Department of Otolaryngology

The Department of Otolaryngology-Head & Neck Surgery (http://oto.wustl.edu) at Washington University in St. Louis has a rich, 130-year history of leadership in our field that is built on the foundations of academic medicine: patient care, research, training and service. Our past leaders include luminaries in the field of otolaryngology, such as John Blasdel Shapleigh, MD; Greenfield Sluder, MD; Lee Wallace Dean, MD; Theodore Walsh, MD; Joseph Ogura, MD; John Fredrickson, MD; Richard A. Chole, MD, PhD; and, presently, Craig A. Buchman, MD, FACS. Even from our earliest days, prior to the inception of the McMillan Eye, Ear, Nose and Throat Hospital (circa 1943), excellence has been an integral part of the department’s fabric. A look at former faculty and program graduates reveals many of the true innovators in our field. While we remain humbled by our beginnings and past achievements, we choose not to rest on our laurels. Rather, we aspire to further our commitment to improving patients’ lives by leading our field and its clinical application.

Today, more than ever, we are driven to provide highest-quality, cutting-edge patient care that is both safe and effective. Our Washington University physicians and team, together with our Honor Roll Award-winning hospital, Barnes-Jewish Hospital (U.S. News, 2018-19), are second to none when it comes to tackling the full spectrum of conditions involving the ear, nose, throat, head and neck. Our basic, translational and clinical research programs are remarkable, providing answers to a variety of relevant questions that build on our foundations of knowledge, lay the groundwork for future clinical trials, and provide state-of-the-art patient solutions. Our educational programs for medical and graduate students, physicians in training, and established practitioners are committed to creating a culture of lifelong learning that firmly establishes our next generation of leaders in the field. Our residency program is highly rated by all metrics, providing balanced training across the clinical subspecialties and unique opportunities for growth and development as clinician-scientists (T32 training grant) and educators. We are most proud that these activities are ongoing in a work culture that values collegiality, inclusiveness, diversity and mutual respect. The Department of Otolaryngology-Head & Neck Surgery at Washington University in St. Louis is a really outstanding place!

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 it 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.

Website: http://oto.wustl.edu

Degrees & Requirements

Although the Department of Otolaryngology does not offer its own degree, some of the department’s courses are open to students in the MD and MSTP (MD/PhD) programs. Further information about the MD and MSTP degrees can be found in the Degrees & Programs (http://bulletin.wustl.edu/medicine/degrees) section of this Bulletin.

Otolaryngology Course Requirements

Otolaryngology is presented to students in the first-, second-, third- and fourth-year classes. Physical diagnosis skills are taught during the first year. Clinically oriented lectures and a physical diagnosis workshop are presented to second-year students. During the third year of the medical curriculum, four-week elective rotations on one of the services at Barnes-Jewish Hospital 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, and this is 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 in the outpatient clinic, the operating room and the postoperative setting. An additional four-week elective that provides comprehensive ambulatory experience is offered to students headed for primary care.
Research

M55 Oto 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
East McDonnell Science Building
4566 Scott Avenue
Phone: 314-362-1013

This lab studies the role of the vestibulocerebellum and its target nuclei for eye movement control and spatial orientation. We use a range of methodologies, including single and multiunit recordings, electrical brain stimulation, computational methods, pharmacology and behavioral studies. Our main lines of research are as follows: (1) signal transformations carried out by the vestibulocerebellum during visual and vestibular stimulation; (2) neuronal computations performed by the anterior and posterior cerebellar vermis for spatial navigation in mice; and (3) the 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.

Joel A. Goebel, MD, FACS
McMillan, 9th Floor
Phone: 314-362-7344

Our lab focuses on the clinical research testing of posture and ocular motor control. Projects include the 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.

Judith E.C. Lieu, MD, MSPH
3S35 Children's Hospital; and McMillan, 9th Floor
Phone: 314-747-8205

Our focus is 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 below for more details.) These techniques and methodologies are used to investigate clinical problems seen in pediatric otolaryngology. Projects currently underway include the evaluation of the quality of life of young children with hearing loss, the evaluation of hearing loss on the perception of fatigue in children, the use of MRI to investigate the effects of hearing loss in children, and the characterization of hearing loss in Wolfram syndrome. Potential studies include investigating the phenotypic variation of ear disease in children with immotile cilia syndrome and evaluating changes in the quality of life of children who begin using hearing amplification devices. 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
Phone: 314-747-7179

The focus of this lab is on 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 auditory brainstem response assessment and intracochlear recording, quantitative light microscopy, immunohistochemistry, and Western blots. We also collaborate to map and perform the 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 to be promoted by alleles and mutations that impair protective factors (e.g., antioxidant enzymes) or that impair ion homeostasis. Neural presbycusis can be modeled by mutations that alter the function of cholinergic receptors. Although 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 that 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 quantitative trait loci 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 the 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
McMillan, 9th Floor
Phone: 314-362-8641
The Clinical Outcomes Research Office performs clinical epidemiology and health services research. Clinical epidemiology is the study of diagnosis, prognosis and the 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 the treatment and outcomes of patients with cancer. We also conduct research into the neurobiology, treatment and outcomes of patients with tinnitus. One method that we employ is the use of smartphone technology to capture ecological momentary assessments of tinnitus. Additional projects include exploiting neuroplasticity as part of olfactory training for patients with anosmia. With the use of clinical epidemiology methodology, we can also study a variety of other diseases.

Faculty

Department Head
Craig A. Buchman, MD, FACS
Visit our website for more information about our faculty (http://oto.wustl.edu/About-Us/Faculty-Physicians) and their appointments.

A
Azadeh Afshari, MS, DDENT
Instructor in Clinical Otolaryngology (primary appointment)
BS West Virginia University 2004
MS Univ of Texas Med Sch Houston 2013
DDENT Univ of Texas Med Sch Houston 2014

B
Sean B Bailey, MD, MS
Instructor in Clinical Otolaryngology (primary appointment)
MD Tulane University 1987
MS Tulane University 1988
BS Tulane University 1981

Jianxin Bao, PHD
Adjunct Associate Professor of Otolaryngology (primary appointment)
PHD University of Florida 1992

Lynda Cheryl Berkowitz, MS
Instructor in Otolaryngology (primary appointment)
Instructor in Audiology and Communication Sciences
BS University of Illinois 1981
MS Washington Univ in St. Louis 1983

Pablo M Blazquez Gamez, PHD
Associate Professor of Otolaryngology (primary appointment)
PHD University of Seville 1998

Joseph P Bradley, MD
Assistant Professor of Otolaryngology (primary appointment)
MD University of Kansas Medical 2008
BS Washington Univ in St. Louis 2003

Gregory Harris Branham, MD
Professor of Otolaryngology (primary appointment)
MD University of South Carolina 1983
BS University of South Carolina 1979

Craig Alan Buchman, MD
Lindburg Professor of Otolaryngology (primary appointment)
Head of the Department of Otolaryngology
BA University of Georgia 1986
MD University of Florida 1990

C
John Jeonhwan Chi, MD, MS
Associate Professor of Otolaryngology (primary appointment)
MD SUNY DOWNSTATE MED BROOKLYN 2007
MS City College 2003
BS Columbia University 2001

John N Chiapel
Instructor in Clinical Otolaryngology (primary appointment)

Richard A Chole, MD, PHD
Professor of Otolaryngology (primary appointment)
Professor of Audiology and Communication Sciences
Professor of Developmental Biology
MD University of Southern Calif 1969
PHD University of Minnesota 1977

William W. Clark, MS, PHD, PHD1
Professor of Otolaryngology (primary appointment)
Professor of Audiology and Communication Sciences
Professor of Education
MS University of Michigan 1973
BA University of Michigan 1969
PHD University of Michigan 1975
PHD1 University of Michigan 1975

Sheldon C Cohen, DDENT
Instructor in Clinical Otolaryngology (primary appointment)
DDENT Southern Illinois University 1976
BS Washington Univ in St. Louis 1973

D
Lisa S. Davidson, PHD, MS
Associate Professor of Otolaryngology (primary appointment)
Associate Professor of Audiology and Communication Sciences
PHD Washington Univ in St. Louis 2003
MS Washington Univ in St. Louis 1987
BS East Tennessee State Universi 1985

Sheldon L Davis
Assistant Professor of Clinical Otolaryngology (primary appointment)

Andrew J. Drescher, MD
Associate Professor of Otolaryngology (primary appointment)
MD University of Michigan 2002
BS Yale University 1998

Norman Steven Druck, MD
Assistant Professor of Clinical Otolaryngology (primary appointment)
MD University of Illinois 1970
BA Washington Univ in St. Louis 1967

Katherine Dunsky, MD
Assistant Professor of Otolaryngology (primary appointment)
MD Saint Louis University 2010

Nedim Durakovic, MA
Assistant Professor of Otolaryngology (primary appointment)
MA Brown University 2012
BA Brown University 2007

F

James A Fernandez, MD
Instructor in Clinical Otolaryngology (primary appointment)
BS University of Notre Dame 1977
MD Saint Louis University 1981

Jeffrey T Fierstein, MD
Assistant Professor of Clinical Otolaryngology (primary appointment)
MD School Not Listed 1971
BA Dartmouth College 1968

Charles Coleman Finley
Adjunct Research Associate Professor of Otolaryngology (primary appointment)

Jill B Firszt, MS, PHD
Professor of Otolaryngology (primary appointment)
Professor of Audiology and Communication Sciences
BS University of Illinois 1978
MS University of Illinois 1982
PHD University of Illinois 1998

G

Joel Goebel, MD
Professor of Otolaryngology (primary appointment)
MD Washington Univ in St. Louis 1980
BS University of Notre Dame 1976

Debra Ann Gonzalez, MD
Assistant Professor of Otolaryngology (primary appointment)
MD Cornell University 1987
BS Wellesley College 1982

James Dean Gould, MD
Instructor in Clinical Otolaryngology (primary appointment)
BA University of Virginia 1989
MD University of Virginia 1993

Heather Jean Grantham, M ED, PHD

Associate Professor of Otolaryngology (primary appointment)
Associate Professor of Audiology and Communication Sciences
Director of Deaf Education Studies in Audiology and Communication Sciences
M ED Smith College 2005
PHD Washington Univ in St. Louis 2009
BA Emory University 1995

Michael Anne Gratton, PHD
Professor of Otolaryngology (primary appointment)
PHD State Univ of NY Buffalo 1989

Christine Hilleary Gustus, MS
Instructor in Otolaryngology (primary appointment)
Instructor in Audiology and Communication Sciences
BS Purdue University 1973
MS Washington Univ in St. Louis 1975

H

Jason M. Hanson, MD
Instructor in Clinical Otolaryngology (primary appointment)
MD Northwestern University 1992
BA Johns Hopkins University 1988

Archie B Harmon Jr, MA, PHD
Assistant Professor of Otolaryngology (primary appointment)
MA University of Central Florida 2006
BA University of Florida 2002
PHD Florida State University 2010

Jacques A Herzog, MD
Associate Professor of Otolaryngology (primary appointment)
MD University of MO Kansas City 1980
BA University of Missouri 1980

Keiko Hirose, MD
Professor of Otolaryngology (primary appointment)
Professor of Audiology and Communication Sciences
Professor of Pediatrics
Vice Chairman for Pediatrics Dept of Otolaryngology
MD Harvard University 1993

Dee Jay Hubbard, MA1, MA, PHD
Adjunct Assistant Professor of Otolaryngology (Speech Pathology) (primary appointment)
MA1 University of Missouri 1999
BS Kansas State University 1962
MA University of Iowa 1965
PHD University of Iowa 1967

Timothy Everett Hullar, MD
Adjunct Professor of Otolaryngology (primary appointment)
BS Stanford University 1990
MD Harvard University 1996

Margaret Naunheim Huston, MD
Assistant Professor of Otolaryngology (primary appointment)
BA Duke University 2009
MD University of Chicago 2013

**J**

**Ryan Scott Jackson, MD**  
Assistant Professor of Otolaryngology (primary appointment)  
BA Saint Louis University 2004  
MD Saint Louis University 2009

**Arnold Scott Jacobson, DDENT, MS**  
Instructor in Clinical Otolaryngology (DMD) (primary appointment)  
DDENT Washington Univ in St. Louis 1976  
BA University of Missouri 1970  
MS University of Missouri 1977

**Susan Jerger**  
Adjunct Research Professor of Otolaryngology (primary appointment)

**K**

**Eugenia Kardaris**  
Instructor in Clinical Otolaryngology (DDS) (primary appointment)

**Cristine Nicole Klatt-Cromwell, MD**  
Assistant Professor of Otolaryngology (primary appointment)  
BS University of Oklahoma 2007  
MD University of Oklahoma 2011

**L**

**David Seamus Leonard, MBCHB, MHA**  
Assistant Professor of Otolaryngology (primary appointment)  
MBCHB National University of Irelan 2000  
BA Dartmouth College 1995  
MHA Harvard University 2012

**Jeffery Lichtenhan, MSSH, PHD, BAS**  
Assistant Professor of Otolaryngology (primary appointment)  
Assistant Professor of Audiology and Communication Sciences  
MSSH University of Kansas Medical 2002  
PHD University of Kansas 2006  
BAS University of Kansas 2000

**Judith E Lieu, MD**  
Professor of Otolaryngology (primary appointment)  
Vice Chairman Education Department of Otolaryngology  
BS University of CA Davis 1988  
MD Washington Univ in St. Louis 1992

**M**

**Richard W Maack, MD**  
Instructor in Clinical Otolaryngology (primary appointment)  
BS Muhlenberg College 1981  
MD University of Maryland 1985

**Marshall S Manne, MS, DDENT**  
Instructor in Clinical Otolaryngology (DDS) (primary appointment)  
MS Indiana University Bloomington 1964  
DDENT Washington Univ in St. Louis 1960  
BA Washington Univ in St. Louis 1956

**Sean Massa**  
Assistant Professor of Otolaryngology (Pending Executive Faculty Approval) (primary appointment)

**Claire Matthews, PHD, MA**  
Adjunct Assistant Professor of Otolaryngology (Speech Pathology) (primary appointment)  
BA University of Kansas 1969  
PHD University of Kansas 1980  
MA University of Kansas 1978

**Angela Liu Mazul, MS, PHD**  
Assistant Professor of Otolaryngology (primary appointment)  
Assistant Professor of Surgery (Public Health Sciences)  
MS Tulane University 2010  
PHD University of North Carolina 2016  
BS Georgia Tech 2009

**Murray D McGrady, MD**  
Instructor in Clinical Otolaryngology (primary appointment)  
MD University of Illinois 1986  
BS University of Illinois 1982

**Jonathan L McJunkin, MD**  
Associate Professor of Otolaryngology (primary appointment)  
MD Jefferson Medical College 2005  
BS Northwestern University 2001

**Maitthilee D Menezes, MD**  
Assistant Professor of Otolaryngology (primary appointment)  
MD Grinnell College 2002  
BS Grinnell College 1997

**David W. Molter, MD**  
Professor of Otolaryngology (primary appointment)  
MD Duke University 1988  
BS Duke University 1980

**Nancy Tye Murray, MS, PHD**  
Professor of Otolaryngology (primary appointment)  
Professor of Audiology and Communication Sciences  
MS University of Iowa 1979  
BS Texas Christian University 1977  
PHD University of Iowa 1984

**N**

**Johanna Grant Nicholas, MA, PHD**  
Adjunct Associate Professor of Otolaryngology (primary appointment)  
MA University of Northern Colora 1982  
PHD Washington Univ in St. Louis 1990  
BA University of Northern Colora 1978
Margaret A Ogden, MD
Associate Professor of Otolaryngology (primary appointment)
Vice Chairman for Clinical Operations Dept of Otolaryngology
MD Washington Univ in St. Louis 2002
BA Amherst College 1997

Kevin Kenneth Ohlemiller, PHD
Associate Professor of Otolaryngology (primary appointment)
Associate Professor of Audiology and Communication Sciences
PHD Northwestern University 1990
BS Indiana University Bloomington 1983

Amanda J Ortmann, PHD, MS
Assistant Professor of Otolaryngology (primary appointment)
Assistant Professor of Audiology and Communication Sciences
Director of Audiology Studies in Audiology and Communication Sciences
BS Missouri Baptist College 2001
PHD University of Pittsburgh 2012
MS Washington Univ in St. Louis 2003

Randal C Paniello, MBA, MD, MS, BS1
Professor of Otolaryngology (primary appointment)
BS University of Illinois 1979
MBA Washington Univ in St. Louis 1999
MD University of Illinois 1984
MS University of Illinois 1980
BS1 University of Illinois 1979

Margaret Grace Peak, PHD, MA
Adjunct Assistant Professor of Otolaryngology (Audiology) (primary appointment)
PHD Columbia University 1975
BS Maryville University 1959
MA Saint Louis University 1961

Jonathan Erik Peelle, MS PSYC, BAS, PHD
Associate Professor of Otolaryngology (primary appointment)
Associate Professor of Psychological & Brain Sciences
MS PSYC Brandeis University 2002
BAS Houghton College 1999
PHD Brandeis University 2005

Jay Francis Piccirillo, MD
Professor of Otolaryngology (primary appointment)
Professor of Biostatistics
Professor of Medicine
Professor of Occupational Therapy
Vice Chairman for Research, Dept of Otolaryngology
BA University of Vermont 1979
MD University of Vermont 1985

Patrik Pipkorn, MD
Assistant Professor of Otolaryngology (primary appointment)
MD University of Gothenburg 2007

Gerald Raymond Popelka
Adjunct Professor of Otolaryngology (primary appointment)

Lisa Gayle Potts, MS, PHD
Assistant Professor of Otolaryngology (primary appointment)
Assistant Professor of Audiology and Communication Sciences
MS Washington Univ in St. Louis 1991
BS Southern Illinois University 1988
PHD Washington Univ in St. Louis 2006

Sidharth Venkata Puram, MD, PHD
Assistant Professor of Otolaryngology (primary appointment)
BS Mass Inst of Technology (MIT) 2005
MD Harvard University 2013
PHD Harvard University 2011

Jason T. Rich, MD
Associate Professor of Otolaryngology (primary appointment)
BS Brigham Young University 2000
MD Ohio State University 2004

Mark A Rutherford, PHD
Assistant Professor of Otolaryngology (primary appointment)
PHD University of Oregon 2005
BS University of MO St Louis 1999

Alec N Salt, MS, PHD
Professor of Otolaryngology (primary appointment)
MS University of Birmingham 1974
PHD University of Birmingham 1977
BS University of East Anglia 1973

John Stone Schneider, MD, BBA, M PP
Assistant Professor of Otolaryngology (primary appointment)
MD University of Chicago 2007
BBA University of Chicago 1997
M PP University of Chicago 2007

Allen Sclaroff, DDENT
Professor of Clinical Otolaryngology (Oral Surgery) (primary appointment)
DDENT Temple University 1972
BA University of Colorado Boulder 1968

Karl Shanker, DDENT
Instructor in Clinical Otolaryngology (DDS) (primary appointment)
BA Washington Univ in St. Louis 1975
DDENT University of Missouri 1978

Lavinia Sheets, PHD
Assistant Professor of Otolaryngology (primary appointment)
Assistant Professor of Developmental Biology
PHD Oregon Health Science Univers 2007
BS Pacific University 1996

Emily A. Spataro, MD
Courses


M55 Oto 660B Clinical Topics in Otolaryngology
This course consists of nine introductory lectures on common diseases of the head and neck, including voice disorders, head and neck cancer, hearing loss, management of vertigo, pediatric otolaryngology, salivary gland disorders, sinusitis, otolaryngologic emergencies and facial trauma. Additionally, there is a case-based roundtable focusing on otolaryngology disorders affecting the geriatric population and the involvement of allied health care disciplines in the evaluation and management of these patients. 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.
Credit 9 units.

M55 Oto 801 Otolaryngology Subinternship
Four-week rotation includes evaluation of ENT problems presented to specialists 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.

M55 Oto 803 Pediatric Otolaryngology
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.

M55 Oto 820 Practicum in Adult Clinical Audiology
During this rotation, guidance will be provided in the administration and interpretation of audiometric tests, with an emphasis on defining the severity of auditory dysfunction and identifying sites of pathological processes. Theoretical bases of acoustics, anatomy and physiology, and electronics will be reviewed as they relate to auditory assessment. Modification of conventional test paradigms and hearing aid procedures will be covered according to each student's interests and needs.

M55 Oto 831 Neurotology
Students will actively participate in the physical exam, advanced testing and management of patients with balance dysfunction. Students will attend patient clinic two days a week, and test patients on ENG, rotary chair and computerized platform three days a week. Research participation is welcome with prior arrangements.

M55 Oto 833 Ambulatory Otolaryngology for the Primary Care Physician
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.

M55 Oto 900 Research Elective — Otolaryngology
Research opportunities may be available. If interested, please contact the Department of Otolaryngology.