The John F. Hardesty, MD, Department of Ophthalmology and Visual Sciences has a strong legacy and is a national leader in clinical ophthalmology and research. It is ranked among the top ten best overall programs in the United States, and it is also considered one of the top ten best research programs by U.S. News & World Report. Our ophthalmology department is fourth in National Institutes of Health funding for research and has one of the nation’s largest ophthalmology research faculty. The department’s mission is as follows: “As world leaders in patient care, teaching and research, we strive to touch lives and preserve and restore vision through innovation and compassionate service.” We hope that students will join us to enrich their medical education and to experience the collaborative culture of ophthalmology.

Although only a small percentage of physicians in the United States specialize in ophthalmology, there is no doubt that all physicians need a basic understanding of the eye and what it can reveal about a patient’s condition. In a recent article published in the journal Ophthalmology, it was stated that “ophthalmology-related issues arise in the diagnosis and treatment of inpatients and outpatients on internal medicine, pediatrics, trauma surgery, neurology, endocrinology, neurosurgery, otolaryngology, dermatology, oncology, and rheumatology services.”

The article went on to state that “[m]ost primary care program directors believe fewer than 50% of incoming residents have sufficient ophthalmology skills when entering the internship period of medical education. Ophthalmoscopy is one of many ophthalmic skills in which there seems to be a gap in the training of medical students. A study demonstrated that emergency medicine physicians often do not perform an ophthalmoscopic examination when it is indicated, and when they do, they are unlikely to detect abnormal findings. This presents a serious issue, because patients with visual impairments are more likely to be hospitalized, and from 2006 through 2011, there were 12 million eye-related emergency department visits nationwide. If they are unable to view or interpret fundus findings with either an ophthalmoscope or fundus photography, the students must know when it is necessary to refer their patients to an ophthalmologist for further evaluation.” In other words, even if a physician does not plan to make ophthalmology their career, deepening their knowledge of this field will enhance their skills as a physician in any field.

At Washington University School of Medicine, medical students under the Legacy Curriculum begin ophthalmology-based instruction during the first year with examination of the eye and a lecture on various aspects of ocular disease. During the second year, students receive a refresher lecture and lab on direct ophthalmoscopy as well as a lecture on ophthalmic manifestations of systemic disease and primary ocular disease. During the third year, students are given the opportunity during the surgery clerkship to spend four weeks on the ophthalmology services; in addition, there are lectures given to students during the Internal Medicine rotations. During the fourth year, a four-week intensive clinical rotation is tailored to students interested in pursuing ophthalmology as a career. Research electives are available under the guidance of numerous ophthalmology faculty members for fourth-year students. Newer medical students under the Gateway Curriculum have the option of choosing ophthalmology for a three-week-long clinical experience during their first-year Procedural Immersion. More intensive clinical rotations will be available in later phases of the new curriculum.


Website: http://ophthalmology.wustl.edu

Faculty

Our staff includes full-time university attending physicians for all subspecialties in ophthalmology, including ocular tumors, oculoplastics and uveitis. We have a very healthy mix of senior established faculty and junior members.

Todd Margolis, MD, PhD (https://ophthalmology.wustl.edu/people/todd-margolis-md-phd/)
Alan A. and Edith Wolff Distinguished Professor and Chairman

Kevin Ko, MBA (https://ophthalmology.wustl.edu/people/kevin-ko-mba/)
Executive Director of Business Affairs

P. Kumar Rao, MD, MBA (https://physicians.wustl.edu/people/p-kumar-rao-md/)
Professor and Vice Chair for Clinical Affairs

Daniel Kerschensteiner, MD (https://kerschensteinerlab.wustl.edu/)
Bernard Becker Professor of Ophthalmology and Visual Sciences

Co-Director of the Neuroscience PhD Program

Rajendra S. Apte, MD, PhD (https://physicians.wustl.edu/people/rajendra-s-apte-md-phd/)
Paul A. Cibis Distinguished Professor of Ophthalmology and Visual Sciences

Vice Chair for Innovation and Translation

Carla Siegfried, MD (https://physicians.wustl.edu/people/carla-j-siegfried-md/)

Jacquelyn E. and Allan E. Kolker, MD, Distinguished Professor of Ophthalmology and Visual Sciences

Vice Chair for Diversity, Equity and Professionalism

R. Lawrence Tychsen, MD (https://wuphysicians.wustl.edu/for-patients/find-a-physician/lawrence-tychsen/)
Pediatric Ophthalmology Director
<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Appointment Details</th>
<th>Address and Years</th>
</tr>
</thead>
</table>
| Rajendra Apte, Ph.D., M.D.  | Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Developmental Biology  
Professor of Medicine  
Vice Chair - Translation and Innovation  
Paul A. Cibis Distinguished Professor of Ophthalmology and Visual Sciences  
Doctor of Medicine, University of Mumbai, 1993  
Doctor of Philosophy, University of Texas Southwest, 1997 | Washington University in St. Louis, 2002                                                                                                                     |
| Neva P Arribas, M.D.        | Associate Professor Emerita of Clinical Ophthalmology and Visual Sciences  
Associate of Arts, School Not Found, 1949  
Doctor of Medicine, School Not Found, 1954                                                                                                                  | Washington University in St. Louis, 1976                                                                 |
| Steven Bassnett, Ph.D.      | Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Cell Biology and Physiology  
Grace Nelson Lacy Distinguished Professorship in Ophthalmology  
Bachelor of Science, University of Wales, 1982  
Doctor of Philosophy, University of East Anglia, 1987                                                                 | Washington University in St. Louis, 1982                                                                 |
| William L Becker, M.A., M.D.| Assistant Professor of Clinical Ophthalmology and Visual Sciences  
Bachelor of Arts, Earlham College, 1982  
Master of Arts, Washington University in St Louis, 1987  
Doctor of Medicine, Washington University in St Louis, 1987                                                                 | Washington University in St. Louis, 1982                                                                 |
| Gregg Jonathan Berdy, M.D.  | Voluntary Clinical Associate Professor of Ophthalmology and Visual Sciences  
Bachelor of Arts, Duke University, 1979  
Doctor of Medicine, Saint Louis University, 1983                                                                                                              | Washington University in St. Louis, 1983                                                                 |
| Anjali Maruti Bhorade, M.D. | Associate Professor of Ophthalmology and Visual Sciences (primary appointment)  
Associate Professor of Occupational Therapy  
Doctor of Medicine, University of Chicago, 1999                                                                                                         | Washington University in St. Louis, 1999                                                                 |
| Kevin Jay Blinder, M.D.     | Professor of Clinical Ophthalmology and Visual Sciences  
Doctor of Medicine, University of Missouri Kansas City, 1985                                                                                                    | Washington University in St. Louis, 1985                                                                 |
| James C Bobrow, M.D.        | Professor of Clinical Ophthalmology and Visual Sciences  
Bachelor of Arts, Yale University, 1966                                                                                                                              | Washington University in St. Louis, 1966                                                                 |
| Kyle Dohrman, O.D.          | Instructor in Ophthalmology and Visual Sciences (primary appointment)                                                                                                                                                          | Champaign, 2007                                                                                     |
| Shiming Chen, M.S., Ph.D.   | Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Developmental Biology  
Bernard Becker and Janet R Becker Distinguished Professorship in Ophthalmology  
Bachelor of Science, Capital Normal University (###), 1981  
Master of Science, Capital University of Medical Sciences (###), 1984                                                                                         | Washington University in St. Louis, 1984                                                                 |
| Brian Stewart Clark, Ph.D.  | Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)  
Assistant Professor of Developmental Biology  
Doctor of Philosophy, Medical College of Wisconsin, 2013                                                                                                        | Washington University in St. Louis, 2013                                                            |
| Bruce H Cohen, M.D.         | Assistant Professor of Clinical Ophthalmology and Visual Sciences  
Bachelor of Arts, Harvard University, 1976  
Doctor of Medicine, Johns Hopkins University, 1980                                                                                                               | Washington University in St. Louis, 1980                                                            |
| Steven Michael Couch, M.D.  | Professor of Ophthalmology and Visual Sciences (primary appointment)  
Patient Safety Officer (Adult) - Clinical Adult Division  
Doctor of Medicine, University of Missouri Kansas City, 2006                                                                                                 | Washington University in St. Louis, 2006                                                            |
| Philip L Custer, M.D.       | Professor of Ophthalmology and Visual Sciences (primary appointment)  
Bachelor of Science, Vanderbilt University, 1974  
Doctor of Medicine, Vanderbilt University, 1978                                                                                                             | Washington University in St. Louis, 1978                                                            |
Adam Ross Fedyk  
Instructor in Clinical of Ophthalmology & Visual Sciences

Robert M Feibel, M.D.  
Professor of Clinical Ophthalmology and Visual Sciences  
Bachelor of Arts, Johns Hopkins University, 1965  
Doctor of Medicine, Harvard University, 1969

Thomas A Ferguson, M.S., Ph.D.  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Associate Professor of Pathology and Immunology  
Bachelor of Arts, Kent State University, 1974  
Master of Science, Kent State University, 1976  
Main Campus, 1982

Mae Etsuko Gordon, M.S., Ph.D.  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Biostatistics  
Bachelor of Arts, Portland State University, 1967  
Master of Science, University of Wisconsin Madison, 1970  
Doctor of Philosophy, University of Wisconsin Madison, 1979

Wesley C Green, M.S., M.D.  
Instructor in Ophthalmology and Visual Sciences (primary appointment)  
Bachelor of Science, University of Wisconsin La Crosse, 2007  
Master of Science, State University of New York, 2009  
Doctor of Medicine, Rosalind Franklin University of Medicine and Science (Formerly Finch University of Health Sciences), 2013

Kevin William Greuloch, M.D.  
Instructor in Ophthalmology and Visual Sciences (primary appointment)  
Bachelor of Science, University of Notre Dame, 1995  
Doctor of Medicine, University of Michigan Ann Arbor, 1999

George J Harocopos, M.D.  
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)  
Assistant Professor of Pathology and Immunology  
Bachelor of Arts, Harvard University, 1995  
Doctor of Medicine, University of Virginia, 2000

Lynn M Hassman, Ph.D., M.D.  
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)  
Bachelor of Science, Evangel University, 2002  
Doctor of Philosophy, University of Virginia, 2010  
Doctor of Medicine, University of Virginia, 2012

James R Hoekel, O.D.  
Instructor in Ophthalmology and Visual Sciences (primary appointment)  
Bachelor of Science, University of Missouri Columbia, 1990  
Doctor of Optometry, University of Missouri in St Louis, 1994

Augustine Richard Hong, M.D.  
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)  
Champaign, 2004  
Doctor of Medicine, University of Illinois at Chicago, 2009

Jing-Wei Huang, M.D.  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Doctor of Medicine, National Taiwan University, 1981

Sharon Leslie Jick  
Instructor in Clinical Ophthalmology and Visual Sciences

William Steven Joffe, M.D.  
Assistant Professor Emeritus of Clinical Ophthalmology and Visual Sciences  
Bachelor of Arts, Washington University in St Louis, 1959  
Doctor of Medicine, Washington University in St Louis, 1963

Glen P Johnston, M.D.  
Associate Professor Emeritus of Clinical Ophthalmology and Visual Sciences  
Bachelor of Arts, Washington University in St Louis, 1953  
Doctor of Medicine, Washington University in St Louis, 1956

Michael A Kass, M.S., M.D.  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Senior Associate Dean for Human Research Protection  
Bernard Becker Professor of Ophthalmology and Visual Sciences  
Bachelor of Science, Northwestern University, 1963  
Master of Science, Northwestern University, 1966  
Doctor of Medicine, Northwestern University, 1966

Daniel Kerschensteiner, M.D.  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Biomedical Engineering (Courtesy)  
Professor of Neuroscience  
Vice Chair - Research Division  
Janet and Bernard Becker Professor of Ophthalmology  
Doctor of Medicine, Georg August University, 2004

Andrew R. Lee, M.D.  
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)  
Director - Medical Student Education  
Director - Clinical Pediatric Division
James Liu, M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Doctor of Medicine, Washington University in St Louis, 2015

Anthony J Lubniewski, M.D.
Professor of Ophthalmology and Visual Sciences (primary appointment)
Bachelor of Science, University of Florida, 1980
Doctor of Medicine, University of Florida, 1985

Gregg T Lueder, M.D.
Professor of Ophthalmology and Visual Sciences (primary appointment)
Doctor of Medicine, Washington University in St Louis, 1985

Robi N Maamari, M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Doctor of Medicine, University of California Irvine, 2014

Todd P Margolis, Ph.D., M.D.
Professor of Ophthalmology and Visual Sciences (primary appointment)
Head of the Department of Ophthalmology and Visual Sciences
Alan A and Edith L Wolff Distinguished Professor
Bachelor of Science, Stanford University, 1977
Doctor of Philosophy, University of California San Francisco, 1983
Doctor of Medicine, University of California San Francisco, 1984

Benjamin Milder, M.D.
Professor Emeritus of Clinical Ophthalmology and Visual Sciences
Doctor of Medicine, Washington University in St Louis, 1939

James E Miller, M.D.
Professor Emeritus of Clinical Ophthalmology and Visual Sciences
Bachelor of Science, Tulane University, 1946
Doctor of Medicine, University of Alabama (Duplicate of University of Alabama in Tuscaloosa), 1949

Cynthia L. Montana, Ph.D., M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Bachelor of Science, University of Virginia, 2005
Doctor of Philosophy, Washington University in St Louis, 2014
Doctor of Medicine, Washington University in St Louis, 2014

Joshua L. Morgan, Ph.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Assistant Professor of Neuroscience
Bachelor of Arts, New College of Florida, 2001
Doctor of Philosophy, Washington University in St Louis, 2007

F. Thomas Ott, M.D.
Assistant Professor Emeritus of Clinical Ophthalmology and Visual Sciences
Bachelor of Arts, Southern Methodist University, 1963
Doctor of Medicine, Washington University in St Louis, 1965

Anjali K Pathak, M.D.
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
Bachelor of Arts, West Virginia University, 1993
Bachelor of Science, West Virginia University, 1993
Doctor of Medicine, West Virginia University, 1997

Kisha Deslee Piggott, Ph.D., M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Co-Director - Residency Program
Bachelor of Science, Spelman College, 2003
Doctor of Philosophy, Emory University, 2009
Doctor of Medicine, Emory University, 2011

Julia Pulliam, O.D.
Instructor in Ophthalmology and Visual Sciences (Pending Dean Approval) (primary appointment)
Bachelor of Science, Illinois College, 2007
Doctor of Optometry, Indiana University Bloomington, 2011

Rithwick Rajagopal, Ph.D., M.D.
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
Doctor of Philosophy, New York University, 2006
Doctor of Medicine, New York University, 2007

Mark S Rallo, O.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Director of Pediatric Optometry PD
Bachelor of Science, Saint Louis University, 1986
Doctor of Optometry, University of Missouri Columbia, 1990

Prabakar Kumar Rao, M.D.
Professor of Ophthalmology and Visual Sciences (primary appointment)
Vice Chair - Clinical Operations
Bachelor of Arts, University of California San Diego, 1991
Doctor of Medicine, University of Southern California, 1995

Margaret Mary McGlynn Reynolds, M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Bachelor of Science, Creighton University, 2010
Doctor of Medicine, Cornell University, 2014

Juan Gomez Rodriguez
Adjunct Assistant Professor of Ophthalmology

Mark A Rothstein, M.D.
Assistant Professor of Clinical Ophthalmology and Visual Sciences
Bachelor of Arts, Williams College, 1986
Doctor of Medicine, University of Utah, 1991

Michael B Rumelt, M.D.
Assistant Professor Emeritus of Clinical Ophthalmology and Visual Sciences
Bachelor of Science, Lamar University, 1962
Doctor of Medicine, Washington University in St Louis, 1966

Philip A Ruzyczki, Ph.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Assistant Professor of Genetics
Bachelor of Science, Davidson College, 2008
Doctor of Philosophy, Washington University in St Louis, 2018

Mickey L Salmon, M.D.
Instructor Emeritus in Clinical Ophthalmology and Visual Sciences
Bachelor of Science, Centenary College, 1955
Doctor of Medicine, Louisiana State University, 1959

Matthew Correia Santos, M.D.
Instructor in Ophthalmology & Visual Sciences (Pending Dean’s Approval) (primary appointment)
Bachelor of Science, Providence College, 2014
Doctor of Medicine, Brown University, 2018

James Banks Shepherd, M.D.
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
Bachelor of Arts, Amherst College, 1992
Doctor of Medicine, Columbia University, 1997

Priya Saigal Shetty, M.D.
Instructor in Clinical Ophthalmology and Visual Sciences
Doctor of Medicine, University of Michigan (Duplicate of University of Michigan Ann Arbor), 2007

Arsham Sheybani, M.D.
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
Director - Residency Program
Doctor of Medicine, Washington University in St Louis, 2008

Steven M Shields, M.D.
Assistant Professor of Clinical Ophthalmology and Visual Sciences
Bachelor of Science, Washington University in St Louis, 1981
Doctor of Medicine, Washington University in St Louis, 1986

Alan Shiel, Ph.D.
Professor of Ophthalmology and Visual Sciences (primary appointment)
Professor of Genetics
Doctor of Philosophy, University of London, 1983

Erin Gwen Sieck, M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Bachelor of Arts, University of Missouri Kansas City, 2013
Doctor of Medicine, University of Missouri Kansas City, 2015

Carla J Siefried, M.D.
Professor of Ophthalmology (primary appointment)
Vice Chair - Diversity, Equity and Professionalism
Jacquelyn E and Allan E Kolker M.D. Distinguished Professor of Ophthalmology
Bachelor of Arts, University of Missouri Kansas City, 1989
Doctor of Medicine, University of Missouri Kansas City, 1989

Morton Edward Smith, M.D.
Professor Emeritus of Ophthalmology and Visual Sciences
Associate Dean Emeritus for Post-Graduate Education
College Park), 1956
College Park), 1960

Florentina Soto Lucas, Ph.D.
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
Doctor of Philosophy, University of Alicante, 1992

Joseph Steska, O.D.
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
Doctor of Optometry, Illinois College of Optometry, 2009

Arthur Waldo Stickle, M.D.
Assistant Professor Emeritus of Clinical Ophthalmology and Visual Sciences
Doctor of Medicine, University of Oklahoma, 1943

Michael Vincent Stock, M.D.
Instructor in Ophthalmology and Visual Sciences (primary appointment)
Doctor of Medicine, Washington University in St Louis, 2012

Leanne Denise Stunkel, M.D.
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Assistant Professor of Neurology
Bachelor of Arts, Johns Hopkins University, 2008
Doctor of Medicine, Cornell University, 2014

Chi Sun, Ph.D.
Instructor in Ophthalmology and Visual Sciences (Pending Dean Approval) (primary appointment)
Bachelor of Science, Nanyang Technological University, 2010
Doctor of Philosophy, University of Idaho, 2017

Paul M Tesser, Ph.D., M.D.
Associate Professor of Clinical Ophthalmology and Visual Sciences
Bachelor of Science, Massachusetts Institute of Technology, 1981
Doctor of Philosophy, State University of New York at Stonybrook, 1990
Doctor of Medicine, State University of New York at Stonybrook, 1991

Linda Mei-Lin Tsai, M.D.
Research Electives

Ophthalmology and Visual Sciences Research Electives

During the fourth year, opportunities exist for many varieties of advanced clinical or research experiences. Below is a list of faculty that have ongoing research projects that involve medical students. If a student is interested in working with a faculty member that is not listed below, they can contact the faculty directly to see if there are any research opportunities in their lab.

All residents are encouraged to pursue projects in laboratory or clinical investigation. Research familiarizes the resident with the limitations of laboratory methodology, provides a background for evaluating the literature, helps to develop critical thinking, and allows for a better informed choice for career goals. The type of project is the choice of the resident, and a wide range of opportunities are available. An annual Rosenbaum Research Award of $1,000 is presented to the resident who performs the most exciting research. The department emphasizes basic science research as well as clinical research. Basic science research currently involves five principal areas: Neurobiology, Immunology, Molecular Biology, Pharmacology/Physiology, and Clinical Studies and Outcomes Research. There are many opportunities for research in clinical areas as well.

Further descriptions of our research labs can be found on the Research Opportunities page (https://ophthalmology.wustl.edu/research-opportunities/) of the Department of Ophthalmology & Visual Sciences website.

Basic Science Research

- Dr. Steven Bassnett (https://ophthalmology.wustl.edu/items/bassnett-lab/): Pseudoexfoliation syndrome and glaucoma; refractive development; mouse models of ectopia lentis
- Dr. Shiming Chen (https://ophthalmology.wustl.edu/items/chen-lab/): Bedside to bench: phenotype-genotype correlations of CRX retinopathies
- Dr. Mae Gordon and Dr. Philip Ruzycki (https://ophthalmology.wustl.edu/people/philip-ruzycki-phd/): Microbiome assays of normal eyes and eyes presenting with conjunctivitis
- Dr. Todd Margolis (https://ophthalmology.wustl.edu/items/margolis-lab/): Single-cell transcriptomics of ocular inflammatory cells in uveitis
- Dr. Richard Harris Wieder (https://ophthalmology.wustl.edu/items/wieder-lab/): Regulation of latent infection with herpes simplex virus
- Dr. Lynn Hassman (https://physicians.wustl.edu/people/lynn-m-hassman-md-phd/): Retinal ganglion cell degeneration and axon regeneration in mouse glaucoma
- Dr. Philip Williams (https://sites.wustl.edu/williams/home/): Regulation of latent infection with herpes simplex virus
- Dr. Joshua Morgan (https://sites.wustl.edu/morganlab/): Downstream circuit degeneration in a mouse glaucoma model
• Dr. Alan Shiels (https://ophthalmology.wustl.edu/people/alan-shiels-phd/): Molecular genetics of pediatric cataracts and associated eye disorders
• Dr. Carla Siegfried (https://ophthalmology.wustl.edu/people/carla-siegfried-md/): Differential gene expression and mitochondrial function studies of trabecular meshwork cells; racial disparities of open-angle glaucoma
• Dr. Margaret Reynolds (https://ophthalmology.wustl.edu/people/margaret-reynolds-md/): Occupational therapy interventions for patients with low vision; inherited eye diseases; retinopathy of prematurity; refractive surgery; autism spectrum disorder

Clinical Research
• Dr. Steven Couch (https://ophthalmology.wustl.edu/people/steven-couch-md/): Genetic correlates of extrascleral extension in intraocular melanomas
• Dr. Andrew Lee (https://physicians.wustl.edu/people/andrew-r-lee-md/): Strabismus outcomes; retinopathy of prematurity; health care disparities in pediatric ophthalmology
• Dr. Todd Margolis (https://ophthalmology.wustl.edu/people/todd-margolis-md-phd/): Clinical studies of patients with ocular graft-versus-host disease and superior limbic keratoconjunctivitis, including role of the ocular surface microbiome; pathology studies of autonomic innervation of corneal buttons from patients with herpes simplex virus and herpes zoster ophthalmicus
• Dr. P. Kumar Rao (https://physicians.wustl.edu/people/p-kumar-rao-md/): Vitreous proteomics
• Dr. Lawrence Tychsen (https://ophthalmology.wustl.edu/items/tychsen-lab/): Amblyopia; eye movements; pediatric refractive surgery
• Dr. Gregory P. Van Stavern (https://ophthalmology.wustl.edu/people/gregory-van-stavern-md/): Opportunities in neuro-ophthalmology
• Dr. Carla Siegfried (https://ophthalmology.wustl.edu/people/carla-siegfried-md/): Ethical issues in patient care; outcomes in glaucoma care
• Dr. Leanne Stunkel (https://ophthalmology.wustl.edu/people/leanne-stunkel-md/): Opportunities in neuro-ophthalmology; diagnostic errors in medicine

Quality Improvement Research
• Dr. Phil Custer (https://ophthalmology.wustl.edu/people/philip-custer-md-facs/): Resident-initiated patient safety and quality improvement projects

Translational Research
• Dr. Robi Maamari (https://ophthalmology.wustl.edu/people/robi-maamari-md/): Translational research opportunities for those interested in the development of ophthalmic diagnostic devices (i.e., image-based diagnostics)

Courses
Curriculum courses (p. 8) for Ophthalmology and Visual Sciences are listed below.

Gateway Curriculum
Under the new Gateway Curriculum, medical students spend their four years split among three phases. Phase 1 involves the first 16 months of medical school. During Phase 1, students participate in three Procedural Immersions, which are three-week-long clinical and surgical experiences. The primary goals of the Procedural Immersions are to socialize the student to different clinical settings, to hone their clinical skills, and to allow them to explore the impact of society and health systems on an individual patient’s health. This 360-degree approach to early clinical exposure allows students to view practicing medicine through physician, patient, and systems lenses. In these rotations, medical students will often focus on longitudinal patient care by following a specific patient from the time they arrive until they leave and seeing how all health care team members are involved in that patient’s visit. During the Ophthalmology Procedural Immersion, students spend time in the University Eye Clinic and in the pediatric and adult subspecialty clinics and operating rooms, and they attend rounds with an inpatient consult team. This early exposure to clinical experience helps students to contextualize the classroom and clinical learning that they continue with over the next two phases.

The basic and clinical science of ophthalmology is taught in Phase 1 during Module 7: Brain and Behavior. During this module, the students will spend time learning about eye anatomy and physiology, the visual pathways in the brain, and the mechanisms of extraocular movements. The students participate in interactive case sessions that reinforce the material and encourage students to practice their critical thinking and eye examination skills.

During Phase 3, medical students will have opportunities to participate in electives in ophthalmology and advanced clinical rotations in ophthalmology. These will allow students to obtain further experience in clinical ophthalmology to strengthen their clinical knowledge and examination skills. The students will work closely with the ophthalmology residents and review the differential diagnosis of the “red eye,” the interpretation of an ophthalmologic consult note, and the handling of ocular emergencies. During this rotation, there is again emphasis on the use of the ophthalmoscope. Additional clinical skills introduced to rotating students include the use of the slit lamp and indirect ophthalmoscopy.

Legacy Curriculum: Fourth Year
The Ophthalmology Sub-Internship Rotation occurs during this time. During the month of June during their fourth year, students interested in pursuing a career in ophthalmology are encouraged to complete this intensive four-week rotation. Students will have personal indirect
ophthalmoscopy lenses available for use on the rotation. Formal didactic sessions and workshops will be used to teach students how to perform a detailed ophthalmic history and exam, including the mastery of advanced slit lamp techniques and indirect fundoscopy. Students 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.

Curriculum Courses

**M50 Ophth 805 Ophthalmology (Clinical Elective)**
The Ophthalmology elective is designed to provide a foundational experience in clinical and surgical ophthalmology for medical students. Time will be divided between the University Eye Service clinic, adult inpatient consults, pediatric ophthalmology, and other ophthalmology subspecialties ophthalmology (e.g. Glaucoma, Cornea, or Retina). The amount of time at each location will depend on length of the rotation and the student’s specific interests. There are didactic sessions with Dr. Andrew Lee and Dr. Cynthia Montana during which the students present their own cases. In addition, there are continuing opportunities to attend educational conferences. At the end of the experience, the student is expected to be familiar with the routine eye exam, common eye conditions and their treatment, and the use of the slit lamp and ophthalmoscope.

**M50 Ophth 910 Ophthalmology Advanced Clinical Rotation (ACR)**
On the Ophthalmology Advanced Clinical Rotation, medical students will rotate on the ophthalmology adult consult service, the University Eye Service clinic, and the subspecialty clinics of the full time faculty of the Department of Ophthalmology and Visual Sciences (cornea, glaucoma, retina, oculoplastics, neuro-ophthalmology, pediatric ophthalmology, ophthalmic pathology, uveitis, and ocular oncology). Students will care for patients of all ages and backgrounds, and ophthalmic diseases seen will range from common eye conditions to complex diseases requiring subspecialty care. In clinic and on consults, students will perform the ophthalmic history and physical examination and also develop their ability to diagnose, manage, and treat common ophthalmic conditions. In the operating room, students will participate in all phases of perioperative patient care and learn basic ophthalmic surgical principles and techniques. Academic curriculum for the rotation will include weekly case presentations with ophthalmology faculty, resident lectures and conferences, and weekly departmental grand rounds. Each student will also present a case at grand rounds during the final week of the rotation with the assistance of a resident mentor. Students will participate in ophthalmology call approximately once per week from 5pm-12am. During that time, the medical student is expected to be present to work with the primary call ophthalmology resident.
Credit 140 units.