan

, '

Program: MSTP
First Year Medical Student

Justin David Krogue

St Louis MO
BS, Brigham Young University '11
Program: Doctor of Medicine
2015 Graduate
Orthopaedic Surgery
University of California, San Francisco
San Francisco CA

Alyssa Jean Kronen

BA, Middlebury College '12
Program: Doctor of Medicine
Clinical Clerkship Year

Dalen Chen Kuang

Denver CO
BA, Washington U in St Louis '14
Program: Doctor of Medicine
Second Year Medical Student

Runjun Dev Kumar

, '

Program: MSTP
Fourth Year Research

Runjun Dev Kumar

BS, University Of Toronto '10
Program: MSTP
Fourth Year Research

Jonathan Labin

Carmel IN
BS, Indiana Univ-Bloomington '14
Program: Doctor of Medicine
Second Year Medical Student

Randy Olivier Laine

ND, Harvard University (Exten '14)

Program: Doctor of Medicine
Clinical Clerkship Year

Gopal Ram Lalchandani

Sacramento CA
BA, University of California- '12
Program: Doctor of Medicine
Elective Year

Ramin Mathew Lalezari

Los Angeles CA
BA, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Daniel Lander

, '

Program: Doctor of Medicine
First Year Medical Student

Colleen Walsh Lang

St. Louis MO
BS, University Of Notre Dame '06
Program: MSTP
Fourth Year Research

Julia Meredith Lange

BS, University of California- '10
Program: Doctor of Medicine
Clinical Clerkship Year

Jodi Beth Lapidus

St. Louis MO
BA, Univ of Pennsylvania '13
Program: Doctor of Medicine
Second Year Medical Student

Aisling Sarah Leanne Last

Danville CA

, '

Program: Doctor of Medicine
First Year Medical Student

Phuong My Le

Herriman UT
BA, Washington U in St Louis '14
Program: Doctor of Medicine

Second Year Medical Student

Katherin Eliza Leckie

Bozeman MT
BS, Montana State University- '12
Program: Doctor of Medicine
Elective Year

Sarah Beth Lederhandler

Miami FL
BS, Yale University '10
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
University of California, San Diego
San Diego CA

Audrey Alexandra Lee

La Selva Beach CA
BS, Rice University '11
Program: Doctor of Medicine
Elective Year

Dong Young Lee

St Louis MO
BS, University of Illinois at '08
Program: Master of Arts/Doctor of
Medicine
Clinical Clerkship Year

Laura Ann Lee

BA, Univ of Pennsylvania '12
Program: Doctor of Medicine
Second Year Medical Student

Dov Bernard Lerman-Sinkoff

West Bloomfield MI
BH, University of Michigan-An '10
Program: MSTP
Third Year Research

Adam Nathaniel Letvin

BA, Harvard University '10
Program: Doctor of Medicine
Elective Year

Lucy Xiaotian Li

ACTON MA
BA, Cornell University '10
Program: MSTP
Third Year Research

Sophia Mengting Li

Lexington KY
BA, Washington University in '11
Program: MD/MPHS
Elective Year

Han Li

Southgate MI
BS, University of Michigan-An '11
Program: Doctor of Medicine
2015 Graduate
Barnes-Jewish Hospital
St. Louis MO
Ophthalmology
Washington University
St. Louis MO

Yedda Li

St. Louis MO
BA, Washington University in '10
Program: MSTP
Third Year Research

Kevin Kai Li

Cary NC
BS, Massachusetts Institute o '13
Program: Doctor of Medicine
Clinical Clerkship Year

Kevin Z. Li

Clarksville MD
BA, Washington U in St Louis '12
Program: Doctor of Medicine
Second Year Medical Student

Yang Li

, '
Program: Doctor of Medicine
First Year Medical Student

Zhe Liang

BS, University of Toronto '12
Program: Doctor of Medicine
Clinical Clerkship Year

Brooke Liang

BS, U of California-Berkeley '14
Program: Doctor of Medicine
Second Year Medical Student

Marianne Morris Ligon

BS, University of Georgia '14
Program: MSTP
Second Year Medical Student

Leanne Yuanci Lin

Muncie IN
ND, Purdue Univ-Main Campus '
Program: MD/MPHS
2015 Graduate
University of Buffalo School of Medicine
Buffalo NY
Diagnostic Radiology
University of Kentucky Medical Center
Lexington KY

Amber Rebecca Lin

Centennial CO
BS, Massachusetts Institute O '11
Program: Doctor of Medicine
2015 Graduate
Family Medicine
Presbyterian Intercommunity Hospital
Whittier CA

Jonathan Beaux Lin

Dayton OH
BS, Emory University '12
Program: MSTP
Second Year Research

Kenneth Michael Lin

Castro Valley CA
BS, Massachusetts Institute o '12
Program: Doctor of Medicine

Elective Year

Charlotte Lin

BA, Johns Hopkins University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Angela Hao-Ting Lin

BA, Rice University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Miranda Renee Lindburg

Sandy UT
BA, Washington University in '10
Program: Doctor of Medicine
Elective Year

Stephen Wheeler Linderman

St Louis MO
BS, Cornell University '10
Program: MSTP
Third Year Research

Deepak Lingam

Hayward CA
BS, Johns Hopkins University '14
Program: Doctor of Medicine
Second Year Medical Student

Andrew Daniel Linkugel

BA, Thomas More College '13
Program: Doctor of Medicine
Clinical Clerkship Year

James Chang Liu

Tucson AZ
BA, Harvard University '10
Program: Doctor of Medicine
2015 Graduate
Indiana University School of Medicine
Indianapolis IN
Ophthalmology
Washington University
St. Louis MO

Sonya Yannie Liu

Pocatello ID

BA, Washington U in St Louis '14

Program: Doctor of Medicine

Second Year Medical Student

Connor Je-Gete Liu

West Hartford CT

,

Program: Doctor of Medicine

First Year Medical Student

Austin James Lohse

BS, Vanderbilt University '12

Program: Doctor of Medicine (5 Year)

Clinical Clerkship Year

Karly Lorbeer

Saint Johns FL

BS, University of Florida '12

Program: Doctor of Medicine

Elective Year

Andrew Joseph Loza

Dublin OH

BS, University Of Notre Dame '10

Program: MSTP

Fourth Year Research

Patricia Gina Lu

,

Program: Doctor of Medicine

First Year Medical Student

Amelia Claire Lucisano

St. Louis MO

BS, University Of Notre Dame '11

Program: Doctor of Medicine

2015 Graduate

General Surgery

University of Pittsburgh Medical Center

Pittsburgh PA

Micah John Luderer

Portage MI

MS, Michigan State University '11

Program: MSTP

Third Year Research

Jimmy Ma

Overland Park KS

BA, Washington University in '11

Program: Doctor of Medicine

2015 Graduate

Internal Medicine

Barnes-Jewish Hospital

St. Louis MO

Lisa Shisi Ma

Warren NJ

BA, Harvard University '12

Program: Doctor of Medicine

Elective Year

Yuntong Ma

Houston TX

BA, Columbia University in th '12

Program: Doctor of Medicine

Natalie Arianna Macaruso

Columbia SC

BS, Duke University '11

Program: Doctor of Medicine

2015 Graduate

Pediatrics

St. Louis Children's Hospital

St. Louis MO

Kenneth Dewey Macneal

BS, University of Denver '13

Program: Doctor of Medicine

Clinical Clerkship Year

Michael Joseph Madigan

BS, Duke University '13

Program: Doctor of Medicine

Clinical Clerkship Year

Chinwe Christine Madubata

Riverdale MD

BS, Harvard University '12

Program: Doctor of Medicine

Brianna Cristine Magnusen

Flagstaff AZ

BS, University of Arizona '09

Program: Doctor of Medicine

2015 Graduate

Pathology

Barnes-Jewish Hospital

St. Louis MO

Annelise Yoo Mah

St. Louis MO

BS, Stanford University '12

Program: MSTP

Second Year Research

Tatenda Mahlokozera

BA, Colby College '09

Program: MSTP

Second Year Research

Elizabeth Anne Maidl

St. Louis MO

BS, University of St Thomas '13

Program: Doctor of Medicine

Second Year Medical Student

Shahriyar Patrick Majidi

Chesterfield MO

BA, Washington University in '12

Program: MSTP

Second Year Research

Shamaita Majumdar

Chesterfield MO

BS, Duke University '14

Program: Doctor of Medicine

Second Year Medical Student

Manasi Malik

, '

Program: MSTP

First Year Medical Student

Toby Ryan Manders

, '

Program: Doctor of Medicine

First Year Medical Student

Sindhu Manivasagam

Plano TX

BS, Washington U in St Louis '14

Program: MSTP

Second Year Medical Student

Mathew S Margolis

BS, Univ of California-LA '13

Program: Doctor of Medicine

Second Year Medical Student

Jeffrey Michael Marinslaw

Belmont CA

BA, Washington University in '12

Program: Doctor of Medicine

Clinical Clerkship Year

Alexander Marinov Markov

Saint Louis MO

BA, Washington U in St Louis '14

Program: Doctor of Medicine

Second Year Medical Student

Lauren Ashley Marks

Saint Louis MO

BA, Vanderbilt University '11

Program: Doctor of Medicine

2015 Graduate

Psychiatry

Barnes-Jewish Hospital

St. Louis MO

Lauren Therese Josiah Martin

Holden ME

BS, Andrews University '12

Program: Doctor of Medicine

Elective Year

Benjamin Max Masserano

Albuquerque NM

BS, Arizona State University '14

Program: Doctor of Medicine

Second Year Medical Student

Michael Mathison

Santa Ana CA

,

Program: Doctor of Medicine
First Year Medical Student

Shagun Mathur

BA, Vanderbilt University '14

Program: Doctor of Medicine
Second Year Medical Student

Kunal Mohan Mathur

Chesterfield MO

BA, Washington U in St Louis '14

Program: Doctor of Medicine
Second Year Medical Student

Matthew Kelly Matlock

BS, University of Tulsa '09

Program: MSTP
First Year Research

Weston McCarron

,

Program: Doctor of Medicine
First Year Medical Student

Martha Morris Orms McGilvray

BA, Wellesley College '10

Program: Doctor of Medicine (5 Year)
Clinical Clerkship Year

Paul Matthew McMurry

,

Program: Doctor of Medicine
First Year Medical Student

Nehali Mahesh Mehta

BS, University of California- '13

Program: Doctor of Medicine
Clinical Clerkship Year

Sagar Devendra Mehta

Orlando FL

BA, Duke '13

Program: Doctor of Medicine
Clinical Clerkship Year

Manuela Mejia

BS, Duke University '14

Program: Doctor of Medicine
Second Year Medical Student

Christopher Alexander Mejias

BA, Washington U in St Louis '14

Program: Doctor of Medicine
Second Year Medical Student

Michelle Alexandra Mendiola-Pla

BA, Univ of Pennsylvania '12

Program: Doctor of Medicine
Second Year Medical Student

Emily Catherine Merfeld

Clive IA

BS, University of Iowa '14

Program: Doctor of Medicine
Second Year Medical Student

Zachary Isaac Meyer

Melville NY

BA, Washington University in '11

Program: Doctor of Medicine
2015 Graduate

Orthopaedic Surgery

Barnes-Jewish Hospital

St. Louis MO

Melissa Faye Meyer

Wilmette IL

BS, University of Michigan-An '12

Program: Doctor of Medicine
Clinical Clerkship Year

Cherise Meyerson

Reseda CA

BS, University of California- '12

Program: Doctor of Medicine
Elective Year

Michael Scott Miles

,

Program: Doctor of Medicine
First Year Medical Student

Jessica P Miller

St. Louis MO
BS, Washington University in '05
Program: MSTP
Third Year Research

Hannah Leigh Miller

Elkridge MD
BS, University of Maryland-Co '11
Program: MSTP
Second Year Research

Kelly Sue Milman

Austin TX
BS, Brown University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Jaspur Jiwon Min

Saint Louis MO
BA, Washington University in '11
Program: Doctor of Medicine
Elective Year

Caroline J Min

St. Louis MO
, '
Program: Doctor of Medicine
First Year Medical Student

Shruti Mishra

BS, California Institute of T '12
Program: Doctor of Medicine
Elective Year

Anish Mitra

BS, Stanford University '09
Program: MSTP
Fourth Year Research

Anand Mohapatra

San Jose CA
BS, University of California- '12
Program: Doctor of Medicine
Elective Year

Mahati Mokkarala

Budd Lake NJ
BS, Cal Institute of Tech '13
Program: Doctor of Medicine
Second Year Medical Student

Sergio Luis Molina

Pharr TX
BS, Baylor University '11
Program: Doctor of Medicine (5 Year)
Elective Year

Kelsey Ann Childs Moon

Chesterfield MO
BS, Harding University Main C '12
Program: Doctor of Medicine
Elective Year

James Russell Moore

, '
Program: MSTP
First Year Medical Student

Marie Theresa Morris

Little Rock AR
BS, University of Arkansas Ma '12
Program: Doctor of Medicine
Elective Year

Gabriela Madeleine Morris

Little Rock AR
BS, University of Arkansas '14
Program: Doctor of Medicine
Second Year Medical Student

Anna Cates Moseley

Springfield MO
BA, Washington University in '12
Program: Doctor of Medicine
Clinical Clerkship Year

Emily Duke Moseley

Springfield MO
BA, Washington University in '12
Program: Doctor of Medicine
Clinical Clerkship Year

Lindsey Elizabeth Moses

Madison WI

BS, Washington University in '12

Program: Doctor of Medicine

Elective Year

Hayley Ann Motowski

,

Program: Doctor of Medicine

First Year Medical Student

Arnav Moudgil

BS, Stanford University '10

Program: MSTP

First Year Research

Lincoln Muhoro

St. Louis MO

BA, Clark University '08

Program: MSTP

Fourth Year Research

Bernard Mulvey

St Louis MO

BS, University of Wisconsin-M '13

Program: Doctor of Medicine

First Year Research

Sindhoora Murthy

BS, Johns Hopkins University '13

Program: Doctor of Medicine

Second Year Medical Student

Farah Musharbash

,

Program: Doctor of Medicine

First Year Medical Student

Armiyaw Sebastian Nasamu

,

Program: MSTP

First Year Medical Student

Adam David Naylor

Jackson MI

BS, Univ of Michigan-AnnArbor '13

Program: Doctor of Medicine

Second Year Medical Student

Dillan Jacob Newbold

Boone IA

BS, University of Iowa '14

Program: MSTP

Second Year Medical Student

Kenneth Fredrick Newcomer

BS, Brown University '12

Program: Doctor of Medicine

Second Year Medical Student

Olga Reine Neyman

Duluth GA

BS, Washington University in '13

Program: MSTP

First Year Research

Dean Thomas Odegard

,

Program: Doctor of Medicine

First Year Medical Student

Shari Diane Oesterreich

St. Louis MO

BA, Greenville College '12

Program: Doctor of Medicine

Clinical Clerkship Year

Landon Kyle Oetjen

Paducah KY

BS, Washington University in '12

Program: MSTP

Second Year Research

Takahiro Erick Ohara

Torrance CA

BS, Univ of California-LA '12

Program: MSTP

Second Year Medical Student

Emily Hunt Olfson

St Louis MO

BA, Oberlin College '10

Program: MSTP
Clinical Clerkship Year

Patrick David Olson

St. Louis MO
BS, University Of Nebraska At '09
Program: MSTP
Fourth Year Research

Gregory Ugochukwu Opara

Sugar Land TX
BA, Washington U in St Louis '14
Program: Doctor of Medicine
Second Year Medical Student

Inema Epere Orukari

Richmond CA
BS, San Jose State University '09
Program: MSTP
Third Year Research

Ashley Denise Osborne

San Jose CA
BS, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Elaine Serwah Otchere

Ann Arbor MI
BS, Univ of Michigan-AnnArbor '13
Program: Doctor of Medicine
Second Year Medical Student

Katherine Carol Altheide Ott

Buhler KS
BA, University of Pennsylvani '09
Program: Doctor of Medicine
Elective Year

Bo Tyler Overschmidt

BS, University of Missouri-Co '12
Program: Doctor of Medicine
Elective Year

Alexander G. Padovano

Vernon Hills IL

BS, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

William Michael Padovano

Vernon Hills IL
,

Program: Doctor of Medicine
First Year Medical Student

Joshua Burke Page

,

Program: Doctor of Medicine
First Year Medical Student

Kevin Kuang Hung Pan

Birmingham AL
BS, National Taiwan Universit '99
Program: Doctor of Medicine

Deng Pan

BS, Johns Hopkins University '12
Program: MSTP
First Year Research

Kevin Woo Park

Sunnyvale CA
BA, Yale University '09
Program: Doctor of Medicine (5 Year)
2015 Graduate
Orthopaedic Surgery
Beaumont Health System
Royal Oak MI

Eugene Park

Lake Zurich IL
BS, Washington U in St Louis '11
Program: MSTP
Third Year Research

Bhuvic Patel

Westborough MA
BS, Brown University '11
Program: Doctor of Medicine
2015 Graduate
Neurological Surgery

Barnes-Jewish Hospital
St. Louis MO

Swapneel Jagdishchandra Patel

Northridge CA
BS, California State University '09
Program: MSTP
Third Year Research

Tirth Patel

Riverside CA
BS, University Of California- '11
Program: MSTP
Second Year Research

Keval Dipan Patel

Livonia MI
BS, University of Michigan-An '12
Program: MSTP
Second Year Research

Aalok Pankaj Patel

Chicago IL
BS, University of Illinois at '12
Program: Doctor of Medicine
Elective Year

Jon Robert Peacock

, '
Program: Doctor of Medicine
First Year Medical Student

Andrew Scott Perry

Salt Lake City UT
BS, The University of Utah '12
Program: Doctor of Medicine
Elective Year

Ethan Emil Pfeifer

, '
Program: Doctor of Medicine
First Year Medical Student

Hoang Xuan Pham

, '
Program: Doctor of Medicine
First Year Medical Student

Patrick Sissel Phelan

, '
Program: Doctor of Medicine
First Year Medical Student

Galen Udell Pizzorno

Seattle WA
BS, University of Washington '13
Program: Doctor of Medicine
Second Year Medical Student

Joseph Planer

North Manchestere IN
BA, Beloit College '05
Program: MSTP
Fifth Year Research

Alan Solomon Plotzker

Wilmington DE
BA, University Of Pennsylvania '08
Program: Doctor of Medicine
2015 Graduate
Neurology
Barnes-Jewish Hospital
St. Louis MO

Naveen Kumar Pokala

BS, U of Illinois at Chicago '13
Program: Doctor of Medicine
Second Year Medical Student

Bree Ann Porcelli

Maplewood NJ
BA, New York University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Justin Roy Porter

BA, Johns Hopkins University '12
Program: MSTP
Second Year Medical Student

Dylan Robert Powell

Sioux Falls SD
BA, Carleton College '14
Program: Doctor of Medicine

Second Year Medical Student

Alvin Caldwell Powell, Jr.

Greensboro NC

BA, Columbia University in NY '10

Program: Doctor of Medicine

2015 Graduate

Family Medicine

University of North Carolina Hospitals

Chapel Hill NC

Cliff Pruett

BS, Abilene Christian Univ '14

Program: Doctor of Medicine

Second Year Medical Student

Chi Lun Pui

Houston TX

BS, University Of Texas At Au '09

Program: Master of Arts/Doctor of
Medicine

2015 Graduate

Internal Medicine

University of Texas Health Science Center

Edinburgh TX

Vaishnavi Purusothaman

Oviedo FL

BS, University Of Florida '10

Program: Master of Arts/Doctor of
Medicine

2015 Graduate

Obstetrics and Gynecology

University of Texas Health Science Center

San Antonio TX

Owen Li Qi

San Diego CA

BS, Washington University in '12

Program: Doctor of Medicine

Elective Year

David Augustus Qualls

Oviedo FL

BS, University of Florida '12

Program: Doctor of Medicine

Elective Year

Brian Joseph Rabe

, '

Program: Doctor of Medicine

First Year Medical Student

Saravanan Raju

BA, Northwestern University '11

Program: MSTP

Third Year Research

Hari S Raman

, '

Program: Doctor of Medicine

First Year Medical Student

Kara Nichole Ramsey

Frankfort IL

BS, University of Illinois at '08

Program: Doctor of Medicine

Clinical Clerkship Year

Valary Terenzoni Raup

Broomfield CO

BA, University Of Colorado At '10

Program: Doctor of Medicine

2015 Graduate

Brigham & Women's Hospital

Boston MA

Urology

Brigham & Women's Hospital

Boston MA

Kelsey Anne Rebehn

BS, Saint Lawrence University '11

Program: Doctor of Medicine

2015 Graduate

Orthopaedic Surgery

Saint Louis University School of Medicine

St. Louis MO

Evelyn Rose Reed

Stowe VT

, '

Program: Doctor of Medicine
First Year Medical Student

Ryan Embree Rees

Temecula CA

, '

Program: Doctor of Medicine
First Year Medical Student

Amanda Hart Reis

St. Louis MO

BA, Middlebury College '13

Program: Doctor of Medicine
Clinical Clerkship Year

Arvind Rengarajan

San Jose CA

BS, University Of California- '09

Program: Doctor of Medicine
2015 Graduate

Internal Medicine

Barnes-Jewish Hospital

St. Louis MO

Arith Ruth Selda Reyes

BA, University of Pennsylvania '12

Program: Doctor of Medicine
Clinical Clerkship Year

Ellen Lucy Rice

, '

Program: Doctor of Medicine
First Year Medical Student

Max Sebastian Riley

Saint Louis MO

BA, University of Pennsylvania '12

Program: Doctor of Medicine
Clinical Clerkship Year

Emily Joanne Rion

BS, Univ of Michigan-AnnArbor '13

Program: Doctor of Medicine

Second Year Medical Student

Gregory Louis Rippberger

Sharon MA

BA, Washington University in '12

Program: Doctor of Medicine
Clinical Clerkship Year

Ana Gabrielle Rivera

BA, Harvard University '13

Program: Doctor of Medicine
Clinical Clerkship Year

Michael George Rizzo

St. Louis MO

BA, Harvard University '14

Program: Doctor of Medicine
Second Year Medical Student

Caroline LaVerne Robb

Effingham IL

BA, Washington U in St Louis '14

Program: Doctor of Medicine
Second Year Medical Student

Michelle Lauren Robinette

Destin FL

BS, University of Michigan-An '11

Program: MSTP

Third Year Research

Jocelyn Maria Rodriguez

San Francisco CA

BS, Yale University '12

Program: Doctor of Medicine (5 Year)

Clinical Clerkship Year

Brandon Louis Rogalski

Mount Pleasant SC

BA, Washington University in '12

Program: Doctor of Medicine
Clinical Clerkship Year

Kristen Knutsen Rosano

BS, U of North Carolina at '14

Program: Doctor of Medicine
Second Year Medical Student

Alexander Bernard Rose

St. Louis MO
BA, Washington University in '10
Program: MD/MPHS
2015 Graduate
Psychiatry
Barnes-Jewish Hospital
St. Louis MO

Max Samuel Wedlan Rosen

Washington DC
BA, Washington University in '10
Program: Doctor of Medicine
2015 Graduate
Psychiatry
Barnes-Jewish Hospital
St. Louis MO

Elizabeth Dyer Rosenberg

St. Louis MO
BS, Tufts University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Abby Rachel Rosenberg

Buffalo Grove IL
BS, U of Illinois at Urbana-C '13
Program: Doctor of Medicine
Second Year Medical Student

Zachary Pollack Rosenthal

St. Louis MO
BS, Haverford College '14
Program: MSTP
Second Year Medical Student

Mikhail Roubakha

BH, University of Western Ont '13
Program: Doctor of Medicine
Clinical Clerkship Year

Aaron Samuel Rudin

Saint Louis MO
BS, University Of California- '07
Program: Doctor of Medicine

2015 Graduate
Santa Clara Valley Medical Center
San Jose CA
Anesthesiology
Massachusetts General Hospital
Boston MA

Aaron Jacob Russell

Oroville CA
BS, University of California- '12
Program: Doctor of Medicine
Elective Year

David Aaron Russler-Germain

Potomac MD
BS, Stanford University '09
Program: MSTP
Clinical Clerkship Year

Emilie Veronica Russler-Germain

St. Louis MO
BS, Stanford University '10
Program: MSTP
Second Year Research

Gina Nicole Sacks

Nashville TN
BS, University of North Carol '12
Program: Doctor of Medicine
Elective Year

Tarek Salih

Cheyenne WY
BS, University Of Wyoming '09
Program: MSTP
Second Year Research

Christelle Desiree Kouessieu Samen

BS, University Of Maryland-Ba '11
Program: Doctor of Medicine
Clinical Clerkship Year

Maximilian Oswald Schaeffler

, '
Program: MSTP

First Year Medical Student

Paul Joseph Scheel III.

Ellicott City MD

BS, University of Notre Dame '12

Program: Doctor of Medicine

Elective Year

Allison Page Schelble

St. Louis MO

BA, Washington University in '13

Program: Doctor of Medicine

Clinical Clerkship Year

Ellen Catherine Schill

Alexandria VA

BA, Univ of Virginia - Main '09

Program: MSTP

Fifth Year Research

Gregory Vincent Schimizzi

Wilmington NC

BS, UNC Chapel Hill '09

Program: MSTP

Fourth Year Research

Derek Thomas Schloemann

St. Louis MO

BS, Missouri U of Sci & Tech '13

Program: Doctor of Medicine

Second Year Medical Student

Morgan Brooke Schoer

Marion IN

BA, Washington University in '13

Program: Doctor of Medicine

Clinical Clerkship Year

Maria Therese Schwabe

, '

Program: Doctor of Medicine

First Year Medical Student

Mary Morgan Scott

, '

Program: Doctor of Medicine

First Year Medical Student

Nicholas Richard Scott-Wittenborn

BA, Carleton College '10

Program: Doctor of Medicine

Clinical Clerkship Year

Abraham Segura

Pasadena TX

BS, Rice University '11

Program: Doctor of Medicine

Clinical Clerkship Year

Nicholas Paul Semenkovich

St. Louis MO

BS, Massachusetts Institute O '09

Program: MSTP

Fifth Year Research

Michael Jorge Senter-Zapata

, '

Program: Doctor of Medicine

First Year Medical Student

Amar S Shah

Toms River NJ

BS, Lehigh University '14

Program: Doctor of Medicine

Second Year Medical Student

Nakul Manish Shah

, '

Program: Doctor of Medicine

First Year Medical Student

Vikram Aditya Shankar

Cincinnati OH

BS, Ohio State University-Mai '12

Program: Doctor of Medicine

Elective Year

Jordan Arielle Shaw

, '

Program: MSTP

First Year Medical Student

Susan Qi Shen

Ames IA

BS, California Inst of Tech '09

Program: MSTP

Fifth Year Research

Tony Sicheng Shen

BA, Harvard University '12

Program: Doctor of Medicine

Clinical Clerkship Year

Carol Liu Shen

St. Louis MO

BA, Harvard University '13

Program: Doctor of Medicine

Clinical Clerkship Year

Ching-Chieh Shen

BA, Swarthmore College '11

Program: Doctor of Medicine

Clinical Clerkship Year

Nicole Jimin Shin

St. Louis MO

BA, Washington University in '09

Program: Doctor of Medicine

2015 Graduate

St. Mary's Health Center

St. Louis MO

Anesthesiology

Hospital of the University of Pennsylvania

Philadelphia PA

Joshua Sarfaty Siegel

Bryn Mawr PA

BA, Washington University in '10

Program: MSTP

Third Year Research

Alejandro Francisco Siller, Jr.

St Louis MO

BS, Rice University '10

Program: MSCI/MD

Clinical Clerkship Year

Shawgi Abbas Silver

Shoreline WA

BA, Whitman College '05

Program: MD/MPHS

Maya Rotem Silver

, '

Program: Doctor of Medicine

First Year Medical Student

Sampat Sindhar

Bakersfield CA

BS, Univ of California-LA '14

Program: Doctor of Medicine

Second Year Medical Student

Nicholas Alexander Singh-Pickersgill

, '

Program: Doctor of Medicine

First Year Medical Student

Drew Benjamin Sinha

Portland OR

BS, Washington University in '13

Program: MSTP

First Year Research

Scott Andrew Skillington

Colorado Spgs CO

BA, University of Colorado at '12

Program: MSCI/MD

Clinical Clerkship Year

Michael Joseph Slade

St. Louis MO

BA, University of Georgia '11

Program: MSCI/MD

Arthur Curtis Sletten

St. Louis MO

BA, St. Olaf College '13

Program: MSTP

Second Year Medical Student

Katherine Hollister Smith

Baton Rouge LA

BS, Louisiana State Univ & Ag '10

Program: Master of Arts/Doctor of
Medicine

2015 Graduate

Obstetrics and Gynecology

Barnes-Jewish Hospital
St. Louis MO

Sarah Elizabeth Smith

Hopkinton MA
BA, University of Pennsylvania '12
Program: MSTP
Second Year Research

Michael Engel Snavely

BA, Macalester College '12
Program: Doctor of Medicine
Clinical Clerkship Year

Andrea Nicole Soares

BS, U of California - LA '12
Program: Doctor of Medicine
Second Year Medical Student

Benjamin David Solomon

Rockville MD
BA, Cornell University '09
Program: MSTP
Fifth Year Research

Avik Som

Houston TX
BS, Johns Hopkins University '11
Program: MSTP
Third Year Research

Wilbur Madison Song

Saint Louis MO
BS, Washington University in '13
Program: MSTP
First Year Research

Nicholas Charles Spies

San Antonio TX
, '
Program: Doctor of Medicine
First Year Medical Student

Rachel Springer

Tinley Park IL
BS, Tulane University '14
Program: Doctor of Medicine

Second Year Medical Student

Nitya Lakshmi Sreevalsan

, '
Program: Doctor of Medicine
First Year Medical Student

Jordan Taylor Standlee

Mukilteo WA
BA, University of Washington '13
Program: Doctor of Medicine
Clinical Clerkship Year

Katherine Stanley

BA, Stanford University '12
Program: Doctor of Medicine
Second Year Medical Student

Miriam Bathia Steinberg

Miami FL
BS, Washington University in '11
Program: Doctor of Medicine
2015 Graduate
Pediatrics
St. Louis Children's Hospital
St. Louis MO

Lindsey Katherine Steinberg

Springfield MO
BA, Washington University in '13
Program: MSTP
First Year Research

Rachel H Steinhorn

Chicago IL
BH, Bard College '10
Program: Doctor of Medicine (5 Year)
2015 Graduate
Barnes-Jewish Hospital
St. Louis MO
Anesthesiology
Massachusetts General Hospital
Boston MA

Robert John Stephens

BS, Virginia Polytechnic Inst '12

Program: Doctor of Medicine
Second Year Medical Student

Rachel Aviva Stern

Morristown NJ
BA, Tufts University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Jennifer Ann Stevens

St. Louis MO
BS, Washington University in '13
Program: MSTP
Second Year Research

Sathish Subramanian

BA, Univ of Pennsylvania '08
Program: MSTP
Fifth Year Research

Tanvi Subramanian

Saint Louis MO
, '
Program: Doctor of Medicine
First Year Medical Student

Sam Qiancheng Sun

BS, Franklin W. Olin College '12
Program: Doctor of Medicine
Elective Year

Abby Tzy-Ming Sung

San Marino CA
BA, Washington University in '12
Program: Doctor of Medicine
Clinical Clerkship Year

Erin Colleen Swor

Beverly Hills MI
BS, University of Michigan-An '12
Program: Doctor of Medicine
Elective Year

Chia-Hung Sze

, '
Program: Doctor of Medicine
First Year Medical Student

Rukayat Mayowa Taiwo

BA, Reed College '12
Program: Doctor of Medicine
Clinical Clerkship Year

Kevin Omeed Tamadonfar

St. Louis MO
, '
Program: MSTP
First Year Medical Student

Alisa Sansanee Tanakit

BS, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Damini Tandon

, '
Program: Doctor of Medicine
First Year Medical Student

Mengxuan Tang

St. Louis MO
BA, Princeton University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Rose Dian Tang

Lilburn GA
BS, Emory University '13
Program: Doctor of Medicine
Clinical Clerkship Year

Stephanie Teja

Alameda CA
BA, University of California- '12
Program: Doctor of Medicine
Clinical Clerkship Year

Sarah Collins Tepper

, '
Program: Doctor of Medicine
First Year Medical Student

Ann Leu Thomas

Union City CA

BS, California Institute Of T '05
Program: Doctor of Medicine
2015 Graduate
Kaiser Permanente - Santa Clara
Santa Clara CA
Ophthalmology
California Pacific Medical Center
San Francisco CA

Ariel Star Thomas

st louis MO
BS, University of Georgia '12
Program: Doctor of Medicine
Elective Year

Robert Lucas Thomas

St. Louis MO
BS, The University of Alabama '14
Program: Doctor of Medicine
Second Year Medical Student

Russell Edward Thompson

PIEDMONT CA
BS, Harvey Mudd College '12
Program: MSTP
Second Year Research

Andrea Chu Lin Tian

North Potomac MD
BS, U of Maryland-College Pk '13
Program: Doctor of Medicine
Second Year Medical Student

Vivian Tien

Saratoga CA
BA, University Of Chicago '09
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
University of California, Davis Medical Ctr
Sacramento CA

Gabriel Tissian

Laurel DE
BA, Stanford University '96

Program: Doctor of Medicine
Second Year Medical Student

Jenny Rose Tobat

, '
Program: Doctor of Medicine
First Year Medical Student

Ethan Marc Tobias

N. Bellmore NY
BS, Brown University '12
Program: Doctor of Medicine
Clinical Clerkship Year

Angus Martin Shaw Toland

BS, University of Washington '12
Program: Doctor of Medicine
Second Year Medical Student

Rubabin Tooba

Frontenac MO
BA, Washington U in St Louis '14
Program: Doctor of Medicine
Second Year Medical Student

Brett A Tortelli

St. Louis MO
BA, U of Wisconsin-Madison '11
Program: MSTP
First Year Research

Jennifer Lynne Travieso

Saint Louis MO
BS, University Of Texas At Au '11
Program: Doctor of Medicine
2015 Graduate
Obstetrics and Gynecology
Barnes-Jewish Hospital
St. Louis MO

Christopher John Tricarico

, '
Program: Doctor of Medicine
First Year Medical Student

Kalyan Tripathy

Kolkata

BA, Univ of Pennsylvania '12
Program: MSTP
Second Year Medical Student

Jessica Sun Tsai

Fremont CA
BS, University Of California- '09
Program: Doctor of Medicine
2015 Graduate
Pediatrics
St. Louis Children's Hospital
St. Louis MO

Shaw-Wei David Tsen

Chandler AZ
BS, Johns Hopkins University '08
Program: MSTP
Clinical Clerkship Year

Grace Taeheuy Um

CHARLOTTE NC
BS, Stanford University '10
Program: Doctor of Medicine
2015 Graduate
Plastic Surgery
University of Washington Affiliated
Hospitals
Seattle WA

Punit Akshaya Vachharajani

Saint Louis MO
BA, Washington University in '12
Program: Doctor of Medicine
Elective Year

Gayathri Devi Vadlamudi

Ypsilanti MI
, '
Program: Doctor of Medicine
First Year Medical Student

Sravya Padmaja Vajapey

Centerville OH

BS, Ohio State University-Mai '12
Program: Doctor of Medicine
Elective Year

Chetan Venkata Vakkalagadda

San Jose CA
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Mark C Valentine

St Louis MO
BS, Brigham Young University '08
Program: MSTP
Fourth Year Research

Manouela Vesselinova Valtcheva

Alpharetta GA
BS, University Of Georgia '10
Program: MSTP
Fourth Year Research

Samantha Lynn Van Hove

Elgin MN
BS, University Of Minnesota-T '09
Program: MSTP
Third Year Research

James Thomas Vandenberg

grand rapids MI
BS, University of Michigan-An '11
Program: Doctor of Medicine

Rahul Mahendra Varman

Omaha NC
BS, Emory University '12
Program: Doctor of Medicine (5 Year)
Clinical Clerkship Year

Sirish Veligati

Saint Joseph MO
BA, Washington U in St Louis '14
Program: Doctor of Medicine
Second Year Medical Student

Stephanie Margaret Velloze

Avon Lake OH

BA, Case Western Reserve Univ '11
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Barnes-Jewish Hospital
St. Louis MO

Daniel Joseph Verbaro

BS, Drexel University '12
Program: MSTP
Second Year Research

Nicholas Wesley Vryhof

Palos Heights IL
BS, Calvin College '13
Program: Doctor of Medicine
Clinical Clerkship Year

Ross Robert Vyhmeister

Saint Louis MO
BS, Walla Walla University '11
Program: Doctor of Medicine
Elective Year

Julia Alexandra Wagner

BS, McGill University '12
Program: Master of Arts/Doctor of
Medicine
Second Year Master of Arts

Katharine Abraham Walz

Coralville IA
BS, Iowa State University '11
Program: Doctor of Medicine
2015 Graduate
Pediatrics
University of Washington Affiliated
Hospitals
Seattle WA

Xinyu Wang

Winchester MA
BS, Harvard University '09
Program: MSTP

Fifth Year Research

Stephanie Zi Wang

Lilburn GA
BS, Massachusetts Institute O '11
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Johns Hopkins Hospital
Baltimore MD

Annie Zhili Wang

Northbrook IL
BS, University Of Illinois At '11
Program: Doctor of Medicine
2015 Graduate
Pediatrics
St. Louis Children's Hospital
St. Louis MO

Pengcheng Wang

Albany CA
BS, California Institute of T '11
Program: Doctor of Medicine
Elective Year

Robert Sibio Wang

Holmdel NJ
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

June Ariella Wang

BA, Dartmouth College '12
Program: Doctor of Medicine
Clinical Clerkship Year

Cynthia Xinjie Wang

Ann Arbor MI
BA, Columbia University in NY '14
Program: Doctor of Medicine
Second Year Medical Student

Qianli Wang

BS, Univ of Nebraska-Lincoln '14
Program: MSTP

Second Year Medical Student

Daniel Kenichi Ward

,

Program: Doctor of Medicine
First Year Medical Student

Jonathan Randolph Weese

Eagle ID

BS, College of Idah '12

Program: Doctor of Medicine
Elective Year

Michelle Lynn Wegscheid

BS, U of Illinois at Urbana '13

Program: MSTP

Second Year Medical Student

Eric Joseph Weiner

BS, Emory University '14

Program: Doctor of Medicine

Second Year Medical Student

Daniel Martin Weisel

St. Louis MO

BA, University of Southern Ca '13

Program: Doctor of Medicine

Clinical Clerkship Year

Caroline Wentworth

St Louis MO

BS, Yale University '13

Program: Doctor of Medicine

Second Year Medical Student

Victoria Grace Wesevich

Fair Oaks Ranch TX

BA, Washington U in St Louis '13

Program: Doctor of Medicine

Second Year Medical Student

Lauren Elisabeth Wessel

Houston TX

BS, Duke University '09

Program: Doctor of Medicine

2015 Graduate

Orthopaedic Surgery

Hospital for Special Surgery

New York NY

Alex William Wessel

Dousman WI

BS, Univ of Wisconsin-Madison '12

Program: MSTP

Second Year Medical Student

Christian Mark Wichterman

Springfield IL

BA, Washington University in '10

Program: Doctor of Medicine

2015 Graduate

Mercy Hospital

St. Louis MO

Dermatology

Barnes-Jewish Hospital

St. Louis MO

Georgia Wilke

Saint Louis MO

BA, University Of Chicago '09

Program: MSTP

Third Year Research

Sandra Gisela Williams

St. Louis MO

BS, Univ of Chicago '06

Program: MSTP

2015 Graduate

Internal Medicine

Yale - New Haven Hospital

New Haven CT

Conor Troy Williams

,

Program: Doctor of Medicine

First Year Medical Student

Michael Brent Wilson

Saint Louis MO

BS, Brigham Young University '11

Program: Doctor of Medicine

2015 Graduate

Otolaryngology
University of Michigan Hospitals
Ann Arbor MI

Emma Suening Winkler

, '
Program: MSTP
First Year Medical Student

Jacob Samuel Witt

Saint Louis MO
BA, Washington University in '12
Program: Doctor of Medicine
Elective Year

Maeve Marie Woeltje

Ballwin MO
, '
Program: Doctor of Medicine
First Year Medical Student

Maxim Wolfson

Chesterfield MO
BS, Washington University in '10
Program: Doctor of Medicine
2015 Graduate
Anesthesiology
Barnes-Jewish Hospital
St. Louis MO

Sarah Betrework Wondmeneh

BS, University of Toronto '12
Program: Doctor of Medicine
Clinical Clerkship Year

Angelica Wong

Brooklyn NY
BS, University Of Chicago '10
Program: Doctor of Medicine
2015 Graduate
Pediatrics
Children's National Medical Center
Washington DC

Michael Benjamin Wong

, '

Program: Doctor of Medicine
First Year Medical Student

Jeannette Rosa Wong-Siegel

Topeka KS
BA, Washington U in St Louis '10
Program: Doctor of Medicine
Second Year Medical Student

Ian Sebastian Wood

BS, University of British Col '11
Program: Doctor of Medicine
Second Year Medical Student

Jonathan Owen Wright

Creve Coeur MO
BS, Brigham Young University '10
Program: Doctor of Medicine
2015 Graduate
Orthopaedic Surgery
Beaumont Health System
Royal Oak MI

Alec James Wright

Columbia MO
BS, University of Tulsa '14
Program: Doctor of Medicine
Second Year Medical Student

Xiaodi Wu

BA, Harvard University '09
Program: MSTP
Fifth Year Research

Francis Shoudee Wu

East Greenwich RI
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Renee Paula Wu

, '
Program: MSTP
First Year Medical Student

Qi Xiao

St. Louis MO
BS, Washington University in '12
Program: Doctor of Medicine
Clinical Clerkship Year

Daphne Ying Xiao

Boxborough MA
BA, Harvard University '11
Program: Doctor of Medicine

Wen Zhu Xu

Sugar Land TX
BS, Rice University '12
Program: Doctor of Medicine
Elective Year

Amy Zheng Xu

Union City CA
BS, Duke University '12
Program: Master of Arts/Doctor of
Medicine
Master of Arts

Zhuchen Xu

BS, U of California-Berkeley '12
Program: Doctor of Medicine
Second Year Medical Student

Lu Morgan Yang

College Station TX
BS, Rice University '11
Program: MSTP
Third Year Research

Michael Yang

Mountainside NJ
BA, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Yuting Ye

BA, Hiram College '13
Program: Doctor of Medicine
Second Year Medical Student

Nai Chien Yeat

BA, Williams College '13
Program: Doctor of Medicine
Clinical Clerkship Year

Debra Wendy Yen

Fremont CA
BS, Washington University in '13
Program: Doctor of Medicine
Clinical Clerkship Year

Christine C Yokoyama

St Louis MO
BA, Harvard University '04
Program: MSTP
Fifth Year Research

Christopher Jongsoo Yoon

BS, Massachusetts Inst of Tec '12
Program: MSTP
Second Year Medical Student

Jason Taeki Yoon

, '
Program: Doctor of Medicine
First Year Medical Student

Mitsukuni Yoshida

Clayton MO
BS, Cornell University '09
Program: MSTP
Second Year Research

Andrew Lee Young

St. Louis MO
BA, Washington University in '07
Program: MSTP
Fourth Year Research

Nicholas Scott Yozamp

Saint Cloud MN
BA, Washington University in '11
Program: Doctor of Medicine
2015 Graduate
Internal Medicine
Brigham & Women's Hospital

Boston MA

Faye Hwa-Young Yu

Saipan MP

BA, Dartmouth College '09

Program: Doctor of Medicine

2015 Graduate

General Surgery

Einstein/Montefiore Medical Center

Bronx NY

Jenny Lijun Yu

Cupertino CA

BA, Northwestern University-E '12

Program: Doctor of Medicine

Elective Year

Lulu Yu

Katy TX

BA, Washington University in '13

Program: Doctor of Medicine

Clinical Clerkship Year

Jaclyn Yanjie Yu

,

Program: Doctor of Medicine

First Year Medical Student

Sonia Yuen

Syosset NY

BA, Dartmouth College '11

Program: Doctor of Medicine

Craig Michael Yugawa

,

Program: Doctor of Medicine

First Year Medical Student

Emily Whitaker Zantow

BH, Vanderbilt University '11

Program: Doctor of Medicine

2015 Graduate

Obstetrics and Gynecology

University of Oklahoma College of
Medicine

Oklahoma City OK

Jorge Guillermo Zarate Rodriguez

BS, New York University '14

Program: Doctor of Medicine

Second Year Medical Student

Gazelle Meriam Zerafati-Jahromi

St. Louis MO

,

Program: Doctor of Medicine

First Year Medical Student

William Zhang

BS, Duke University '13

Program: MSTP

Second Year Research

Lily Yili Zhang

BS, University of Michigan-An '13

Program: Doctor of Medicine

Clinical Clerkship Year

Shiyang Zhang

BS, Queen's University '13

Program: Doctor of Medicine

Second Year Medical Student

Cathy Yx Zhang

,

Program: Doctor of Medicine

First Year Medical Student

Yi Zhao

Boca Raton FL

BA, University Of Chicago '08

Program: MSTP

Fourth Year Research

Peter Chen Zhao

Atlanta GA

BS, Emory University '11

Program: Doctor of Medicine

2015 Graduate

Internal Medicine

Barnes-Jewish Hospital

St. Louis MO

Johnny Zhao

Austin TX

BA, Duke University '12

Program: Doctor of Medicine

Elective Year

Lida Zheng

Westborough MA

BS, Cornell University '11

Program: Doctor of Medicine

2015 Graduate

Internal Medicine

Northwestern McGaw Medical Center

Chicago IL

Lingjin Zheng

BA, Harvard University '14

Program: Doctor of Medicine

Second Year Medical Student

Caroline Zhong

Horsham PA

,

Program: Doctor of Medicine

First Year Medical Student

Daisy Zhou

San Diego CA

BA, Princeton University '12

Program: Doctor of Medicine

Elective Year

Tina Tianyi Zhu

St. Louis MO

BA, Northwestern University-E '11

Program: Doctor of Medicine

Elective Year

Lawrence Richard Zieske

Saint Louis MO

BA, Stanford University '05

Program: Doctor of Medicine (5 Year)

2015 Graduate

Family Medicine

O'Connor Hospital

San Jose CA

James Zou

St. Louis MO

BA, University of Pennsylvania '13

Program: Doctor of Medicine

Clinical Clerkship Year

Alexander Benjamin Zozula

St. Louis MO

AB, Princeton University '10

Program: Doctor of Medicine

2015 Graduate

Emergency Medicine

Stanford University Programs

Stanford CA

Ema Zubovic

Des Moines IA

BA, Middlebury College '10

Program: Doctor of Medicine

Elective Year

Aaron Jules Zuckerman

St. Louis MO

BA, Brandeis University '14

Program: Doctor of Medicine

Second Year Medical Student