

THE UNIVERSITY OF TEXAS MEDICAL SCHOOL AT HOUSTON

2012 - 2014 CATALOG



LEADERSHIP FOR THE HEALTH CHALLENGES OF TOMORROW

Cover Page

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Accreditation

The University of Texas Health Science Center at Houston is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award certificate, baccalaureate, masters, doctorate and special professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of The University of Texas Health Science Center at Houston.

A Message from the Dean of the UT Medical School at Houston

The four-year curriculum for medical students outlined in this catalog is the product of over 40 years of the Medical School's continual growth and development. To date, more than 4,000 physicians have graduated from the UT Medical School and each represents an important part of who we are. Please take a moment to review our comprehensive and innovative programs. From first-year course work that provides clinical exposure to second-year Problem-Based Learning case studies that integrate basic and clinical sciences, this Medical School is committed to continual innovations and training opportunities that keep pace with these times of rapid health-care changes.

Our opening retreat and orientation program for new students set the stage for the four years and serves as an important statement that this is a student-friendly school, providing faculty resources and student-support programs designed around a philosophy that your medical education will be a lifelong endeavor. From our teaching hospitals, including Memorial Hermann – Texas Medical Center and Lyndon B. Johnson General Hospital, to community-based health centers and clinics throughout the Houston area, we continue to develop learning opportunities that few schools can match in scope and quality. Located in the Texas Medical Center, your education takes place in a medical city, not just a medical building. As we diversify in ambulatory care and address a new era of medical practice, our training opportunities are changing in response to your educational career needs.

We are mindful of our responsibility to expose our students to recent advances, both technological and intellectual, in medicine. We recognize and utilize computer simulation and resources as an important partner in the practice of medicine. With equal diligence, we encourage students to maintain their empathy, sensitivity, and commitment to ethical and compassionate care. We believe that “high-tech, high-touch” medicine is not a contradiction in terms, and our curriculum reflects this philosophy.

Please review the program outlined in our catalog. It is our goal to provide you a quality education that is both rigorous and rewarding, with your success and the health of our global community in mind.

Giuseppe Colasurdo, M.D.

Dean and H. Wayne Hightower Distinguished Professor in the Medical Sciences

President *ad interim*

The University of Texas Health Science Center at Houston

****2012-2013 ACADEMIC YEAR****

Fall 2012

Semester Begins August 13, 2012 (DDS, Dental Hygiene)
August 20, 2012 (MED 1 & 2, Postgraduate, Graduate)

Classes End November 30, 2012 (DDS, Dental Hygiene, Postgraduate, Graduate)

Exams December 3-14, 2012 (DDS, Dental Hygiene)
December 21, 2012 (end of exams MED 1 & 2)

Clinicals End December 21, 2012 (MED 3, Postgraduate, DDS 3 & 4)

Spring 2013

Clinicals Begin January 2, 2013 (MED 4)
January 7, 2013 (MED 3)

Semester Begins January 7, 2013 (DDS, Dental Hygiene, Postgraduate, MED 1 & 2)

Classes End May 3, 2013 (DDS, Dental Hygiene)
May 10, 2013 (Dental Postgraduate, Graduate)

Exams May 6 - 17, 2013 (DDS, Dental Hygiene)
May 24, 2013 (end of exams MED 1 & 2)

Clinicals End May 17, 2013 (DDS 4)
May 31, 2013 (MED 4)
June 28, 2013 (MED 3)
June 28, 2013 (Postgraduate, Graduate)

Spring Break March 11-15, 2013 (MED 1 & 2)
March 18-22, 2013 (DDS, Dental Hygiene, Postgraduate, Graduate)

Summer 2013 (Medical Year 3 and 4 Clinicals)

Clinicals Begin July 1, 2013 (MED 3)
July 1, 2013 (MED 4)

Summer Term 2013 (DDS 1, 2, 3, Dental Hygiene Yr 1)

Session Begins June 3, 2013
Classes End July 26, 2013

Summer Term 2013 (Dental Postgraduate, Graduate)

Session Begins July 1, 2013
Classes End August 16, 2013

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Giuseppe N. Colasurdo, M.D.

Dean and President *ad interim*, UTHealth

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John Hancock, M.B., B.Chir., Ph.D.

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Assistant Dean for Healthcare Quality

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Assistant Dean for Educational Programs

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Rodney E. Kellems, Ph.D.

Cardiothoracic and Vascular Surgery

Hazim J. Safi, M.D.

Dermatology

Ronald P. Rapini, M.D.

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Emergency Medicine

Brent King, M.D.

Family Practice and Community Medicine

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Neurosurgery

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Otolaryngology, Head and Neck Surgery

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Pediatric Surgery

Kevin P. Lally, M.D.

Pediatrics

Brent King, M.D., *interim*

Physical Medicine and Rehabilitation

Gerard Francisco, M.D.

Psychiatry and Behavioral Sciences

Jair Soares, M.D.

Surgery

Richard J. Andrassy, M.D.

Introduction

On Nov. 11, 1968, the Coordinating Board of the Texas College and University System approved the establishment of a new four-year public school of medicine in the Texas Medical Center in Houston. On June 13, 1969, the UT Medical School was created by act of the Legislature, and an appropriation for its initial cost became effective Sept. 1, 1969. Three considerations led to the organization of the school: local, regional, and national shortages of physicians; the extraordinary, but until then underutilized, resources for medical education in Houston and in the Texas Medical Center; and the large number of well-qualified candidates seeking entry to medical school.

A dean and supporting staff were appointed in the spring of 1970. Two years were then devoted to assembling faculty, resources, and equipment; designing a curriculum; and organizing these various parts into an effective medical education team. During this period, the Medical School was accredited by the Association of American Medical Colleges (AAMC) Liaison Committee on Medical Education. The faculty grew rapidly, and effective instruction began, in both the basic sciences and clinical disciplines. New facilities were opened, major construction programs were initiated, and the renovation of Memorial Hermann Hospital was completed. In 1972, the Medical School, along with five other UT health programs, was incorporated into The University of Texas Health Science Center at Houston.

Now, more than 35 years later, the Medical School has achieved a position of excellence among the other fine institutions in the Texas Medical Center. It has remained fully accredited throughout this time and was re-accredited in 2004 for eight years.

Mission

The mission of The University of Texas Medical School at Houston is to provide the highest quality of education and training of future physicians for the state of Texas, in harmony with the state's diverse population; to conduct the highest caliber of research in the biomedical and health sciences; and, to provide exemplary clinical services in relationship to our educational and discovery activities.

In pursuit of this mission, the Medical School:

- endeavors to select a group of caring, well-prepared, highly motivated, intellectually able and socially aware students from diverse cultural, ethnic, social, and economic backgrounds.
- offers them educational experiences: in the basic human biological and behavioral sciences that underlie modern medicine, in the cultural and social forces that shape its practice, and in the ethical responsibilities of physicians.
- provides training in cognitive, technical, and interpersonal skills necessary for practicing patient-centered medicine
- emphasizes problem-solving and creates educational opportunities that involve the use of modern information resources and technology.
- encourages students, faculty, and staff to participate in outreach activities that benefit the wider community.

Principles of Education

- The curriculum will provide students a general medical education with a breadth and depth of core knowledge, skills, and attributes necessary for residency training in any discipline or specialty, and for the life-long practice of medicine.
- The curriculum will be coordinated so that, when appropriate, courses and clerkships are seamlessly integrated.
- The curriculum and the faculty will establish an environment that fosters professionalism, humanism, altruism, ethical behavior, empathy, and compassion.
- The curriculum will explicitly define the core knowledge, skills, and attributes expected of medical students upon graduation.
- The curriculum will be informed by recognized educational research and theory, and by measured outcomes.

Facilities

The nine-story Medical School building is connected to Memorial Hermann – Texas Medical School. The building bridges Ross Sterling Avenue to form one continuous structure with Memorial Hermann – Texas Medical Center’s Cullen, Jones, Robertson, and Hermann pavilions. A sky bridge across Fannin Street provides a link with The University of Texas Health Science Center Professional Building, where faculty conduct their clinical practices, and adjacent garages.

The Medical School building contains offices, teaching and research laboratories, classrooms, lecture halls, study areas, animal facilities, educational and communications support areas, student lounges, and administrative suites. In early 2005, the John Freeman Building (the original Medical School building), was demolished to make room for a new six-story 208,500 gross square-foot research building. This new Medical School Expansion building is connected to the Medical School building at several levels and opened in the winter of 2007.

In 2010, a new Behavioral and Basic Science Research Building opened on the south campus of UTHealth, which houses the Department of Psychiatry and Behavioral Sciences and their clinic facility, along with other UTHealth research groups.

Affiliated Hospitals

Memorial Hermann – Texas Medical Center, a partner in the Memorial Hermann Healthcare System, is the primary teaching hospital of the UT Medical School in the Texas Medical Center (TMC). Founded in 1925, this large metropolitan hospital, licensed for 984 beds, has a long-standing record of distinction in postgraduate teaching. It offers a broad range of inpatient services with special units for coronary and intensive care, newborn intensive care, neurological intensive care, treatment of burns, kidney disease and transplantation, advanced diagnostic facilities, a clinical research center, and emergency services. The hospital serves as the center of inpatient clinical activity for the Medical School’s full-time faculty who work closely with part-time faculty and volunteer physicians. The hospital, which has been completely renovated, includes Children’s Memorial Hermann Hospital, the Texas Kidney Institute, the Texas Liver Center, the Ironman Sports Medicine Institute, the Mischer Neuroscience Institute, the Memorial Hermann Heart & Vascular Institute – TMC, and TIRR Memorial Hermann. Medical students develop much of their inpatient clinical experience in this outstanding facility.

In 1997, Hermann Hospital merged with the Memorial Healthcare System to become the Memorial Hermann Healthcare System, the largest not-for-profit hospital system in Texas. The Memorial Hermann Healthcare System has 3,772 licensed beds in nine acute care hospitals, three long-term acute hospitals, and a retirement/nursing center.

The Lyndon B. Johnson (LBJ) General Hospital, owned and operated by the Harris County Hospital District, is the second primary teaching facility for the Medical School. This 330-bed hospital opened in 1989 and is a full-service general hospital with easy access for the indigent patients it serves. Health-care services for the hospital district are provided by Affiliated Medical Services (a nonprofit organization composed of UT faculty), which staffs LBJ, and Baylor College of Medicine, which staffs Ben Taub General Hospital. February, 2011 marked the Ribbon Cutting Ceremony for the grand opening of the 36,000 square foot extension to the LBJ Emergency Center, a level III trauma center. EC volumes increased 25% within the first month of operation. The Westlands, a new ambulatory care facility is planned for completion in late 2013 or early 2014. This facility will be approximately 122,000 square feet and will increase LBJ’s bed capacity as clinics within LBJ relocate from inpatient space. Future expansion includes a much needed 1,200 space parking garage, new LBJ entrance and a new GI suite

The University of Texas M. D. Anderson Cancer Center, located in the Texas Medical Center, is widely regarded as one of the world's foremost centers for cancer care, research, education, and prevention. Since its opening in 1944, M. D. Anderson has treated more than 600,000 patients with cancer and allied diseases in its inpatient and outpatient services. The institution also houses a large clinical and basic science research program devoted to the investigation of the biology of cancer and includes active units in biochemistry, biological response modifiers, biophysics, molecular biology, pathology, pharmacology, cell biology, and cancer prevention. M. D. Anderson Cancer Center participates in a wide range of training programs involving more than 2,900 students annually in the sciences and health professions. In addition, inpatient facilities were completed in 1976 and an expanded ambulatory care center was dedicated in 1987. Three new buildings have recently opened: the Cancer Prevention Building, the Ambulatory Clinic Building, and the Basic Sciences Research Building. The M. D. Anderson Cancer Center cared for more than 105,000 patients in 2010.

The UT Harris County Psychiatric Center (HCPC), which opened in 1986, is a 222-bed public acute care psychiatric hospital that delivers a comprehensive program of psychiatric and clinical social services to more than 7,000 patients annually. The center plays an important role as a teaching facility for medical and nursing schools across Texas and Louisiana. Operated by The University of Texas Health Science Center at Houston, the facility is jointly supported by the State of Texas and Harris County under the auspices of the Texas Department of State Health Services and the Mental Health and Mental Retardation Authority of Harris County, respectively. The Medical School's Department of Psychiatry and Behavioral Sciences provides administrative leadership and medical services for the center.

St. Joseph Medical Center is a 792-bed general hospital four miles north of the Medical School in downtown Houston. This hospital is the site of several programs for student rotations overseen by UT faculty, including neurology, and obstetrics and gynecology.

St. Luke's Episcopal Hospital is a 946-bed community teaching hospital and tertiary referral center located nearby in the Texas Medical Center. Student rotations from the Medical School take place in neurology and internal medicine. St. Luke's is also home to the Texas Heart Institute, where The University of Texas Health Science Center at Houston has several ongoing research and educational collaborations.

Outpatient Clinical Facilities

Ambulatory care is provided at the UT Physicians clinics, located primarily in The University of Texas Health Science Center Professional Building across the street from the Medical School as well as at satellite locations outside of the Texas Medical Center including facilities in Bellaire, in Missouri City, on the campuses of several Memorial Hermann Healthcare System hospitals, and on the campus of St. Joseph Medical Center; ; six community health centers operated by the Harris County Hospital District; seven WIC (Women, Infants and Children) clinics; and several other clinical outreach programs located throughout the greater Houston community.

M.D. Admissions

The Admissions Committee has the responsibility of recommending individuals from an increasingly large number of applicants who have the intellectual ability and motivation for service, making them most suitable for the study and practice of medicine. Particular interest is taken in candidates with a broad educational background. The committee emphasizes attempting to fill the needs of Texas for primary and rural care practitioners as well as those who will practice in other shortage areas or among needy populations. To the extent provided by applicable law, no person shall be excluded from participation in, denied the benefits of, or be subject to discrimination under, any program or activity sponsored or conducted by The University of Texas System or any of its institutions, on the basis of race, color, national origin, religion, sex, age, veteran status, sexual orientation, or disability.

UTHealth endeavors to foster an educational environment and working environment that provides equal opportunity to all members of the university community. To the extent provided by applicable law, no person shall be excluded from participation in, denied the benefits of, or be subject to discrimination under, any program, or activity sponsored or conducted by The University of Texas System or any of its institutions on the basis of race, color, national origin, religion, sex, sexual orientation, age, veteran status, or disability.

Any student or potential student who has a complaint regarding equal opportunity under this policy should contact the respective school's associate dean for student affairs, or contact the office of the executive vice president for Academic and Research Affairs.

The full policy can be found online in HOOP Policy 183, Equal Opportunity, Discrimination and Harassment

(<http://www.uthouston.edu/hoop/policy.htm?id=1448214>)

Admission Requirements

Students should plan college course work with an emphasis on obtaining a broad education. It is important that evidence of scholarly interest and achievement in some branch of academic endeavor be demonstrated. The study of medicine is based upon science, so the medical student must be a capable student of science. While science majors are very appropriate, a liberal arts education is also an excellent basis for a medical career.

Accordingly, applicants may have majored in such areas as classics, languages, history, English literature, music, or philosophy, provided specific scientific requirements are fulfilled. All applicants are expected to be well educated and able to demonstrate the intellectual interests associated with entry into a learned profession.

Students must complete at least 90 undergraduate credit hours at a United States or Canadian university. The specific pre-medical credits listed below must be taken at a United States or Canadian university. Although the minimum requirement for admission is 90 undergraduate semester hours at a United States or Canadian university, preference is given to students who obtain a baccalaureate degree prior to admission to medical school.

While the academic requirement is for 90 hours of college coursework, a completed degree is strongly recommended. Graduate courses do not satisfy these premedical requirements.

Requirements for Medical School Applicants for TMDSAS Schools:

English 6 semester hours. These courses should be taken in the English department.

Biology 14 (12 plus 2 laboratory) semester hours. One year may be completed by advanced placement. The other year must be completed in residence at a college and must include formal laboratory work. Biology courses must be as required for science majors.

Physics 8 (6 plus 2 laboratory) semester hours. Physics courses must be as required for science majors and must include laboratory experience.

Inorganic chemistry 8 semester hours (6 plus 2 laboratory). The courses should be for science majors, including the corresponding laboratory experience.

Organic chemistry 8 (6 plus 2 laboratory)

Recommended: Mathematics 3 semester hours of college calculus or statistics. These courses should be given by the mathematics department.

The Medical and Dental Schools of The University of Texas System are authorized by the Texas Legislature to accept up to 10 percent non-residents for enrollment in an entering class. Non-resident students should have outstanding qualifications.

The Medical College Admissions Test is required and is an important part of the application. The MCAT is administered many times each year, and details of the dates and places of administration can be found on the AAMC Web site.

Admissions Criteria

The UT Medical School, in conformity with the purpose assigned it by the Texas Legislature and its mission statement, selects the best qualified students for its entering class who demonstrate a potential to become competent and caring physicians and who will serve the identified needs of the State of Texas. The Admissions Committee considers the totality of each application and gives importance to the factors enumerated below.

1. Intellectual capacity: Each student who is accepted must have the intellectual ability to successfully complete medical school and master the essentials of the practice of medicine.

- undergraduate and graduate record
- standardized test scores
- academic awards and honors (e.g. Phi Beta Kappa, National Merit, etc.)
- research accomplishments
- degree of difficulty of undergraduate program
- pre-professional evaluations, personal interview

2. Interpersonal and Communication Skills

The practice of medicine demands a high level of interpersonal skills and a compassionate attitude. The ability to communicate well is essential for these qualities.

- community or charitable service
- recognition for humanitarian service
- extracurricular activities and organizations
- leadership positions
- employment history
- cultural competency
- articulate and organized communication, both oral and written
- standardized test scores in verbal abilities
- written MCAT score
- statements made on the application or in the personal interview

3. Breadth and Depth of Pre-medical Educational Experience

The modern practice of medicine requires a strong scientific background and also an ability to understand the complex non-scientific problems facing physicians and patients, e.g. ethical or socioeconomic problems. The bare completion of the pre-medical requirements is a base on which to build further knowledge and prepare physicians for a lifetime of study so that they will remain the best possible practitioners of medicine.

- undergraduate core curriculum or course selection
- participation in the intellectual life of the university
- involvement in discipline organizations and clubs
- extent and variety of reading
- papers written or published
- knowledge displayed at the interview
- enrollment in an honors program in college
- pre-professional evaluations

4. Potential for Service to the State of Texas

A state medical school must, as a primary concern, produce practitioners who will serve the people of that state.

- the applicant's goals for the future
- size and location of hometown
- residency in a Health Professions Shortage Area in Texas
- potential for future provision of health services to underserved areas
- potential for future provision of medical specialties in short supply
- language skills appropriate to the Health Profession Shortage Areas in Texas

5. Motivation

A physician must be prepared for a lifetime of intense service to her or his patients. This requires a high level of selfless motivation and commitment.

- success in overcoming adverse economic or educational conditions
- employment history occurring simultaneously with undergraduate academic preparation
- participation in activities requiring time management skills
- varsity athletics, campus symphony, and other time-intensive accomplishments
- improvement in the undergraduate record
- veteran status and military experience
- experience in health-related activities

6. Integrity

Because of the public trust given to members of the medical profession, a physician must have qualities of integrity beyond reproach.

- pre-professional evaluations
- any academic integrity violation
- commission of any crime
- any other relevant background relating either positively or negatively to applicant's standard of integrity
- honorable discharge or discharge under honorable conditions

7. Ethical Standards

A candidate must demonstrate professional demeanor and behavior and must perform in an ethical manner in all dealings with peers, faculty, staff, and patients.

8. Technical Standards

All individuals, without exception, who apply for admission to the UT Medical School at Houston must be able to perform specific essential functions. Essential functions are the basic activities that a student must be able to perform to complete the general medical school curriculum. An applicant who cannot perform the medical school's essential functions will not be considered for admission. A candidate for the MD degree at the UT Medical School must be able to perform these essential functions:

OBSERVATION

- accurately observe demonstrations
- accurately observe patients close up and at a distance
- observe to gather patient data (affect, gait, appearance, posture, etc.)
- use visual, auditory, olfactory and somatic senses to gather information

COMMUNICATION

- communicate orally and in writing with patients and members of the health-care team
- read and comprehend written material

PSYCHOMOTOR SKILLS

- sufficient motor function to obtain data from patients
- use tactile, auditory, and visual maneuvers
- execute motor movements to provide general care and emergency treatment

INTELLECTUAL AND COGNITIVE ABILITIES

- measure, calculate, reason, analyze, synthesize, integrate and apply information
- comprehend three-dimensional relationships
- understand the spatial relationships of structures

BEHAVIORAL AND SOCIAL ATTRIBUTES

- emotional health to fully use intellectual abilities
- exercise good judgment
- promptly complete all responsibilities attendant to the diagnosis and care of patients
- developing mature, sensitive, and effective relationships with patients
- tolerate physically taxing workloads
- function effectively under stress
- adapt to changing environments
- display flexibility
- learn to function in the face of many patients
- show compassion, integrity, concern for others, interpersonal skills, interest, and motivation

CHRONIC CONDITIONS

A candidate must not possess any chronic or recurrent illnesses, including but not limited to, infectious, psychiatric or substance abuse problems that can interfere with patient care or safety and are not compatible with medical practice or training.

Application Procedure

Application for admission to the UT Medical School is made through the Texas Medical and Dental Schools Application Service (TMDSAS). Applications for entry are typically accepted between May 1 and Oct. 1 of the preceding year. Early application is encouraged due to the large number of applicants. Applicants should contact the Texas Medical and Dental Schools Application Service for the most current information. Application information is available from The Texas Medical and Dental Schools Application Service's Web site: www.utsystem.edu/tmdsas

Mailing address:
Texas Medical and Dental Schools
Application Service
702 Colorado, #6.400

Austin, Texas 78701
Telephone 512-499-4785

Fees and other application requirements, guidelines and details can be found on the TMDSAS Web site.

After applications have been processed by the application service, they are forwarded to the UT Medical School, where they are reviewed and evaluated.

Applicants who give evidence of being well-qualified candidates for admission may be invited for interviews on a specified date. Applicants are welcome to visit the UT Medical School at anytime, but formal interviews must, of necessity, be arranged by, and are at the initiative of, the Office of Admissions.

Applicants rank their medical school preferences via the Texas Medical and Dental Schools Application Service's Web site. Final preference decisions must be made prior to Jan. 15, and updates are always found on the TMDSAS Web site). The Admissions Committee evaluates each applicant and sends applicants to the application service for matching with the applicant's medical school preferences. The schools may make early offers of acceptance beginning October 15 for out of state residents, and MD/PhD candidates, and November 15 for Texas residents.

After any acceptance, applicants are required to indicate their acceptance decision in writing within two weeks of notification. An applicant who later decides to accept a position in another institution should give prompt notice in writing of withdrawal from the UT Medical School.

The Medical School recognizes the procedures and deadlines recommended by the Association of American Medical Colleges and the American Medical Colleges Application Services.

Entering medical students are required to consent to and pay for a criminal background check by an entity designated by the Medical School. Admission is expressly contingent upon successful completion, review, and approval of the content of the criminal background check. The criminal background process will be repeated before the student enters the clinical rotations.

M.D. Student Development

Evaluation and Promotion

The evaluation of student performance helps students achieve their maximum potential and provides information on how well institutional educational goals are being met.

The official policies for evaluation of academic performance, promotion, grade grievance, and academic dismissal are contained in The UT Medical School Policy and Guidelines for Evaluation and Promotion of Medical Students on the Medical School student handbook Web site at <http://med.uth.tmc.edu/students-current/policies.htm>. Paper copies are available in the Office of Student Affairs.

Examinations serve to inform faculty of a student's grasp of course material and provide an indication of when academic help or remedial work is appropriate. Medical students are awarded the following grades on the basis of their academic performance: Honors, High Pass, Pass, Marginal Performance, or Fail. Grades and other information relative to a student's academic performance are transmitted to the Student Evaluation and Promotion Committee which, based upon an overall consideration of the student's grades, demonstrated knowledge, clinical performance, and suitability to practice medicine, decides whether a student should be promoted, continued with remedial work assigned, or dismissed. Any student whose active record indicates that he/she is not suitable to continue the study of medicine will be dismissed.

Students can be referred for evaluation and counseling for academic or personal concerns through the Office of Student Affairs.

Conduct and Discipline

Students are responsible for knowing and observing University regulations concerning student conduct and discipline as set forth in the UTHealth Handbook of Operating Procedures (HOOP) Policy 186 and the Medical School's Policy and Guidelines for the Evaluation and Promotion of Medical Students. A reference copy of the HOOP Policy is available in the Dean's Office and the HAM-TMC Library.

For information regarding student academic and behavioral issues, contact:

Margaret C. McNeese, M.D.

Associate Dean for Admissions and Student Affairs

The University of Texas Medical School at Houston

6431 Fannin, Suite G400

Houston, Texas 77030

Basic and Clinical Science Research Program for Medical Students

Basic science and clinical research are essential components of the overall mission of the Medical School. The Medical School offers a Summer Research Program, which provides an intensive, hands-on, 10-week research experience for medical students during the summer after their first year. The program fosters development of scientific reasoning and other research skills.

Students work closely with faculty mentors of their choice in ongoing research projects organized individually for each student. At the end of the research project, students write an abstract on which they are first-author. These abstracts are published and posted on the program's Web site. In addition, the students develop a research poster which is presented at the annual Medical School Research Forum and Webber Prize Competition held in late October.

Students also may continue their research until graduation either independently with their mentor or as a participant in one of ten newly established "Scholarly Concentrations". All concentrations are thematic, interdisciplinary, longitudinal, and experiential, with guided faculty mentoring and structured group seminars/courses/journal clubs, etc., Additionally, all students in concentrations are expected to engage in or continue with an independent scholarly project.

Short-term NIH training stipend support and other sources of financial support for medical students are available.

Contact: Gary Rosenfeld, Ph.D.

Program Director, 713-500-7435

e-mail: Gary.C.Rosenfeld@uth.tmc.edu

M.D. Expenses

Tuition

Effective with the 2012-2013 academic year, in-state resident tuition is \$16,300 annually; out-of-state (non-resident) tuition is \$29,400 annually. The tuition amount includes designated tuition that is used for annual capital renewal, deferred maintenance, and bond retirement for the construction of new buildings.

For additional specific information, refer to the General Information Section of the Catalog, and/or contact:

Office of the Registrar
The University of Texas Health Science Center at Houston
7000 Fannin, Suite 2250
P.O. Box 20036
Houston, Texas 77225

Or call 713-500-3361

Or email registrar@uth.tmc.edu

Scholarships

The Medical School awards a number of scholarships every year for which all students are invited to apply. A generic scholarship application form may be downloaded from the Student Financial Services website during the Spring semester. The Alumni Association Competitive Scholarship recognizes several outstanding entering students annually and enables non-resident recipients to be eligible for in-state tuition. This competitive \$1,000 scholarship is renewable for the following three years of enrollment providing the recipient meets the guidelines for satisfactory academic progress.

Scholarship awards are made by the Scholarship Committee, which consists of two representatives each from the Admissions Committee and the Student Evaluation and Promotions Committee, the Associate Dean for Admissions and Student Affairs, the Assistant Dean for Admissions, the Assistant Dean for Admissions and Student Affairs, and the Assistant Dean for Student Affairs.

Fees and Charges

Computer Fee	\$200		
Pager Fee – Year 3 & 4 (Annual)	120	Graduation Fee*	75
Information Technology Fee	99		
Health Insurance***	1204		
Installment Use Fee	15		
Laboratory Fee Year 1 & 2 (Annual)	35		
Library Resource Fee	100		
Malpractice Insurance (Annual)	25		
Technology Fee	275		
Anatomy Lab (year 1)	350		
Student Services Fee (Annual)**	386.60-499.65		
Standardized Patient Fee	600		

*A graduation fee of \$75 payable at registration for the final academic term is required of all students. This fee does not include regalia rental.

**The Student Services Fee, required of all students, provides for student activities, outpatient care by UTHealth Health Services, student counseling, student government, a shuttle service, and recreational facilities. Optional family coverage is available. The fee varies depending on which academic year of medical school the student is enrolled.

***Health insurance is required of all health science center students. If students have a health insurance policy, they may provide proof of comparable insurance to Auxiliary Enterprises no later than the 12th class to have this charge waived. Details on the insurance plan are with the Auxiliary Enterprise Office.

Through reciprocal agreements, students at other components of The University of Texas System, as well as graduate students from Rice University, Baylor College of Medicine, Texas Woman's University, and the University of Houston, may take graduate courses for credit at UTHealth, subject to the approval of the instructor. In addition, UTHealthgraduate students may take courses for credit at any of the above institutions. Mechanism for payment of tuition or registration fees vary according to the individual institution. Consult with that Registrar's Office for specific details.

Student Health Services

The UT Medical School Health Services is located in The University of Texas Health Science Center Professional Building, Suite 1010. Students are seen on a walk-in basis Monday-Friday, 8:30 a.m. - 4:30 p.m. The clinic provides wellness and full-service health care for medical school students. For more details, see the General Information section.

Books and Supplies

During the first year, the cost of textbooks and supplies averages \$1516 (excluding cost of computer). In the second, third and fourth years of the curriculum, the cost of books and supplies ranges from \$971 to \$2933 each year. Information regarding specific textbook requirements and costs may be found here: http://www.med.uth.tmc.edu/administration/edu_programs/medical-education/student-schedules.html

Laptop Requirement

Information technology and informatics today are integral parts of medical education and practice. In order to fully utilize information resources required by the faculty during your education, the school requires that all incoming medical students have laptop computers that meet specific minimal requirements.

The requirements for the current entering class are provided at the following URL:

<http://med.uth.tmc.edu/msit/policy/students.html>

Disability Insurance

The Medical School encourages students to consider whether or not they wish to purchase disability insurance. The Office of Student Affairs has information regarding available plans.

Malpractice Insurance

Students are required to show evidence of student liability insurance when enrolled in field experience courses that utilize off-campus facilities, if such facilities require the insurance. Basic coverage is included for \$25 a year and is part of required fees.

Ethics

The UT Medical School at Houston recognizes that in addition to intellectual capability and expert technical skills and knowledge, a good physician must have a solid and unassailable foundation and commitment to ethical behavior and principles. Patients and society at large expect and deserve no less. These principles are embedded in the life of the Medical School and its faculty.

Because these principles are so important to the Medical School, students are asked to make the same explicit commitment to them.

Ethical Pledge

Incoming students are asked to agree to and sign the following ethical pledge following their acceptance to the UT Medical School.

- I acknowledge and accept the privileges and responsibilities given to me as a physician-in-training and dedicate myself to provide care to those in need.
- I will approach all aspects of my education with honesty and integrity, embracing opportunities to learn from patients, teachers, and colleagues.
- I will always maintain the highest standards of professional conduct.
- I will certify only that which I have personally verified, and I will neither receive nor give unauthorized assistance on examinations.
- I will value the knowledge of wisdom of the physicians who have preceded me.
- I will recognize my weaknesses and strengths and strive to develop those qualities that will earn the respect of my patients, my colleagues, my family, and myself.
- I will respect the humanity, rights, and decisions of all patients and will attend to them with compassion and without bias.
- I will maintain patient confidentiality and be tactful in my words and actions.
- I will value the diversity of patients' experiences, cultures, and beliefs because it enhances my ability to care for them and enriches my education.
- I will not forget that there is an art to medicine as well as a science and that warmth, sympathy, and understanding are integral to patient care.
- I will strive to earn the trust my patients place in me and the respect that society places upon my profession.
- I recognize the privileges afforded to me as a physician-in-training and promise not to abuse them.
- Even as a student I have a responsibility to improve the standard of health in my community, to increase access to care for the underserved, and to advance medical knowledge.
- As I accept these new responsibilities, I will not forget the importance of my own health and well-being. I will continue to value my relations with those who have supported me in the past and those who will share in my future.
- Knowing my own limitations and those of medicine, I commit myself to a lifelong journey of learning how to cure, relieve pain, and comfort with humility and compassion.
- I make these promises solemnly, freely, and upon my honor.

White Coat Ceremony

Shortly after matriculation, first-year students participate in a White Coat Ceremony, where they don white coats for the first time, recite the Hippocratic Oath and re-affirm the Ethical Pledge by signing their names in a book which is kept in the Office of Student Affairs.

The Hippocratic Oath is sworn once more at Commencement.

M.D. Academic Organization

The Medical School educational program is of four years' duration. The first two years are primarily focused on basic sciences, and the second two years are focused on the clinical sciences. The first two academic years are each divided into two semesters, with three months of vacation provided between the first and second years. During this time students have the opportunity to participate in research or in a clinical preceptorship. In the first two academic years, the student becomes familiar with the basic and applied biomedical sciences. During the second year, Problem-Based Learning is introduced to help the student understand basic science mechanisms in the context of clinical presentations.

The student progresses from a study of the fundamentals of molecular and cellular biology and normal morphology of the human body to the abnormal structure and function of the various organ systems. Concurrently, the techniques of interviewing, history-taking, and performance of physical and mental-status examinations are introduced along with appropriate behavioral, societal, and ethical issues.

Clinical clerkships in the major clinical disciplines begin in the third year for a 12-month sequence. A three-week elective is also offered during the third year. During the fourth year, there are additional required clerkships and five elective periods. After consultation with faculty advisers, each student develops an educational sequence for the fourth year that relates to his or her career goals and postgraduate educational plans. Seniors may take electives at any approved medical school elective program in the United States or abroad.

During medical school, the student is required to take two of the three examinations necessary for medical licensure: USMLE Step 1 is taken after completion of the basic science courses and prior to the start of the third year clerkships. The student is required to take USMLE Step 2 CK and CS prior to graduation

The Curriculum Committee is the committee charged with approval, management, and evaluation of all aspects of the Medical School curriculum.

Curriculum

Curriculum

The basic four-year program outlined below is required for the M.D. degree. Variations and adjustments may be made as the Curriculum Committee deems necessary.

Basic Sciences

First Academic Year

Required Courses:

Fall Semester/18 weeks

Biochemistry
Clinical Applications (Pass/Fail; continued in spring)
Developmental Anatomy
Gross Anatomy
Histology and Cell Biology
Introduction to Clinical Medicine (continued in spring)

Spring Semester/19 weeks

Clinical Applications
Immunology
Microbiology
Neuroscience
Physiology
Introduction to Clinical Medicine

Second Academic Year

Required Courses:

Fall Semester/18 weeks

Behavioral Sciences
Genetics
Fundamentals of Clinical Medicine
Epidemiology and Evidence-Based Medicine
Integrative Clinical Experience/
Problem-Based Learning
Pathology
Pharmacology
Physical Diagnosis

Spring Semester/19 weeks

Behavioral Sciences
Ethics and Professionalism
Fundamentals of Clinical Medicine
Integrative Clinical Experience/
Problem-Based Learning
Pathology
Pharmacology
Physical Diagnosis
Reproductive Biology
Technical Skills

Basic Life Support
Radiology (Pass/Fail)

Clinical Sciences

Third Academic Year

Begins in the first week of July/48 weeks. During this time there are four weeks of vacation and two 24-week rotation periods consisting of the following:

Required Clerkships	Number of Weeks
Internal Medicine	8
Obstetrics & Gynecology	6
Neurology	4
Pediatrics	8
Psychiatry	6
Surgery	8
Family Practice	4
Geriatrics (Pass/Fail)	1
Third-Year Elective (Pass/Fail)	3
Comprehensive Clinical Competency Examination (CCCE)	

Fourth Academic Year

Begins in July/11 months

Required Clerkships

Number of Months

Critical Care Selective	1
Advanced Patient Care Selective	1
Ambulatory Medicine Selective	1
Transition to Residency Month	1
Medical Jurisprudence	
Advanced Cardiovascular Life Skills	

Required Elective Program:

Students take a minimum of five
one-month electives

5

Two months are available for
vacation or additional electives

2

(Fourth year vacation months may be used in the third year in special circumstances and with prior approval of the Office of Student Affairs)

The Medical School's fourth-year elective programs
permit students

to seek clinical opportunities away
from Houston, at their own expense,
ranging from family practice in rural
communities to experiences in the
most sophisticated settings requiring
advanced technology. International
clinical and research electives also
are available. The School is fortunate
regarding the wealth of clinical
opportunities available to its students.

The fourth-year elective catalog is
available online at http://med.uth.tmc.edu/current_students.htm

M.D. Curriculum Goals and Objectives

Educational Goals and Objectives for The University of Texas Medical School at Houston Goals

- (a) Students should acquire a KNOWLEDGE AND UNDERSTANDING of health and its promotion; of disease and its prevention and management; and, of psychosocial factors that influence a patient's well-being, in order to provide competent and humane medical care to individuals, families, and the larger society. Furthermore, students should be able to use their knowledge and understanding appropriately in the care of patients. Students should have an opportunity to participate in scholarly activities including research.
- (b) Students should acquire and become proficient in basic clinical SKILLS, such as the ability to obtain a patient's history, to perform a comprehensive physical and mental status examination, to interpret the findings, and to demonstrate competence in the performance of basic technical procedures. Students should appreciate the appropriate use of technologies in assisting in diagnosis and management.
- (c) Students should acquire and demonstrate ATTITUDES that foster patient-centered care and support the highest standards of the medical profession.

Educational Objectives

Patient Care and Clinical Skills

The graduating student is expected to provide care for patients that is compassionate, appropriate and effective and encompasses the promotion and maintenance of health and treatment of disease.

Specific Objectives:

The graduating student will be able to:

- Form an effective therapeutic relationship with patients
- Obtain and record an accurate, comprehensive history from the patient and/or caregiver
- Accurately perform and record a comprehensive physical examination and mental status examination
- Accurately document and interpret the findings from the history and physical examination
- Develop an initial differential diagnosis based on the patient history and physical examination, and formulate an initial plan for investigation and management
- Order appropriate studies (with awareness of sensitivity, specificity and cost) and interpret diagnostic tests in order to confirm or exclude a clinical diagnosis.
- Competently perform routine clinical procedures, including at a minimum, venipuncture, inserting an intravenous catheter, arterial puncture, inserting a nasogastric tube, inserting a Foley catheter, and suturing lacerations.
- Identify and initiate treatment plans for common conditions and assess the effects of these interventions.
- Recommend age-specific, preventive and health maintenance practices appropriate for the patient based on the best available evidence.
- Plan and execute appropriate management plans for patient care, referral and follow-up.
- Apply the scientific method (including evidence-based medicine principles) to patient care whenever applicable and feasible.
- Manage patients mindful of salient legal, ethical, spiritual, and psychosocial constructs.
- Apply the principles of pain management to reduce patient suffering.

Medical Knowledge

The graduating student is expected to understand the importance of scientific discovery and to apply the scientific foundations of medicine to evidence-based practice.

Specific Objectives:

The graduating student will be able to:

- Describe the normal structure and function of the human body at molecular, cellular, tissue, and anatomic levels.
- Describe the pathogenesis of disease.
- Describe the scientific principles (including genetic, molecular, and physiologic mechanisms) basic to the practice of clinical medicine, and be able to apply these principles to patient care.
- Describe pharmacological and other therapeutic interventions and apply to patient care.
- Describe the environmental, social, cultural and psychological determinants of patients' responses to health and disease states.
- Interpret common laboratory and diagnostic tests and describe the indications, complications, limitations and cost-effectiveness of each study.
- Describe the principles of disease prevention and health maintenance in individuals and populations, and apply to individual patient care.
- Be aware of the organization, financing, and delivery of health care in the U.S., both in the hospital and in the community, and the role of the physician as an advocate for patients.
- Address the medical consequences of common societal problems (including domestic violence and abuse).
- Demonstrate knowledge of common clinical emergencies, acute and chronic problems/diseases, and their basic management.
- Use critical appraisal of the medical literature as the foundation for an evidence-based practice of medicine.
- Describe principles of quality improvement, its use in patient care, and use of common patient safety/quality tools.
- Describe the basic principles and ethics of clinical and translational research, and how such research is conducted, evaluated and applied to the care of patients.

Interpretation of Medical Data/Practice-Based Learning and Improvement

The graduating student is expected to commit to lifelong learning and improvement.

Specific Objectives:

The graduating student will be able to:

- Use technology to access medical information resources to expand personal knowledge and make effective decisions in patient care.
- Critically assess the validity of published medical studies by describing strengths, weaknesses, limitations and applications to clinical practice.
- Apply the principles of information literacy to continuous quality improvement.
- Use evidence-based approaches as tools to decide whether to accept new findings, therapies and technologies for incorporation into clinical practice.

- Elicit feedback about performance and develop and implement a plan for self-directed learning and improvement.
- Define the elements of scholarship and develop a scholarly product.

Interpersonal and Communication Skills

The graduating student is expected to demonstrate interpersonal skills that facilitate effective communication with patients, families, and other members of the health care team.

Specific Objectives:

The graduating student will be able to:

- Write or present case histories that are accurate and well organized; accurately record information in the patient's chart to appropriately address the patient's problem/condition.
- Convey diagnostic and management plans effectively both orally and in writing.
- Demonstrate interpersonal skills that establish rapport and empathic communication with patients and their families, and other health care professionals.
- Demonstrate ability to communicate effectively and completely (evidence based) both benefits and risks to assist patients in their decision making.
- Demonstrate respect for patients and colleagues that encompasses diversity of background, belief systems, language and culture.
- Demonstrate professionalism and compassion in addressing issues of a sensitive nature with patients and families.
- Help patients make and anticipate end-of-life decisions; participate in communicating bad news and obtaining consent for treatments.
- Educate patients and their families, peers, and other healthcare professionals.

Professionalism

The graduating student is expected to approach medicine with integrity and respect for human dignity and diversity and demonstrate awareness of and commitment to ethical principles.

Specific Objectives:

The graduating student will be able to:

- Demonstrate honesty, trustworthiness and integrity in interactions with patients, families, colleagues and other health care professionals.
- Demonstrate personal qualities of self-discipline, open-mindedness, and intellectual curiosity.
- Develop a collaborative relationship with patients by valuing the patient and his/her input, and by maintaining continuing personal responsibility for the patient's health care.
- Display commitment to excellence in patient care; place the patient's welfare above self-interest.
- Demonstrate respect and compassion towards patients and their families, including sensitivity to patients' culture, age, sexual orientation and gender.
- Apply ethical principles to the study and practice of medicine.
- Respect patients' rights, including confidentiality of patient information and informed consent.
- Maintain balance between personal and professional life.
- Recognize and accept limitations in knowledge and skills with a commitment to continuously improve knowledge and ability.

- Demonstrate commitment to life-long learning in order to maintain familiarity with scientific advances to ensure integration with patient care.
- Project a professional image in interactions with patients, peers, family, residents and co-workers.

Core Competencies

The Medical School has developed a list of core competencies which all students should demonstrate prior to graduating with the M.D. degree. The competencies are grouped under the following (see attached):

- (a) patient care;
- (b) basic clinical procedures;
- (c) medical knowledge;
- (d) interpretation of medical data;
- (e) interpersonal and communication skills; and
- (f) professionalism.

Pre-Entry Program

The Pre-Entry Program is an intensive five-week program offered to a subset of students prior to the fall matriculation of the first year. The program includes a one-week course in the fundamental concepts of biomedical sciences followed by courses in anatomy, biochemistry, and physiology/neuroscience taught by faculty members in the Medical School. The noncredit program is designed to assist students prepare for the academic rigors of the medical school curriculum. Invitations to the program are sent to students who might benefit. Students may also request consideration for participation in this program.

A Peer Tutoring Service is available to all students at no charge.

For information about the Medical School's academic program, call 713-500-5140, e-mail: r.andrew.harper@uth.tmc.edu, or write:

R. Andrew Harper, M.D.
Assistant Dean for Educational Programs
The University of Texas Medical School at Houston
6431 Fannin, J1L 304
Houston, Texas 77030

Visit our Web site:

http://med.uth.tmc.edu/administration/edu_programs/medical-education/pre-entry.html

Learning Resource Center (LRC)

The LRC supports the teaching and learning functions of the Medical School. It works closely with the faculty and students to identify and promote the utilization of innovative teaching and learning strategies in support of the Medical School's curricular offerings. Housed in a state-of-the-art facility, the LRC has over 10,000 square feet of dedicated space and seating for more than 250 in 170 individualized study carrels, each of which is equipped with a networked computer station, and 11 group study rooms, which are also used for small group instruction as part of the Medical School's Problem Based Learning curriculum. Also included are 2 fully equipped physical diagnosis practice rooms. With wireless networking connectivity throughout the facility, the LRC houses various audiovisual devices, a collection of over 3,500 instructional media, required and recommended texts, reserve and reference materials, multimedia devices, simulators, and web-based instructional resources. The LRC's circulation desk is open 7 a.m. to 6 p.m., while the study areas are accessible 24 hours, seven days a week.

Library Resources

The Houston Academy of Medicine-Texas Medical Center (HAM-TMC) Library serves as the accredited library for most Texas Medical Center institutions and is the primary library resource for The University of Texas Medical School at Houston.

Currently, the library subscribes to 235 electronic databases and over 7,000 electronic journals which are available on site or from anywhere through a proxy server and with registration through the library. The library contains 76,500 square feet of space and holds over 351,000 volumes, including books and journal volumes. Over 50 public access computers are available to library users. These computers have full Internet access, as well as Microsoft software Word, Excel, Access and PowerPoint. The Library also offers classes in PubMed, RefWorks, *Tracking Your Publications*, *Collaboration Celebrations: Using Web-Based Collaboration Tools*, *Mobile Medical Resources*, and CINAHL.

Since 1991, the library has served as the Regional Medical Library for the National Network of Libraries of Medicine South Central Region, with responsibility for the library needs of health professionals and consumers in the five-state region of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. So designated by the National Library of Medicine, there are only eight Regional Medical Libraries in the nation.

Dual Programs

M.D./Ph.D. Program

The University of Texas Medical School, Graduate School of Biomedical Sciences, and M. D. Anderson Cancer Center participate in a combined program leading to both M.D. and Ph.D. degrees. This program is sponsored and supported by UT Health Science Center at Houston and the UT M. D. Anderson Cancer Center for the most qualified student candidates. The program is administered by an M.D./Ph.D. Committee and involves the participation of faculty members from both institutions. The requirements established for the program meet the general requirements of both degrees in a flexible program of approximately seven years duration.

Students must meet the admissions requirements of both the Medical School and the Graduate School of Biomedical Sciences to qualify for admission to the M.D./Ph.D. program. The program is restricted in size and provides stipend support for exceptional M.D./Ph.D. candidates. For information, visit our Web site at <http://mdphd.uth.tmc.edu/index.html>

Those interested in the M.D./Ph.D. Program should inquire through the Admissions Office of the Medical School. Application for admission to the MD/PhD Program may be made by submitting an application online through the American Medical College Application Service (AMCAS) and a mandatory secondary application online at <http://mdphd.uth.tmc.edu/applications.html>. Three (3) letters of recommendation (two (2) general letters and an additional letter from a research mentor) are also required and should be submitted through AMCAS. The deadline is November 1st. You may also contact the M.D./Ph.D. Program Manager, Jo Cheatwood at 713-500-6607 or by e-mail at: jo.cheatwood@uth.tmc.edu.

M.D./M.P.H. Program

The UT Medical School and the UT School of Public Health offer a dual degree program leading to an M.D. degree and a Master of Public Health . The requirements established for the program meet the general requirements of both degrees. The curricula are integrated along a four- or five-year path to support student career objectives. Examples of suggested degree plans for either the four or five-year option can be found online at:

<http://med.uth.tmc.edu/administration/admissions/MDMPH.html>

Students must meet the admission requirements of both schools to qualify for for the dual MD/MPH program. Acceptance to the SPH is accomplished by applying during the regular application cycles – deadlines are March 1 (for Summer/Fall admission) and August 1 (for Spring admission). Those interested in the program can find information online at:

<https://sph.uth.tmc.edu/academics/dual-degree/mdmph-ut-houston/>

<https://sph.uth.tmc.edu/admissions/how-to-apply/dual-degree-programs/>

Doctorate of Medicine/ Oral and Maxillofacial Surgery Residency (MD/OMS)

Both a 4-year and 6-year Advanced Education Program in Oral and Maxillofacial Surgery are offered jointly through the Dental and Medical School. Each program prepares practitioners to treat diseases, injuries, and defects involving both the functional and aesthetic aspects of the hard and soft tissues of the oral and maxillofacial region. The basic prerequisites for both 4 and 6-year programs are a DDS or DMD degree from an ADA accredited dental school.

The 6-year program adopts a similar schedule to the 4-year program, with the primary difference consisting of requirements for obtaining the MD degree. The first year is spent with the oral and maxillofacial surgery department. In the second, third, and fourth years, residents are enrolled in medical school, completing years two, three, and four of the medical school curriculum. During the fourth year of medical school, 8 months are provided for the fulfillment of requirements related to the oral and maxillofacial surgery residency, such as rotations on neurosurgery, anesthesia, and general surgery services. The remaining fifth and sixth years of the program are focused on completing the requirements for medical licensure in the State of Texas and oral and maxillofacial training. The OMS training includes rotations to six different hospitals as a senior surgical resident. Upon satisfactory completion of the 6-year program, residents receive a certificate in oral and maxillofacial surgery and a M.D. degree.

Graduate Medical Education

The learning process encompasses more than a student's four years in medical school. All graduates will continue to expand their knowledge and refine their skills by seeking further supervised medical training.

Graduate Medical Education programs provide physicians the opportunity to prepare for practice in a medical specialty. Residency and fellowship programs focus on the development of clinical skills and professional competencies.

The Medical School conducts its residency and fellowship training programs at hospitals and clinics affiliated with The University of Texas Medical School at Houston. The GME program offers carefully organized and evaluated instruction in the various disciplines of medicine. These accredited programs are recognized toward fulfillment of the requirements of the respective specialty boards. The Medical School programs participate in the National Residency Matching Program. Information and applications for residency or fellowship programs are available from the program directors listed in the American Medical Association (AMA) Directory of Residency Training Programs and the Fellowship and Residency Electronic Interactive Database (FREIDA).

Sub-specialty residency programs are open to application by physicians who have completed their general residency training and meet the requirements of the sub-specialty program.

The UT Health Science Center sponsors accredited residency programs in the following disciplines: Anesthesiology, Dermatology, Emergency Medicine, Family Medicine, Internal Medicine, Medical Genetics, Neurological Surgery, Neurology, Obstetrics and Gynecology, Occupational Medicine, Ophthalmology, Otolaryngology, Orthopaedic Surgery, Pathology, Pediatrics, Plastic Surgery, Psychiatry, Child Psychiatry, Diagnostic Radiology, General Surgery, Colon and Rectal Surgery, Urology, Internal Medicine/Pediatrics, and Physical Medicine and Rehabilitation. The Medical School also offers a variety of unaccredited sub-specialty programs approved through the Texas Medical Board.

For information on residency and fellowship programs at The University of Texas Medical School at Houston, contact:

The Office of Graduate Medical Education
The University of Texas Medical School at Houston
6431 Fannin, Suite J1L 310
Houston, Texas 77030
Web site: <http://bit.ly/uthoustrongme>

Continuing Medical Education

Through a collaborative partnership with The University of Texas Medical Branch at Galveston, the Office of Continuing Medical Education (CME) offers CME conferences, Seminars, Regularly Schedule Sereis, Enduring Materials such as Webinars and Internet-based formats, and other learning opportunities for physicians in Texas, and throughout the United States.

CME programs are available on various subjects, range in length from one hour to several days, and are offered throughout the year. The programs are sponsored by various Medical School departments and divisions as well as by community hospitals and managed-care organizations.

The joint UTMB-UT-H CME program is fully accredited by the Accreditation Council for Continuing Medical Education. For further information, call 713-500-5249, or visit www.UTcme.net.

Office of Continuing Medical Education
The University of Texas Medical School at Houston
6431 Fannin, Suite JLL300 A & B
Houston, Texas 77030

Master of Science in Clinical Research Degree Program

The Master of Science in Clinical Research Degree Program has been offered at the UT Medical School since the fall of 2002. This MS degree program is designed as a focused, flexible, and affordable program to train clinical investigators in designing and conducting patient-oriented research of exemplary quality. The curriculum accommodates clinicians' busy schedules; the courses are concentrated on Wednesdays after noon. The degree can be completed in 2-4 years depending on the amount of time a student devotes to the program. For updated information about this program, see <http://ped1.med.uth.tmc.edu/centers/CR-EBM/index.html>.

M.S. Admission Requirements

This program is expected to appeal primarily to MDs at the fellow and faculty levels as well as other clinicians who have not had previous formal training in clinical research. The rapid pace of the curriculum assumes a working knowledge of clinical medicine and excellent scholastic aptitude.

All applicants are required to be engaged in or preparing to conduct clinical research and meet one of the following two types (a or b) of academic criteria:

- a) Advanced degree in health-related field:
 - (1) M.D. or D.O.
 - (2) Ph.D. in a related field
 - (3) D.D.S. or D.M.D.
 - (4) R.Ph. or Pharm.D.

- b) Bachelor's or master's degree with a G.P.A. of > 3.0 and previous work experience in a health-related field, such as nursing, psychology, dietetics, etc.

Application and Admission Procedures

Completed applications, including letters of reference and transcripts, must be received by:

June 15 for fall semester

Oct. 15 for spring semester (non-degree status only)

Applications should be submitted online to the Office of the Registrar (<http://registrar.uth.tmc.edu/Admissions/appformslist.htm>). The following are required:

- a) A completed application form with a curriculum vitae. Each applicant will be required to summarize his/her career goals, describe how the Master's Program will support these goals, and propose a timeline for completion of the program.

- b) Letters of reference from at least two individuals who are qualified to evaluate the applicant's academic or professional performance, as well as ability and motivation to complete the program. If an applicant will be employed or in a training program while enrolled in the program, a letter of support/recommendation will be required from the applicant's supervisor to verify the supervisor's commitment to provide the applicant with adequate "protected" time to complete the program. Letters should be on official letterhead.

- c) Official transcripts covering all periods of post-secondary enrollment in accredited institutions of higher education. Applicants should request the institution to send official (original) transcripts directly to the Office of the Registrar. Graduates of Texas colleges and universities should request that transcripts be sent in electronic format. Copies of official transcripts sent by the applicant are not considered. Transcripts must include both grades and credit hours.
- d) Applicants who are nationals of countries where English is not the parent language are required to submit scores from the Test of English as Foreign Language (TOEFL). See application form for current requirements and exceptions.
- e) A \$60 non-refundable application fee.

Direct telephone inquiries about the program to:
Center for Clinical Research and Evidence-Based Medicine
The University of Texas Houston Medical School
713-500-6708

Address application inquiries to:
Office of the Registrar
The University of Texas Health Science Center at Houston
P.O. Box 20036
Houston, Texas 77225-0036
713-500-3361

Once an application has been submitted, the applicant will receive a PIN number from the Office of the Registrar. Once the PIN number is received, the status of the application, transcripts, and letters of reference can be checked online at https://my.uth.tmc.edu/psp/myuth/MYUTH/ENTP/h/?tab=UT_EP_NVT_SIGNON

Factors Considered in Admissions Decisions

The Admissions Committee of the MS in Clinical Research Degree Program will review all completed applications. The committee considers the following factors in evaluating applicants for admission:

- Previous research experience, accomplishments and publications, enrollment in research-related courses, and current involvement in research projects;
- Expressed commitment to a career involving biomedical research;
- Grade point average;
- Career goals;
- Previous graduate-level study;
- Work experience in a health-related field;
- Honors and awards for academic achievement;

Other factors that may be considered by the Admissions Committee include:

- Success in overcoming socio-economic and educational disadvantages;
- Multilingual proficiency;
- Non-academic responsibilities, such as employment and child-rearing;
- Involvement in community activities; and
- Race and ethnicity

Except in rare circumstances, applicants will only be considered for acceptance into the degree program after one year of participation in the Clinical Research Curriculum. Preference will be given to candidates who have an established committed departmental mentor. Plans for departmental mentoring must be established prior to enrollment to the program. Candidates from institutions outside of UT will be considered for admission if arrangements can be made for appropriate departmental and methodologic mentorship from the applicant's own clinical/academic institution.

Enrollment Status

A student is considered officially enrolled if tuition and fees are paid by the due date listed on the schedule of classes.

- Degree Student: a student admitted to an academic program who is following a set curriculum and pursuing a degree without an interruption of more than one year in enrollment.
- Non-degree Student: a student who is admitted to the school for one or more courses but not admitted to a degree program.

Enrollment as a non-degree student does not in any way entitle a student to admission to a degree program. A non-degree student is allowed to register only with the permission of the course instructor.

Degree Requirements

- a) Satisfactory completion of the Clinical Research Curriculum courses (a two-year curriculum composed of a weekly lecture series and homework exercises). In addition to the 9-12 credit hours for the Clinical Research Curriculum (see below), each student will be required to complete an additional 24-27 credit hours (including practica and a thesis) for a total of 36 credit hours.
- b) Satisfactory completion of at least three of these practica:

Institutional Review Board
Scientific Presentation
Scientific Writing

- c) Satisfactory completion of a research thesis project or projects that collectively demonstrate competence in each of these areas:

To critically review clinical research literature

To design a clinical research study to address a focused research question using the most unbiased feasible design

To properly analyze and interpret clinical research findings

- d) Effective fall 2004, a GPA of 3.0 (B) must be achieved in the graded courses offered at the Medical School for the MS in Clinical Research Degree Program (or courses deemed to be equivalent by the student's advisers). (For students enrolled in the program before fall 2004, the B average requirement will apply only to courses completed after the change has taken effect.)
- e) Effective spring 2005, students must be enrolled for at least 1 credit hour during the semester in which they complete the degree requirements.
- f) Beginning with students admitted to the program in spring 2005, at least 3 thesis credit hours will be required. (A maximum of 6 thesis credit hours can be applied to the 36 credit hour requirement for the degree.)

Clinical Research Curriculum

Topics

Introduction to Epidemiology Research
Clinical Trial Design
Health Services Research
Use of Computers in Clinical Research
Scientific Writing
Bioinformatics
Biostatistics for Clinical Investigators
Literature Appraisal
Ethical Aspects of Clinical Research
Introduction to Translational Research
Clinical Research Design Workshop

Additional Coursework for Master's Degree

The curriculum for the Master's Program consists of two tracks — a Patient-Based Clinical Research Track and a Translational Research Track. In either track, the specific courses (usually 4-5) chosen by an individual student will depend on his/her previous training and course work and current career goals. Most students in the Translational Research Track will take advanced courses in molecular biology and/or genetics; most students in the Patient-Based Clinical Research Track will take advanced courses in health care policy and practice.

Advanced Courses for Master's Program

Advanced Biostatistics for Clinical Investigators
Using Research to Inform Health Care Policy and Practice
Advanced Clinical Research Design
Genomic and Proteomic Translational Research
Social and Economic Influences on Population Health and Health Policy
Developmental Biology
Molecular and Cellular Approaches to Human Genetics
Genetics and Human Disease
Eukaryotic Gene Expression
Cancer Biology

Transfer Students

A student may be given up to 18 hours of credit for formal coursework completed previously in a comparable program. Students who transfer into the program must meet the same overall degree requirements as students who undergo all of their training at UT.

Petitioning for Course

Equivalency

A student who wishes to receive credit for courses taken outside the MS in Clinical Research Degree Program at UT may submit a Petition for Equivalency form (available in MSB 2.106). This includes the Clinical Research Curriculum courses as well as courses taken at other institutions that are similar in content to courses offered for the MS in Clinical Research Program. The student must complete the form and obtain the approval of his/her program adviser. For courses taken outside the UT Medical School, the student must supply the required documentation about course goals and requirements for approval of credit hours by the Curriculum Committee.

Advisory Committee

Each student in the program will work jointly with two different advisors—a program advisor/mentor who provides methodological expertise and a departmental advisor/mentor from his/her own basic or clinical science department or institution who provides expertise in the participant's specific area of clinical research. For fellows and other trainees, the training program director will also serve as a member of the advisory committee. At the end of each semester, the student will be scheduled to meet with his/her advisory committee to review academic progress, course selection, and thesis development.

M.S. Tuition and Fees

Tuition

Beginning 2012, resident tuition will be \$96 per semester credit hour. The non-resident tuition will be \$447 per semester credit hour, with the non-resident statutory fee of \$401. Tuition and fees are subject to change according to the actions of the Texas Legislature or the Board of Regents and are effective when enacted.

Texas Residence Requirements

Please see the Office of the Registrar's Web site: <http://registrar.uth.tmc.edu/>

Enrollment in Affiliated Institutions

Through reciprocal agreements, graduate students at other components of The University of Texas Health Science Center at Houston, as well as graduate students from Rice University, Baylor College of Medicine, Texas Woman's University, and the University of Houston may take graduate courses for credit in the MS in Clinical Research Program at the Medical School, subject to approval of the instructor. In addition, full-time students (taking at least 9 credit hours) at the Medical School may take courses for credit at any of the above institutions. The mechanism for payment of the tuition or registration fees varies according to the individual institution. Consult with the Registrar's Office for specific details.

Student Services Fees

The student services fees, required of all students, are assessed per semester credit hour with a maximum charge of \$183.84 per semester. The fee provides for student activities, outpatient care by Medical School Health Services, recreational facilities, counseling services, and shuttle bus services. A graduation fee of \$75, payable at registration for the final academic semester, is required of all students. The information technology access fee is \$20 per semester.

M.S. Grading, Conduct, and Satisfactory Progress Policies

Grades

Core courses in the MS in Clinical Research Degree Program will be graded A, B, C, or F. An 'F' in a required course requires repetition of that course (or a course deemed equivalent by the student's advisers). Practica and thesis credit hours are graded pass (P) or fail (F). An incomplete (I) grade may be assigned at the discretion of the instructor when the course requirements have not been satisfied by the end of the semester. An incomplete grade will remain on the transcript until a final grade is assigned by the instructor. If an incomplete is not changed by the end of the following semester, it will be converted to an 'F.'

Criteria upon which grades are based are provided at the beginning of each course. Students may withdraw from a course through the last class day of the term. When a student withdraws from a course, a Withdrawn Passing (WP) or Withdrawn Failing (WF) grade will be recorded depending on the student's standing at the time of withdrawal. This WP or WF grade will remain on the transcript even if the course is repeated and passed.

Academic Conflict Resolution

Individual faculty members retain primary responsibility for grading and evaluations. The faculty member's judgment is final unless compelling evidence suggests discrimination, differential treatment, or a mistake. In attempting to resolve any student grievance regarding academic matters, it is the obligation of the student first to make a serious effort to resolve the matter with the faculty member with whom the grievance originated. If the student and faculty member cannot resolve the matter, the student should consult the academic grievance procedure described on the Current Student Web site under Academic Guidelines (Grade Grievance Policy).

Satisfactory Academic Progress

The faculty of the Medical School is responsible for identifying students who are having academic difficulty and determining whether the deficiency can be remediated or if the student should be dismissed. Satisfactory academic progress is defined for each student by following the degree plan for that student. Each student's Advisory Committee will review the student's course work to assist him or her in achieving the maximum potential and in assessing progress toward academic goals. Satisfactory progress will be evaluated on an individual basis but will generally require successfully completing at least 5-8 credit hours per year or 1 thesis component. Students are expected to complete the program within 6 years, unless extraordinary circumstances warrant an extension. Overall consideration of performance will be used by the Advisory Committee to determine which students have progressed satisfactorily and which students should be placed on academic probation.

Academic Probation and Dismissal

A student will be placed on academic probation by the program director following the completion of the semester in which any of the following occur:

- 1) a second grade of F or WF is earned,
- 2) the student fails to meet with his or her Advisory Committee within a 12-month period, or
- 3) the student fails to make satisfactory progress toward the degree (see above).

Once on probation, the student will be re-evaluated at least each semester by his or her Advisory Committee. A student placed on probation for failing grades will be taken off probation when he or she has passed at least two courses and has passed the same or an equivalent course for any required courses that were failed. The student will be given one year to satisfy these requirements or up to two years if the failed required course is offered only biennially. A student placed on probation for failing to make satisfactory progress and/or meet with his or her Advisory Committee will be taken off

probation when he or she successfully completes at least 4 credit hours over the next year. If the academic probation is not removed within the stated remediation time period, the student will be dismissed by the program director.

If the student wishes to request a reconsideration of the dismissal, a written request to the Advisory Committee, with a copy sent to the dean, must be submitted within seven calendar days of receipt of the dismissal letter. The Student Evaluations and Promotions Committee will review the request and render its recommendation in writing to the dean. The student will be notified in writing of the dean's decision within five working days of the committee's recommendation. The determination of the dean is final and is not subject to further appeal. Students can be referred for evaluation and counseling for academic or personal concerns through the Office of Student Affairs.

Long-Term Absences

Students who are unable to maintain active status (at least 5-8 credit hours per year) may request a long-term absence of up to one year. If the absence lasts for more than one year, reinstatement will be considered at the discretion of the Admissions Committee. Degree students may request a change in enrollment status to non-degree student. Reinstatement in the degree program will be considered at the discretion of the Admissions Committee. Non-degree status will expire after a two-year period of no activity in the program.

Courses for Clinical Research Curriculum

The following courses are offered as part of a two-year curriculum that is open to all clinical researchers in the Texas Medical Center. Students in the MS in Clinical Research Degree program receive 9-12 hours of formal credit for these courses using the Petition for Course Equivalency described above. Call 713-500-6708 to register for these courses.

Course Name: Intro to Epidemiology Research

Instructor: Samuels

Course Description: This course provides a basis for an understanding of the concepts and methodological skills necessary for designing and interpreting observational studies. These include validity (random error, bias and confounding), measures of disease occurrence and impact, measures of association, reliability and generalizability, causal inference, and critically reviewing evidence.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1.0 credit hours).

Course Name: Clinical Trial Design

Instructor: Tyson

Course Description: This course prepares the student to design and analyze randomized trials of medical interventions. Covered topics include basic study design, recruitment, randomization, masking, data collection and quality control, participant adherence, sample size considerations, data monitoring and analysis, and meta-analysis.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1.0 credit hours).

Course Name: Health Services Research

Instructor: Thomas

Course Description: This course begins with an overview of healthcare financing, access to care, quality of care, and health policy. Subsequent classes will focus on: conceptualization of healthcare quality (including the classic “structure, process, and outcome” framework) and safety; quality of care measurements; risk adjustment; and introductions to survey research and qualitative research.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1.0 credit hours).

Course Number: CLRS 5006

Course Name: Clinical Research

Design Workshop

Instructor: Kennedy, Tyson

Course Description: In this problem-based course, each student is expected to build a clinical research proposal in his/her field of interest. Each week, students are asked to present the appropriate parts of their protocols to facilitate the discussion of successive stages in study design. This course is run in small group sessions (6-14 students per group) to facilitate active participation and interaction.

Prerequisite: Consent of instructor
(1 credit hour).

Course Number: CLRS 5007

Course Name: Use of Computers in
Clinical Research

Instructor: Lasky

Course Description: This is a hands-on laboratory course. Each student is expected to complete computer-based projects that demonstrate skills, managing data, and analyzing data sets. Software packages used in the course include PC-based spreadsheet, database, and statistics software packages.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1-3 credit hours).

Course Number: CLRS 5008

Course Name: Scientific Writing

Instructor: Faculty

Course Description: This course covers the essential goals of scientific writing and presentation: clarity, succinctness, and consistency as they apply to specific areas of scientific writing. Detailed specific recommendations will be given for abstract, manuscript, and grant preparation.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(0.5 credit hour).

Course Name: Bioinformatics

Instructor: Sittig

Course Description: The goal of this course is to train the next generation of clinical researchers in the basic principles of clinical information systems so that they can use the data and understand the issues regarding design, development, implementation, and evaluation of interventions based on these information systems.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1.0 credit hour).

Course Number: CLRS 5009

Course Name: Biostatistics for

Clinical Investigators

Instructor: Kennedy, Lasky

Course Description: This course begins with an overview of descriptive statistics and provides students with the tools to perform univariate analyses using parametric and non-parametric methods for paired and unpaired designs. Emphasis is placed on choosing appropriate tests, evaluating assumptions for the tests, understanding the limitations of statistical tests, and appropriate interpretation of test results. Survival analysis and multiple regression techniques are introduced to familiarize the student with the availability and limitations of these tests.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1.5 credit hours).

Course Number: CLRS 5011

Course Name: Literature Appraisal

Instructor: Kennedy

Course Description: In this course, the students will be expected to learn rules of evidence and demonstrate critical evaluation of the medical literature. Students will have an opportunity to demonstrate these concepts and skills by appraising the evidence in various areas of clinical research. This critical appraisal of existing evidence will be used to determine fruitful areas for new investigation. This course is run in small group sessions (6-12 students per group) to facilitate active participation and interaction.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1 credit hour).

Course Number: CLRS 5012

**Course Name: Ethical Aspects of
Clinical Research**

Instructor: Tyson

Course Description: This course introduces the fundamental ethical principles of autonomy, beneficence, nonmaleficence, and justice and applies these principles to clinical research involving human subjects. The use of unproven therapies, the use of placebos, the consent process, institutional review board submission and review processes, conflict of interests, and the costs of clinical research are covered.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(0.5 credit hour).

Course Number: CLRS 5013

**Course Name: Introduction to
Translational Research**

Instructor: Gorenstein

Course Description: This course is an overview of the clinical research that bridges basic science and patient-based research. Topics include pharmaceutical research, genetic research, gene therapy, and genomics.

Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(0.5 credit hour).

Courses for MS in Clinical Research Degree Program

The following advanced courses are offered as part of the MS in Clinical Research Degree Program.

Course Number: CLRS 5019

Course Name: Clinical Safety and Effectiveness

Instructor: Thomas

Course Description: The goals are to: develop physician leaders in quality and safety who are recognized nationally; advance expertise in the science of improvement to enhance patient care and safety; and assure medical staff involvement in defining and attaining quality and safety goals. The course includes didactic training and completion of a clinical quality improvement project. The curriculum focuses on teaching the principles and techniques of quality improvement, with a focus on the Six Sigma approach. Students also learn about healthcare policy and financing, leading and working in teams, data analysis, and presentation skills.

Prerequisite: Consent of instructor

Course Number: CLRS 5015

Course Name: Using Research to

Inform Health Care Policy and

Practice

Instructor: Kennedy, Benjamins

Course Description: In this course, the students apply rules of evidence and health services research to clinical practice, practice guidelines, and health care policy. Decision analysis and methods for quantifying benefit, risk, and cost will be used to evaluate health care interventions at the individual patient and population levels. This critical appraisal will be used to launch discussions of mechanisms to bridge the gap between clinical research evidence and health services delivery and health policy.

Prerequisite: Literature Appraisal or consent of instructor
(4 credit hours).

Course Number: CLRS 5018

Course Name: Genomic and Proteomic Translational Research

Instructors: Lasky, Tan

Course Description: This course covers the analysis and interpretation of high throughput molecular biology data, primarily genomic and proteomic databases and datasets. The focus is clinical translational research dealing with human patients and diseases. Methodological issues are addressed. Students perform computer based exercises searching and analyzing publicly available databases.

Prerequisite: Intro to Epidemiology Research or consent of instructor
(4 credit hours)

Course Number: CLRS

Course Name: Social and Economic Influences on Population Health and Health Care

Instructors: Greeley, Avritscher, Stotts
Course Description: The health and well-being of individual patients and of society as a whole may be more related to social, behavioral, and economic factors than to purely medical factors. This course will promote understanding of the design, implementation, analysis and interpretation of studies of social, behavioral, and economic determinants of disease, interactions between these determinants and medical treatment, or interventions to improve health problems. A working knowledge of the principles of epidemiology, literature appraisal, and study design and an interest in social sciences is required.

Prerequisite: Intro to Epidemiology Research or consent of instructor
(4 credit hours)

Course Number: CLRS 5017

Course Name: Advanced Clinical Research Study Design

Instructor: Tyson, Kao

Course Description: This course will build on design concepts for observational and interventional studies that were introduced in the prerequisite courses. Topics will include the use of matching and restriction to minimize bias in observational studies, consideration of analytic strategies (eg. correlated samples, use of propensity scores) in study design, survey research methods, the relationship between quality improvement and clinical research, adaptive

randomization, alternatives for consent for research, factorial designs, cluster randomization, using patient values to select important study outcomes, weighing benefits and harms, approaches to stopping rules, and enhancing feasibility of clinical trials.

Prerequisite: Introduction to Epidemiology Research, Clinical Trial Design, Advanced Biostatistics (or permission of instructor)

(4 credit hours)

Course Number: CLRS 5010

Course Name: Advanced Biostatistics for Clinical Investigators

Instructor: Lasky

Course Description: This course will focus on the mechanics of applying biostatistical techniques in a research setting.

Emphasis will be placed on assumption testing and techniques of model fitting. Students will be expected to critically evaluate, develop, and execute analysis plans using descriptive analysis and regression techniques.

Prerequisite: Biostatistics for Clinical Investigators or consent of instructor

(4 credit hours)

Departments

Department of Anesthesiology

The department offers a broad-based educational experience in the practice of anesthesiology and related disciplines. In addition to the traditional area of intraoperative care, emphasis is placed on preoperative patient evaluation and preparation and on postoperative management. Intensive experience is offered in both the outpatient and inpatient areas. The department accentuates management of the critically ill patient, acute and chronic pain management, and the role of hyperbaric medicine. Through clinical, classroom, and laboratory teaching, the program is designed to provide the student with the opportunity to combine a broad background in the basic sciences with the skills and judgment of clinical anesthesia. The student is exposed to research conferences, visiting professor lectures, and a broad-based didactic program that provides a varied and rich learning environment.

Professor and Chair

Hagberg, Carin A., M.D.

Roy M. and Phyllis Gough Huffington Distinguished Professor in Anesthesiology

To Be Named

Professors

Butler, Bruce D., Ph.D.

Doursout, Marie F., Ph.D.

Hagberg, Carin A., M.D.

Katz, Jeffrey, M.D.

Khalil, Samia N., M.D.

Larson, Stephen M., D.M.D.

Matuszczak, Maria E., M.D.

Pivalizza, Evan G., MBChB, FFA

Rabb, Mary, F., M.D.

Sheinbaum, Roy, M.D..

Associate Professors

Boddu, Krishna, M.D.

Doyle, Peter, M.D.

Uzoni-Boecker, Catherine E., M.D.

Assistant Professors

Arttime, Charlie, M.D.

Ashary, Nishan, M.D.

Balan, Sudha, M.D.

Barrow, Bridgett, M.D.

Bogomolny, Yefim, M.D.

Carbajal, Jael G., M.D.

Cattano, Davide, M.D.

Chitty, Dudley A., M.D.

Daily, William H., M.D.

Doerr, Hal, M.D.

Drennan, Emily, M.D.

Ferrario, Lara, M.D.

Foss Prisila, M.D.

Gautam, Nischal, M.D.

Giezentanner, Anita, M.D.

Gilmore IV, Clarence E., M.D.

Gumbert, Sam, M.D.

Guzman-Reyes, Sara, M.D.

Hiller, Kenneth, M.D.

Ho, Michael, M.D.

Hollenbeck, Tim, M.D.
Hussain, Mahammad N., M.D.
Ignacio, Craig S., M.D.
Jain, Ranu, MBBS
Johnson, Sonya A., M.D.
Killoran, Peter, M.D.
Loubser, Paul, M.D.
Maposa, Douglas, MBChB
Marasigan, Brian, M.D.
McNeely, John W., M.D.
Medina-Rivera, Glorimar, M.D.
Mehta, Jai, M.D.
Melnikov, Vladimir, M.D.
Nasir, Syed M., M.D.
Normand, Katherine C., M.D.
Norwood, Tamara, M.D.
Nwokolo, Omonele, M.D.
Panthayi, Sreelatha, M.D.
Patil, Minakshi J., M.D.
Pawelek, Timothy, M.D.
Powell, Karlyn, M.D.
Quintana, Oscar, M.D.
Rafique, Muhammad, M.D.
Rhett, Esi, M.D.
Riha, Karel, M.D.
Rupasinghe, Madhu, M.D.
Shutko, Candice, M.D.
Su, Young, M.D.
Suz, Pilar, M.D.
Thomas, Lida, M.D.
Wadhwa, Nitin, M.D.
Washington, Erikka S., M.D.
Williams, George, M.D.
Wu, Jennifer, M.D.
Zhou, Shao Feng, M.D.

Department of Biochemistry and Molecular Biology

The Department of Biochemistry and Molecular Biology (BMB) makes two major contributions to The University of Texas Medical School at Houston, namely, research and education. The Program in Biochemistry and Molecular Biology at the Graduate School of Biomedical Sciences is rooted in the BMB department.

Medical and graduate students benefit from our educational activities. First-year medical students enjoy a comprehensive and contemporary course on biochemistry and molecular biology, which strongly emphasizes the relevance of the various topics to human health and diseases. Program faculty members provide extra help to the students during small group conferences throughout the duration of the course. Entering medical students may enroll in the summer pre-entry course designed to prepare them for the comprehensive biochemistry course. The department offers a remedial course to medical students who receive a marginal pass in the biochemistry course. BMB faculty members also facilitate a problem-based learning course that is taken by second-year medical students.

BMB faculty members invest heavily in the education and research aspects of graduate students. Members of the BMB faculty teach several courses designed specifically for graduate students, which attract numerous students from various programs of the Graduate School of Biomedical Sciences. A metabolic biochemistry course provides graduate students a solid foundation for their future careers in biomedical research. Other courses include "Topics in Biochemistry and Molecular Biology", "Current Methods in Molecular Research," and "Seminars and Literature Study." The weekly seminar series provides students the opportunity to listen to, learn from, and meet with prominent scientists from around the world. Weekly research workshops provide important training to program students and postdoctoral fellows. During the workshops, trainees communicate their research findings and receive critical feedback, which helps guide their research activities.

BMB faculty members are engaged in well-funded biomedical research activities of high significance. These research activities provide an atmosphere of discovery and learning that energizes graduate, medical, and summer students alike. Research findings of the faculty and their trainees are published in peer-reviewed high-impact journals.

The department is home to two centers. Faculty members associated with the Structural Biology Research Center investigate the structural basis for function in biological molecules using sophisticated methods such as X-ray crystallography, nuclear magnetic resonance spectroscopy, and cryo-electron microscopy. These methods allow the determination of three-dimensional structures of macromolecules, such as proteins or macromolecular assemblies. Faculty members associated with the Center for Membrane Biology utilize multidisciplinary approaches to elucidate the molecular structure, function, and roles of biological membranes in normal and diseased cells.

Chair

Kellems, Rodney, Ph.D.

Vice-Chair

Blackburn, Michael R. Ph.D.

Director of BMB Graduate Program

Jayaraman, Vasanthi , Ph.D.

Director, Structural Biology Research Center

Penczek, Pawel, Ph.D.

Director, Center for Membrane Biology

Spudich, John L, Ph.D.

Professor and John S. Dunn Chair in Biochemistry and Molecular Biology

Dowhan, William, Ph.D.

Professor and Jesse H. Jones Chair in Molecular Biology

Shyu, Ann-Bin, Ph.D.

Professor and Robert A. Welch Distinguished Chair in Chemistry

Spudich, John L., Ph.D.

Professors

Blackburn, Michael, Ph.D.

Kellems, Rodney E., Ph.D.

Lee, Cheng-Chi, Ph.D.

Lever, Julia E., Ph.D.

Penczek, Pawel, Ph.D.

Putkey, John, Ph.D.

Strobel, Henry W., Ph.D.

Professor Emeriti

DeMoss, John A., Ph.D.

Sanborn, Barbara, Ph.D.

Associate Professors

Carpenter, Phillip, Ph.D.

Jayaraman, Vasanthi, Ph.D.

Serysheva, Irina, Ph.D

Xia, Yang, Ph.D.

Assistant Professors

Chen, Zheng (Jake), Ph.D.
Jin, Jianping, Ph.D.
Raman, C.S., Ph.D.
Wagner, Eric, Ph.D.
Zheng, Lei, Ph.D.

Research Professor

Sineshchekov, Oleg A., Ph.D

Research Associate Professors

Bogdanov, Mikhail, Ph.D.
Chen, Chyi-Ying, Ph.D.
Mileykovskaya, Eugenia, Ph.D.

Research Assistant Professors

Sasaki, Jun, Ph.D.
Seifert, William E., Ph.D.
Veeraraghavan, Sudha, Ph.D.
Zhang, Yujin, Ph.D.
Zhao, Zhaoyang, Ph.D.
Zhou, Cissy Chenyi, Ph.D.

Department of Cardiothoracic and Vascular Surgery

The Department of Cardiothoracic and Vascular Surgery consists of full-time, clinical and volunteer faculty. The activities of the department center on the care of patients with diseases of the cardiovascular system, including heart, aorta, and major vessels as well as lungs and other thoracic structures. These activities are focused at Memorial Hermann – Texas Medical Center, Memorial Hermann Southeast, and the Lyndon B. Johnson Hospital. Relationships also exist with the MD Anderson Cancer Center.

The faculty of the department participates in the third-year surgery clerkship. Fourth-year medical students may choose electives in clinical or research areas. Research in the Medical School laboratories comprises both basic and applied science investigations on the pathophysiology of major vascular and cardiac disorders. The department maintains a significant clinical research program, and collaborates with the Molecular Genetics section of the Department of Medicine on a large NIH-funded SCCOR program in aortic disease research.

Professor and Chair

Safi, Hazim J., M.D., F.A.C.S.

Professor and Vice Chair for Research

Miller, Charles C. III, Ph.D.,

Cardiac Division:

Estrera, Anthony L., M.D., Associate and Chief
Letsou, George V., Professor
Walkes, Jon-Cecil M., M.D., Clinical Associate Professor
Irani, Adel, M.D., Assistant Professor

Thoracic Division:

Khalil, Kamal, M.D., Clinical Professor and Chief.
Banki, Farzaneh, M.D., Assistant Professor

Vascular Division:

Azizzadeh, Ali, M.D., Associate Professor
Coogan, Sheila M., M.D., Assistant Professor
Charton-Ouw, Kristofer, M.D., Assistant Professor

Martin, Gordon H., M.D., Assistant Professor

Department of Dermatology

The Department of Dermatology provides medical students and residents with a comprehensive approach, addressing disorders of the skin, hair, and nails. Special areas of expertise include immunodermatology, pediatric dermatology, dermatological oncology, cutaneous surgery (including Mohs surgery for difficult skin cancers), laser therapy, occupational dermatology, cosmetic dermatology, and cutaneous manifestations of internal disease. The department was ranked as one of the top eight clinical programs in the nation by Dermatology Times. The department also maintains its own dermatopathology and immunopathology (immunofluorescence) testing services, receiving specimens from all over the United States. The lab is one of the busiest of this type at any of the universities in Texas. The department has an active basic and clinical research program. Training facilities currently include Memorial Hermann – Texas Medical Center, UT MD Anderson Cancer Center, Lyndon B. Johnson General Hospital, selected private offices of the volunteer faculty, and other clinical facilities outside the Texas Medical Center.

Senior medical students are offered electives in clinical dermatology, dermatopathology, and basic research, as well as specialized rotations set up on an individual basis. A three-year residency program in dermatology is offered. Electives are available for rotating residents from other specialties. Fellowship training opportunities include dermatopathology, procedural dermatology and Mohs surgery, and clinical research.

Josey Professor and Chair (Joint Medical School and MD Anderson Cancer Center)

Rapini, Ronald P., M.D.

Professor and Deputy Chair (MD Anderson Cancer Center)

Duvic, Madeleine, M.D.

Walter and Mary Mischer Professor in Molecular Medicine and Professor

Gigli, Irma, M.D.

Professors

Hebert, Adelaide A., M.D.

Rady, Peter L., M.D., Ph.D.

Associate Professor

Mays, Steven R., M.D.

Shepherd, Mary E., M.D.

Assistant Professor

Bangert, Carolyn M.D.

Silapunt, Sirunya M.D.

Thomas, Valencia M.D.

Clinical Associate Professor

Colome, Maria, M.D.

Clinical Professors

Jordon, Robert E., M.D.

Tucker, Stephen B., M.D.

Tyring, Stephen K., M.D., Ph.D.

Instructor

Elliott, Rhea, F.N.P.

Faculty primarily at MD Anderson Cancer Center

Professors

Duvic, Madeleine, M.D.
Hymes, Sharon R., M.D.
Nguyen, Tri H., M.D.

Associate Professors

Drucker, Carol R., M.D.
MacFarlane, Deborah F., M.D.

Assistant Professors

Chon, Susan, M.D.
Ciurea, Ana, M.D.
Hazarika, Parul, Ph.D.
Migden, Michael R., M.D.
Ni, Xiao, M.D., Ph.D.
Tsai, Kenneth, M.D., Ph.D.
Zhang, Chun-Lei, M.D., Ph.D.

Department of Diagnostic and Interventional Imaging

The Department of Diagnostic and Interventional Imaging offers sub-specialty expertise with particular emphasis on collaboration exercises with other clinical and basic science institutions for our Residency Education Program. During the first academic year, normal radiographic anatomy is an integral component of gross anatomy. At the end of the second year, prior to the beginning of clinical clerkships, a one-week concentrated course in diagnostic imaging is included in the core curriculum.

Clinical electives are available to fourth-year medical students. These emphasize radiologic techniques, indications, and contraindications for various procedures and the fundamentals of diagnostic imaging and intervention. Teaching methods include formal lectures, self-instruction by means of permanent teaching files, programmed lectures, staff and student seminars, and participation in the various subspecialty areas in radiology. Many of the faculty actively participate in teaching conferences of the core clerkships.

The faculty and facilities of the department provide instruction and training in all contemporary imaging modalities, including nuclear radiology, ultrasound, computed tomography, angiography, magnetic resonance imaging, spectroscopy, and diagnostic and therapeutic interventional procedures.

Clinical radiation therapy is provided through the faculty and facilities at UT M. D. Anderson Cancer Center and is a specialty separate from diagnostic radiology. This service affords experience in the evaluation, care, treatment, and follow-up of cancer patients treated with ionizing radiation either alone, or in conjunction with other modalities.

Special clinical and basic science electives are available for qualified students at any level of training. Arrangements can be made by contacting Lori Black in the department's Education Program Office at 713-500-7640.

Professor and Chair

John S. Dunn, Sr. Distinguished Chair in Radiology

John, Susan D., M.D.

Professors

Cohen, Alan M., M.D.
Goldman, Stanford M., M.D.
Kramer, Larry A., M.D.
Narayana, Ponnada, A., Ph.D.
Oldham, Sandra A., M.D.
Ophir, Jonathan, Ph.D.
Robinson, Lawrence H., M.D.

Wagner, Louis K., Ph.D.

Associate Professors

Chandrasekhar, Chitra, M. D.

Gayed, Isis, M.D.

Guthrie, Agnes M., M.D.

Hasan, Khader, Ph.D.

Hochhauser, Leo, M.D.

Redwine, M. Dwain, M.D.

West, O. Clark, M.D.

Assistant Professors

Beasley, Charles, Ph.D.

Beckman, Nicholas, M.D.

Bonfante-Mejia, Eliana E., M.D.

Ferguson, Emma C., M.D.

Friedman, Elliott, M.D.

George, Varghese, M.D.

Green, Paige, M.D.

Greenfield, Susan, M.D.

He, Heather, M.D.

Horwitz, Paul, M.D.

Hou, Ping, Ph.D.

Ingram, LaVerne D., M.D.

Jarolimek, Amanda, M.D.

Joseph, Usha, M.D.

Khalil, Elaine, M.D.

Kumaravel, Manickam, M.D.

Kyriakides, Polina N., M.D.

Laiw, Jonathan, M.D.

Matta, Eduardo, M.D.

Patino, Maria, M.D.

Serlin, Scott, M.D.

Shroff, Guish, M.D.

Simonetta, Alexander B., M.D.

Sitton, Clark W., M.D.

Spence, Susanna, M.D.

Srinivasan, Abhay, M.D.

Supsupin, Emillo, M.D.

Surabhi, Venkateswar, M.D.

Wan, David Q., M.D.

Zelitt, David L., M.D.

Zhou, Yuxiang, Ph.D.

MD Anderson Faculty

Professors

Bedi, Deepak, M.D.

Charnsangavej, Chusilp (Chang Arthur), M.D.

Chasen, Marvin H., M.D.

Choi, Haesun, M.D.

Dunnington, Joel, M.D.

Edeiken-Monroe, Beth S., M.D.

Eftekhari, Farzin, M.D.

Erasmus, Jeremy, M.D.

Fornage, Bruno D., M.D.

Ginsberg, Lawrence E., M.D.

Hazle, John, Ph.D., M.S., B.S.

Hicks, Marshall, M.D.

Iyer, Revathy B., M.D.

Ketonen, Leena, M.D.
Kim, E.E., M.D.
Kumar, Ashok J., M.D.
Kumar, Rajendra, M.D.
Leeds, Norman, M.D.
Loyer, Evelyne, M.D.
Macapinlac, Homer A., M.D.
Matamoros, Aurelio, Jr., M.D.
Madewell, John E., M.D.
Marom, Edith, M.D.
McEnery, Kevin, M.D.
Munden, Reginald, D.M.D., M.D.
Murphy, William A., Jr., M.D.
Podoloff, Donald A., M.D.
Prasad, Srinivasa, M.D.
Raval, Bharat, M.D.
Samuels, Barry I., M.D.
Sandler, Carl M., M.D.
Silverman, Paul, M.D.
Troung, Myelene, M.D.
Varma, Datla G.K., M.D.
Vining, David, M.D.
Wallace, Michael, M.D.
Whitman, Gary J., M.D.
Wong, Franklin C., M.D., J.D., Ph.D., M.S.
Wright, Kenneth, Ph.D.
Yang, Wei Tse, M.B.B.S.

Associate Professors

Ahrar, Kamran, M.D.
Arribas, Elsa, M.D.
Balachandran, Aparna, M.D.
Chi, Linda, M.D.
Costelloe, Colleen, M.D.
Dryden, Mark, M.D.
Elsayes, Khaleed M., M.D.
Ernst, Randy, M.D.
Gladish, Gregory, M.D.
Gupta, Sanjay, M.D.
Haygood, Tamra, M.D.
Kaur, Harmet, M.D.
Kundra, Vikas, M.D., Ph.D.
Lano, Elizabeth, M.D.
Le-Petross, Huong, M.D.
Murthy, Ravi, M.D.
Ng, Chaan, M.D.
Robren, Eric, M.D.
Sabloff, Bradely, M.D.
Steele, Joseph, M.D.
Stephens, Tanya, M.D.
Szlaruk, Janio, M.D.
Tamm, Eric P., M.D.

Assistant Professors

Adrada, Beatriz E., M.D.
Ahmed, Salmaan, M.D.
Ahrar, Judy, M.D.
Acarkaci, Selin, M.D.
Arribas, Elsa, M.D.

Avritscher, Rony, M.D.
Benveniste, Marcello, M.D.
Bettencourt, Sonia, M.D.
Bhosale, Priyadarshani, M.D.
Bronstein, Yulia, M.D.
Chasen, Beth, M.D.
Chuang, Hubert, M.D.
deGroot, patricia, M.D.
Devine, Catherine, M.D.
Dogan, Basak, M.D.
Faria, Silvana, M.D.
Fitzgerald, Nancy, M.D.
Godoy, Myrna, M.D.
Garq, Naveen, M.D.
Guha-Thakurta, Nandita, M.D.
Lane, Deanna, M.D.
Le, Ott, M.D.
Mahvash, Armeen, M.D.
Marcal, Leonardo, M.D.
McRae, Stephen, M.D.
Nunez, Rodolfo, M.D.
Onufer, Jane A., M.D.
Palacio, Diana, M.D.
Patnana, Madhavi, M.D.
Rao, Brinda, M.D.
Rauch, Gaiane, M.D.
Sagebiel, Tara, M.D.
Santiago, Lumarie, M.D.
Schellingerhout, Dawid, M.B.Ch.B.
Shah, Komal, M.D.
Stephens, Tanya, M.D.
Tam, Alda, M.D.
Vikram, Raghu, M.D.
Viswanathan, Chitra, M.D.
Vu, Thinh, M.D.
Wagner-Bartak, Nicolaus, M.D.
Wang, Bing, M.D.

Instructors

Jessop, Aaron, M.D.

Department of Emergency Medicine

The Emergency Medicine Department provides fourth-year students with an elective rotation in the emergency centers of Memorial Hermann – Texas Medical Center and Lyndon B. Johnson General Hospital. There is a separate clinical clerkship for Memorial Hermann (EMER 4001) and for LBJ (EMER 4004).

The clinical activities of the rotation are monitored by the department's faculty and house staff. The Memorial Hermann Emergency Center (EC) offers clinical experience typical of a large private institution and has the advantage of being a Level I Trauma Center. Memorial Hermann Hospital also has Life Flight, one of the oldest and busiest emergency medical air transport helicopter services in the country. The current patient volume seen at the Memorial Hermann EC approximates 61,000 patients per year.

The emergency center at LBJ Hospital is representative of the busy public EC found in many metropolitan areas. The annual census is more than 80,000. This hospital's patient population is typical of the underserved indigent populations across the country.

During this rotation, students have the opportunity to work side by side with emergency medicine faculty and residents from this and other major disciplines. The students interact with all of the consulting surgical and medical

services. The rotation is designed to familiarize the students with the practice of emergency medicine with emphasis on the diagnosis and treatment of the wide spectrum of diseases commonly seen in emergency centers.

Clive, Nancy, and Pierce Runnells Distinguished Professor of Emergency Medicine
Chairman, Department of Emergency Medicine
Executive Vice Dean for Clinical Affairs – UTHMS
Chief of Staff – MHH TMC
Professor and Chair and Executive Vice Dean for Clinical Affairs
King, Brent, M.D., M.M.M.

Associate Professor and Vice Chair
Robinson, David J., M.D., M.S.

Associate Professor and Residency Program Director
Luber, Samuel D., M.D., M. P.H.

Assistant Professor and Associate Residency Program Director
Oakes, Joanne L., M.D.

Associate Professor, Associate Residency Program Director
Takenaka, Kay Y., M.D., M.Ed.

Assistant Professor and Medical Clerkship Director
Van Meter, Michael, M.D., M.P.H.

Assistant Professor and Medical Director, MHH-EC
McCarthy, James M.D.

Assistant Professor and Medical Director, LBJGH-EC
D'Addesio, Joseph, M.D.

Associate Professor and Chief Division of EMS and Disaster Medicine
Bradley, Richard N., M.D.

Associate Professor and Division Chief, Pediatric Emergency Medicine
Koerner, Christine, M.D.

Assistant Professor and Vice Chair for Quality Care
Chathampally, Yashwant, M.D., M.S.

Assistant Professor and Director of Emergency Critical Care
Doshi, Pratik, M.D.

Assistant Professor and Medical Director of Informatics
Okafor, Nnaemeka, M.D., M.S.

Assistant Professor and Director of Clinical Ultrasonography
Press, Gregory, M.D. , R.D.M.S.

Assistant Professor and Emergency Ultrasound Fellowship Director
Sara Miller, M.D.

Clinical Professor
Weltge, Arlo, M.D.

Associate Professors
Maddow, Charles, M.D.
Wilhelm, Ginger, M.D.

Assistant Professors

Cochran, John, M.D.
Crum, Todd, M.D.
Feron, Deborah, D.O.
Fisher, William, M.D. Clinical Assistant Professor
Freeman, Stephanie, M.D.
Gates, Keith, M.D.
Grossheim Freeman, Lisa M.D. Clinical Assistant Professor
Hecht, Stephen, M.D.
Johnson, Laura, M.D. Clinical Assistant Professor
Jones, Elizabeth B., M.D.
Lagissey, Jyothi, M.D. Clinical Assistant Professor
Lapus, Robert, M.D.
Malya, Rohith, M.D.
Noland, Amy, M.D.
Owens, Holly, M.D.
Radecki, Ryan Patrick, M.D.
Reichman, Eric, M.D., Ph. D. Clinical Assistant Professor
Roldan, Carlos, M.D.
Suarez, Guillermo, M.D.
Tavee, Winston, M.D. Clinical Assistant Professor
Thomas, Toby, M.D. Clinical Assistant Professor
Uya, Atim, M.D.
Villareal, Luis, M.D. Clinical Assistant Professor
Williams, Robin, M.D.

Staff Physicians

Awad, Sally, M.D.
Beaudoin, Ebony, M.D.
Bublewicz, Michael, M.D.
Chambers, Kimberly, M.D.
Dire, Daniel, M.D.
Dubey, Swapan, M.D.
Fisher, William, M.D.
Fite, Diana, M.D.
George Crenshaw, Libby, M.D.
Kelly, Daniel, M.D.
Knowles, Heidi, M.D.
Krucke, Gus, M.D.
McClelland, Myles, M.D.
Menon, Anil, M.D.
Nagda, Rabia, M.D.
Prater, Sam, M.D.
Smith, Craig, M.D.
Tetz, Kenneth, M.D.

Department of Family and Community Medicine

The Department of Family and Community Medicine provides opportunities for students and residents to acquire the knowledge, attitudes, and skills necessary for the practice of family medicine. Training is provided in the full range of primary care skills in both ambulatory and inpatient settings.

Training facilities currently include Memorial Hermann – Texas Medical Center, Lyndon B. Johnson (LBJ) General Hospital, the UTP Center for Family Medicine, the Acres Home Community Health Center, and the Aldine Community Health Center. The department, which has faculty at 10 sites in the Houston area, provides medical staffing for five community health centers owned and operated by the Harris County Hospital District. All of these sites are utilized for medical student education.

The department administers the required third-year clerkship in Family Medicine and a required fourth-year preceptorship in Family Medicine and offers multiple electives.

The department also administers Te Family Medicine Residency Training Program. This residency program offers training in the full scope of clinical activities that prepare graduates for practice in both rural and urban settings.

The department is actively involved in research and scholarly activity at its multiple sites.

The C. Frank Webber Chair in Family Medicine, Professor and Chair

Moreno, Carlos A., M.D., M.S.P.H.

Professor and Vice Chair

Fowler, Grant, M.D.

Assistant Professor and Director of Research Program

Stotts, Angela, Ph.D.

Assistant Professor and Director-Predoctoral Education Program

Reddy, Bal, M.D.

Assistant Professor and Director, UT Family Medicine Residency Program

Montalvo, Rolf, M.D.

Assistant Professor and Medical Director, UTH Center for Family Medicine

Adeyinka, Olasunkanmi, M.D.

Assistant Professor and Interim Director, Urban Family Medicine Program

Ojeih, Chris, M.D., M.P.H.

Assistant Professor and Chief of Service, Family Medicine Inpatient Service at Lyndon B. Johnson General Hospital

Ojeih, Chris, M.D., M.P.H.

Assistant Professor and Medical Director, Acres Home Community Health Center

Butcher, Larry, M.D.

Assistant Professor and Medical Director, Aldine Community Health Center

Mallela, Vijaya, M.D.

Assistant Professor and Medical Director, E.A. (Squatty) Lyons Community Health Center

Carroll, Kelley, M.D.

Assistant Professor and Co-Medical Directors, Settegast Community Health Center

Terrill, Louise Ann, M.D.

Winter, Ronald, M.D.

Assistant Professor and Medical Director, Baytown Community Health Center

Olutimehin, Babajide, M.D.

Associate Professor

Altman, Michael, M.D.

Clinical Associate Professor

Tan, Robert S., M.D., M.B.A., C.M.D.

Assistant Professors

Amina, Shazia, M.D.
Aquino, Pedro, M.D.
Balla, Justin, M.D.
Bayona, Jose, M.D., M.P.H.
Ghosh, Lisa, M.D.
Hasan, Aziza, M.D.
Kosuri, Murali, M.D.
Lee, Yates, M.D.
Mitra, Shrabanee, M.D.
Neal, Emily King, M.D.
Nguyen, Giang, M.D.
Nguyen, Phuc D., M.D.
Nguyen, Phuc X., M.D.
Olutimehin, Omobolaji, M.D.
Parikh, Mihir, M.D.
Pham, Coung Van Phu, M.D.
Richmond, Teriya, M.D.
Russell, Matasha, M.D.
Vasudevan, Deepa, M.D.
Wang, Yun, M.D.
Whiting, Carman Hall, M.D.

Clinical Assistant Professors

Kaseb, Enas, M.D.
Lawrence, Sharlene, M.D.
Sidju, Trepanjeet, M.D.

Department of Integrative Biology and Pharmacology

The Department of Integrative Biology and Pharmacology (IBP) is interested in the cell biology, physiology and pharmacology of cell regulation and communication. Our major research themes include the molecular mechanisms and spatiotemporal dynamics of membrane signaling, intracellular and metabolic signaling, the biology and physiology of cell-cell interactions, and the use of computational, structural and systems approaches to decipher signaling networks. These efforts are aimed at understanding how normal and abnormal cell function translates into whole animal physiology and pathophysiology, and exploring the molecular pharmacology of existing and novel therapeutics. In this context, IBP has research programs in cancer cell biology, cardiovascular biology, tissue regeneration and plasticity (especially in nerve and muscle), and neuronal signaling in injury, inflammation and pain. We also investigate GI and renal physiology. Our investigators make extensive use of a wide range of genetically tractable model organisms including: mice, *Drosophila*, Zebrafish, *Aplysia* and *Arabidopsis*; they use computational techniques, including classical and advanced molecular dynamics simulations, structural bioinformatics and novel bioinformatic approaches to interrogate gene expression data sets; as well as contemporary molecular cell biology, biochemistry and electrophysiology.

IBP has recently undergone a major expansion with the recruitment of fourteen new faculty since 2008. We have also completed a total renovation of all of our laboratories on the 4th floor of the Medical School and occupied new space on the 3rd floor of the Medical School Research Building. IBP has established a new, purpose-built, advanced cell-imaging facility that provides for confocal, TIRF, wide-field and confocal FLIM microscopy, high content screening as well as an IVIS system for small animal imaging. In addition there is a new departmental core for electrophysiology. Research in IBP is further supported by outstanding core facilities located within the Medical School for microarray analysis, proteomics, high throughput siRNA and drug screening, high throughput real-time qPCR, DNA sequencing, SNP analysis, and high throughput quantitative ELISA.

IBP faculty teach Physiology and Pharmacology to medical and dental students. We run an active graduate studies program in Cell and Regulatory Biology and we participate in the University Centers for Membrane Biology and Clinical and

Translation Sciences within the Medical School and in several training grants including those in Pharmacological Sciences and Computational Cancer Biology.

Vice-Dean of Research

Interim Director, The Brown Foundation Institute of Molecular Medicine

Professor and Chairman

Fondren Chair in Cellular Signaling

Hancock, John, F. MA MB BChir PhD MRCP(UK) FRACP

Professor and Vice-Chairman

O'Neil, Roger, Ph.D.

Professor Emeritus

Schultz, Stanley, M.D.

Professors

Cabral, Fernando, Ph.D.

Chan, Jarvis, D.D.S., Ph.D.

Clark, Richard B., Ph.D.

Davies, Peter J.A., M.D., Ph.D.

Hutchins, Max, Ph.D.

Lichtenberger, Lenard M., Ph.D.

McMahon, John, Ph.D.

Pate, Theodore, Ph.D.

Rosenfeld, Gary C., Ph.D.

Schonbrunn, Agnes, Ph.D.

Stancel, George M., Ph.D.

Walters, Edgar T., Ph.D.

Weisbrodt, Norman, Ph.D.

Zhu, Michael, Ph.D.

Associate Professors

Dessauer, Carmen, Ph.D.

Dial, Elizabeth, J., Ph.D.

Knutson, Victoria P., Ph.D.

Li, Yi-Ping, Ph.D.

Loose, David S., Ph.D.

Morris, Andrew, Ph.D.

Turner, Stewart, Ph.D.

Weems, William A., Ph.D.

Assistant Professors

Abebe, Alemayehu Gorfe, Ph.D.

Berdeaux, Rebecca, Ph.D.

Breton, Ghislain, Ph.D.

Chang, Jeffrey, Ph.D.

Denicourt, Catherine, Ph.D.

Du, Guangwei, Ph.D.

Efendi, Riad, Ph.D.

Frost, Jeffrey, Ph.D.

Grill, Raymond, Ph.D.

Hu, Hongzhen, Ph.D.

Plowman, Sarah, Ph.D.

Pochynyuk, Oleh, Ph.D.

Shiqiang Tian, M.D., Ph.D.

Shiple, Gregory, Ph.D.

Venkatachalam, Kartik, Ph.D.

Instructors

Brown, Rachel, Ph.D.
Kunjilwar, Kumud, Ph.D.

Department of Internal Medicine

The Department of Internal Medicine provides opportunities for students, house officers, and fellows to acquire training in the broad field of internal medicine and its subspecialties. The training program is designed to include clinically enriching experiences in bedside internal medicine, ambulatory care, and contemplative exercises in which students, housestaff, and faculty can explore the pathophysiology of disease processes and the physiologic and ethical basis for clinical decision-making.

A faculty of physicians and laboratory investigators has been carefully chosen and cultivated to ensure that interests in general internal medicine, the subspecialties, and investigative aspects of the discipline are represented.

The educational programs of the department are housed at Memorial Hermann - Texas Medical Center, Lyndon B. Johnson (LBJ) General Hospital, St. Luke's Episcopal Hospital/Texas Heart Institute, and The University of Texas M. D. Anderson Cancer Center. The junior student clerkship involves a three-month period during which medical students rotate through two 4-week rotations on the general medicine ward services at either MHH or LBJ Hospital. The eight week clerkship includes didactics as well as formative and graded experiences with standardized patients. The separate one week Geriatrics/Palliative Care clerkship is an excellent opportunity for students to be exposed to the corresponding patient population and is required of all students. In addition, several Internal Medicine subspecialties offer a three week junior elective to fulfill the Medical School's required component of the curriculum. The Department offers a one month selective in ambulatory care as part of the required senior ambulatory experience, a one month selective in advanced patient care as part of the required senior in-patient experience, and a one month selective in critical care as part of the required senior critical care experience. In addition, senior electives are offered in each of the subspecialties of Internal Medicine.

The Department offers a 3 year fully accredited Medicine Residency Program. The first of these three years, termed the PGY-I year, is devoted to experiences in general internal medicine and subspecialty services, ambulatory care experiences in the Emergency Center and Ambulatory Care Center, and critical care experiences in the intensive and coronary care units. The inpatient services are located in the Memorial Hermann Hospital-Texas Medical Center, LBJ, St. Luke's/Texas Heart Institute and M. D. Anderson Cancer Center. In the remaining two years of the internal medicine training program, the PGY-2 and PGY-3 residents spend time on consultative services in the subspecialties, in addition to further rotations on hospital inpatient services.

Combined internal medicine/pediatrics residency training is a four-year program, with six months of each year spent in internal medicine and the other six months in pediatrics. On completion of this training program, the student is board-eligible in both fields.

Fellowship programs are available in each of the subspecialties (see under subspecialties of Internal Medicine).

Chair and Professor

McPherson, David M.D.

Executive Vice Chair

Dyer, Carmel B., M.D.

Vice Chair for Divisions

Johnson, Philip C., M.D.

Vice Chair for Divisions

Finkel, Kevin W., M.D.

Vice Chair for Education

Orlander, Philip, M.D.

Vice Chair for Research

Milewicz, Dianna M., M.D., Ph.D.

Vice Chair for Research

Reveille, John D., M.D.

Vice Chair for Harris County Hospital District

Patel, Bela, M.D.

3rd Year Clerkship Director

Farnie, Mark, M.D.

4th year Clerkship Directors

Farnie, Mark, MD

Faustinella, Fabrizia, M.D.

Residency Training Directors**Orlander, Philip, M.D. - Director of Medicine Residency Program**

Barker, Emily M.D. Senior Associate Program Director of Medicine Residency Program

Ho, Andy, M.D., Associate Program Director of Medicine Residency Program

Stephens, Brett, M.D., Associate Program Director of Medicine Residency Program

Wolf, David, M.D. Associate Program Director of Medicine Residency Program

Wesley, Robby, D.O., Associate Program Director of Medicine Residency Program

Farnie, Mark, M.D., Director of Medicine/Pediatrics Residency Program

Meeks, Jacqueline, M.D., Associate Program Director of Medicine/Pediatric Residency Program

Division of Cardiovascular Medicine

The Division of Cardiovascular Medicine provides medical students, residents, and fellows with a vision for world-class excellence and an opportunity to acquire comprehensive clinical training, and the expertise to carry out both basic and clinical cardiovascular research. Emphasis is placed on new ideas and approaches to experimental and clinical problems, particularly those involving prevention, acute care, and advanced technology.

Division facilities include state-of-the-art cardiac catheterization and electrophysiology laboratories; a Heart and Vascular Institute which includes echocardiography, nuclear cardiology, P.E.T., cardiac CT and CTCA, peripheral vascular facilities, a center for statistical programs and core angiographic image processing; an angiographic animal laboratory; animal physiology laboratories; extensive metabolic, biochemistry, and molecular biology research laboratories. There is a 17-bed coronary-care unit at Memorial Hermann - Texas Medical Center and a 56-bed intermediate unit dedicated to cardiovascular patients. The P.E.T. facility features positron and CT imaging, and a cyclotron.

A cadre of outstanding faculty provides excellence across the spectrum of cardiovascular medical science. They practice and teach clinical diagnosis and management of problems such as heart failure, coronary artery disease, arrhythmias, valvular disease, cardiogenic shock, congenital heart disease in the adult, peripheral vascular disease, cardiovascular disease prevention, and cardiac rehabilitation. An important part of training is integrating cardiac technology with the art of medicine and the role of subspecialty consultation.

Novel aspects of cardiovascular interventions include percutaneous ASD and PFO closure, carotid stenting, and endovascular AAA repair, percutaneous intervention for hypertrophic cardiomyopathy, percutaneous left ventricular assist devices, cutting edge treatment for myocardial infarction including stem cell therapy and pre-hospital fibrinolysis. There is state-of-the-art imaging including P.E.T. for sophisticated myocardial metabolism, 3D echo for Cardiac resynchronisation therapy, CT angiography and cardiac MR; and robust research in myocardial metabolism, development of agents for targeted drug and gene delivery, stem cell therapy, genetics of aortic aneurysm formation, and myocardial salvage therapies.

Clinical Cardiac Electrophysiology is active and dynamic in providing a high standard of care to the patients with heart rhythm disorders. Highly skilled EP faculty members routinely perform complex and novel procedures, such as ablation for atrial fibrillation and ischemic ventricular tachycardia in addition to the standard procedures such as ablation for typical SVTs, accessory bypass tracts, implantations of pacemakers, ICDs and cardiac resynchronization (CRT) devices. These procedures are performed in the state-of-the-art electrophysiology laboratories equipped with bi-plane imaging and other cutting edge technologies including 3-dimensional Electroanatomical CARTO and NaVx mapping systems, phase array intracardiac echocardiography, laser and non-laser lead extraction system.

On the education front, the division runs one of the nation's prestigious and sought after Fellowship Training Programs in Cardiovascular Medicine, Interventional Cardiovascular Medicine, and Clinical Cardiac Electrophysiology. There is a major affiliation with the Cardiovascular Department at M. D. Anderson Cancer Center and the division is responsible for the Cardiovascular Medicine Service at the Lyndon B. Johnson General Hospital. In addition, we provide consultative cardiology and imaging support for cardiovascular patients at the Texas Institute for Rehabilitation and Research Hospital.

**Professor and Director
Division of Cardiovascular Medicine
Chair in Internal Medicine
Medical Director Heart & Vascular Institute
Memorial Hermann - Texas Medical Center**
McPherson, David D., M.D., FAHA

**Jay Brent Sterling Professor in
Cardiovascular Medicine, and**
Smalling, Richard W., M.D., Ph.D.

**John Edward Tyson Distinguished Professor of Medicine (Cardiology) and Public Health Vice President for
Biotechnology**
Casscells, S. Ward, M.D.

Theodore R. and Maureen O'Driscoll Levy Professor in Cardiology
Fuentes, Francisco, M.D.

**Martin Bucksbaum Distinguished
University Chair, Professor of
Cardiovascular Medicine and
Executive Director, Weatherhead P.E.T. Center for Preventing and
Reversing Atherosclerosis**
Gould, K. Lance, M.D.

**Edward Randall, III
Chair in Internal Medicine**
Willerson, James T., M.D.

Professor and Co-Director Research
Taegtmeyer, Heinrich, M.D., Ph.D.

**The Weatherhead Distinguished Chair of Heart Diseases
Associate Professor**
Sdringola, Stefano, M.D.

Professors

Anderson, H. Vernon, M.D.
Bapat, Avinish, M.D.
Casscells, S. Ward, M.D.
Dougherty, Anne H., M.D.
Fuentes, Francisco, M.D.
Geng, Yong-Jian M.D., Ph.D.
Gould, K. Lance, M.D.
Kantharia, Bharat, M.D.
Laing, Susan, M.D.
McPherson, David D., M.D., FAHA
Overturf, Merrill L., Ph.D.
Smalling, Richard W., M.D., Ph.D.
Willerson, James T., M.D.

Associate Professors

Bungo, Michael W., M.D.
Denktas, Ali, M.D.
Fife, Caroline E. M.D.
Kirkeeide, Richard L. Ph.D.
Klegerman, Mel, Ph.D
Loghin, Catalin, M.D.
Meyers, Deborah, M.D.
Sdringola, Stefano, M.D.

Assistant Professors

Al-Azzeh, Haytham, M.D.
Barker, Colin, M., M.D.
Chiadika, Olasimbo, M.D.
Cid, Emma, M.D.
Danila, Delia, M.D.
Haidari, Mehran, M.D.
Higgins, John P., M.D.
Huang, Shaoling, Ph.D
Johnson, Nils, M.D.
Kee, Patrick, M.D., Ph.D
Kim, Hyunggun, Ph.D.
Maus, Erik A., M.D.
Memon, Nada, M.D.
Patel, Monica, M.D.
Siddharth, Prakash, M.D.
Tung, Poyee, M.D.

Instructors

Chen, Zhiquiang, M.D.

Division of Endocrinology, Diabetes and Metabolism

The Division of Endocrinology, Diabetes, and Metabolism offers comprehensive training in the areas of diabetes mellitus, reproductive endocrinology, thyroid disorders, calcium and bone metabolism, pituitary abnormalities, as well as other endocrine disorders. An elective for third- and fourth-year medical students is available monthly.

Students and residents rotate through our consultative services at the Memorial Hermann – Texas Medical Center and the Lyndon B. Johnson General Hospital, in addition to the clinics. Ambulatory teaching at the endocrine clinics is an integral part of the clinical elective and is conducted at the UT Endocrinology and Diabetes Clinic in the UT Professional Building and in the Harris County Endocrinology and Diabetes Clinic at Quentin Mease Community Hospital. The Quentin Mease clinic is on a referral basis from the community clinics and includes a substantial number of patients with thyroid disorders and neoplasms. There is a weekly metabolic bone clinic, weekly endocrine disorders in pregnancy clinic, and biweekly thyroid nodule clinic with ultrasound and fine needle aspirations, and a twice weekly reproductive endocrinology clinic. A tutorial on diabetes management and insulin administration is available on our Web site and is part of the elective. There are several weekly conferences: Multidisciplinary clinical case conference with pediatric endocrinology, reproductive endocrinology, OB-GYN, a weekly journal club, and a weekly citywide conference including faculty from Baylor, UT M. D. Anderson Cancer Center, and surrounding institutions. There also is a weekly seminar specifically for the students and residents on reproductive endocrinology. Residents and fourth-year students are expected to attend and participate in all of the scheduled conferences.

There are several major areas of active research in the division. Dr. Perry Bickel is associate professor and associate director of the division and director of The Center for Diabetes and Obesity Research within the Brown Foundation Institute of Molecular Medicine. Dr. Bickel studies mechanisms of lipid partitioning within cells, which are relevant to issues of lipid storage and lipotoxicity leading to insulin resistance and beta cell failure. Dr. Mary Ruppe's research involves the study of fibroblast growth factor-23 (FGF 23) in patients with X-Linked Hypophosphatemic Rickets (XLH). The laboratory focuses on evaluating the serum and tissue levels of FGF23 as determinants of height attainment and complication rates in patients with XLH. Clinical research interests of the other endocrine faculty include insulin resistance

and ovulatory dysfunction (Dr. Nader), cardiovascular consequences of diabetes (Dr. Orlander), and diabetes in pregnancy (Dr. Davis).

The division offers a two-year fellowship in Endocrinology, Diabetes and Metabolism, which includes rotations at Memorial Hermann Hospital - Texas Medical Center, LBJ General Hospital, and UT M. D. Anderson Cancer Center, pediatric endocrinology, reproductive endocrinology, metabolic bone clinic, and nuclear medicine. There is opportunity for extensive experience with insulin pump therapy and intensive insulin management in the inpatient and outpatient setting.

Professor and Division Director

Orlander, Philip, M.D.

Professors

Nader-Eftekhari, Shahla, M.D.

Associate Professor

Bickel, Perry, M.D.

Assistant Professors

Davis, Anu, M.D.

Ruppe, Mary, M.D.

Shah, Neel, M.D.

Wirfel, Kelly, M.D.

**Division of Gastroenterology,
Hepatology and Nutrition**

The Division of Gastroenterology, Hepatology and Nutrition provides clinical training opportunities for medical students, house staff, and fellows at both Memorial Hermann - Texas Medical Center and LBJ General hospitals. Members of the consult team at either institution encounter a wide variety of primary or associated gastrointestinal diseases and develop diagnostic and therapeutic options for individual patients through a series of rounds and teaching conferences.

The introduction of video endoscopy provides students and house staff with an enhanced ability to correlate specific endoscopic findings with clinical and laboratory abnormalities. An active Hepatology/Liver Transplant service allows students and housestaff to participate in the diagnosis and therapy of complex liver diseases. Educational emphasis is placed on integrating the clinical, diagnostic, and therapeutic capabilities of the gastroenterologist into the overall care of the patient, with development of an appreciation of the skills and judgment required for prudent use of the array of various diagnostic procedures available.

A series of weekly clinical, radiology, physiology, and pathology conferences allows for the development of strong theoretical background and supplements the clinical experiences in the service.

The gastroenterology fellowship training program and its affiliated hospitals: Memorial Hermann - Texas Medical Center, LBJ General Hospital, UT M. D. Anderson Cancer Center, and The Methodist Hospital offer clinical training for the fellows involves the development of cognitive, diagnostic, and therapeutic skills involved in the practice of gastroenterology and hepatology. Both clinical and basic research opportunities are provided, with particular emphasis on intestinal function that includes problems of diarrhea, intestinal motility, fluid and electrolyte transport, and carcinogenesis. Additional research opportunities are available in clinical hepatology/transplant and nutrition.

Professor and Division Director

Fallon, Michael, M.D.

Professor

Edwards, Marilyn, Ph.D.

Ertan, Atilla, M.D.

Scott, Larry, M.D.

Assistant Professors

DuPont, Andrew, M.D. (Fellowship Program Director)
Lukens, Frank, M.D. (Fellowship Program Director)
Jelinek, Katherine, M.D.
Machicao, Victor M.D.
Nevah, Ilan, M.D.
Pan, Jen Jung M.D.
Spinn, Matthew, M.D.
Wolf, David, M.D.
Zhang, Junlan, M.D, Ph.D.

Nurse Practitioner

Deming, Diane N.P.

Division of General Medicine

The Division of General Medicine has an active program involving teaching, patient care, and research. A major responsibility of the division is clinical care, which includes teaching ambulatory care at any of four ambulatory clinic sites. Division faculty are also involved in HIV care and teaching at the Thomas Street AIDS Clinic, a facility of the Harris County Hospital District. Activities at Memorial Hermann Hospital, Lyndon B. Johnson General Hospital, and the UT Harris County Psychiatric Center include supervision of a general medicine consultation service and participation on the majority of the Internal Medicine inpatient ward services throughout the year.

Training of house officers and medical students is a priority of the division. House officers are assigned to the ambulatory care services. Additionally, each house officer meets weekly with a panel of patients and follows this group of patients throughout the training program. All ambulatory clinic activities are supervised by full-time faculty who provide an active, multi-disciplinary teaching program. The opportunity to acquire a formal education is provided by all inpatient ward teams, consult services staffed by full-time attending faculty, and house officers who provide consultation to all specialty groups within the hospital.

Research activities of the division focus on safety and access to health care by adults, including marginalized populations. The faculty of General Medicine have several NIH-sponsored grants in patient safety, the bioethics of informed consent for cancer screening and causes and treatment of obesity. Other research efforts include the validity of data on the Internet and HIV treatment and compliance. Several faculty are involved in research in the area of teaching medical students and residents.

The faculty of the Division of General Medicine are dedicated to providing excellent training programs. Faculty in the division lead the Internal Medicine House Staff Program, the core rotation in Internal Medicine, and the Physical Diagnosis Course.

Professor and Division Director

Johnson, Philip C., M.D., FACP

Professors

Bernstam, Elmer, M.D., FACP
Boisaubin, Eugene, M.D.
Smythe, Cheves McC., M.D.
Thomas, Eric, M.D.

Associate Professors

Bernstam, Elmer, M.D., FACP
Bhattacharjee, Modushudan, M.D.
Chan, Evelyn C. Y., M.D.
Farnie, Mark, M.D.
Faustinella, Fabrizia, M.D., Ph.D.
Hardwicke, Robin, AACRN, FNP, Ph.D.

Assistant Professors

Aisenberg, Gabriel M.D.
Ammar, Hussam M.D.
Asawa, Ashish M.D.
Fetsak, Andriy M.D.
Govindu, Rukma M.D.
Grimes, Richard, Ph.D.
Hwang, Kevin, M.D.
Krucke, Gus, M.D.
Meeks, Jacqueline M.D.
Pandya, Hina M.D.
Pelini, Susan M.D.
Rafeek, Jasmine M.D.
Tamirisa, Aparna M.D.
Tosto, Sebastian M.D.
Wesley, Robbie D.O.

Division of Geriatric and Palliative Medicine

The U.S. population aged 65 years and older will exceed 70 million by 2030 – nearly a doubling of the current number. Forty percent of hospitalized patients and 40 percent of surgical patients are 65 years of age or older. At the same time Palliative Medicine programs have increased by over 90 percent nationwide. The Geriatric and Palliative Medicine Division was established to prepare students from all health care disciplines as well as residents to care for older patients and to skillfully provide compassionate end of life care. In order to do this, geriatric and palliative medicine services have been established at both the LBJ and Memorial Hermann Hospitals to serve diverse sectors of the community and to provide both public and private training sites. Trainees attend interdisciplinary team meetings and teaching conferences at both sites. Clinical areas include geriatric medicine – acute and chronic, palliative medicine, pain control, elder mistreatment, and wound care. Clinical settings include patient units at LBJ and MHH, public and private outpatient clinics, and house calls.

Professor and Division Director**Roy M. and Phyllis Gough Huffington Chair in Gerontology**

Dyer, Carmel, M.D.

Assistant Professors

Ahmed, Nasiya, M.D.
Atai, Faith, M.D.
De la Cruz, Maxine, M.D.
Halphen, John M., MD
Nguyen, Linh, M.D.
Varas, Grace, D.O.
Young, Kavon, M.D.

Instructors

Gorman, Susan, NP
Paire, Shreda, N.P.

Division of Hematology

The Division of Hematology's major academic goal is to promote the understanding of a wide scope of hematological diseases. The diagnosis and management of these diseases require a broadly based knowledge in bone marrow physiology and biochemistry, tumor cell growth, hemostasis and thrombosis, red blood cell and hemoglobin molecular biology, and immunology. The division collaborates with the departments of Pathology and Laboratory Medicine and Integrative Biology and Pharmacology in the Medical School and M. D. Anderson Cancer Center. The interactions enhance research, teaching, and patient activities.

The division provides both inpatient and ambulatory care services. It provides consultation services at Memorial Hermann – Texas Medical Center and LBJ hospitals. The division is responsible for training medical students, residents, and subspecialty fellows in clinical hematology. At any given time, there are 4-5 trainees on the hematology service.

The Gulf States Hemophilia Diagnostic and Treatment Center is operated by Pediatric Hematology. Its director, Dr. M. Escobar has an academic appointment in the adult Hematology Division.

The division has developed strong, cohesive NIH-supported research programs focusing on cell and molecular biology of prostaglandin and nitric oxide synthase and protein chemistry and structure biology of synthetic enzymes. These basic investigations have greatly enhanced the understanding of endothelial cell and blood cell functions.

Clinical faculty, in collaboration with the Department of Biochemistry and Molecular Biology, are investigating the role of adenosine in sickling of red blood cells. Several other metabolites have been selected for study based on differences in the metabolic profile of normal red cells and red cells of patients with sickle cell anemia.

Professor and Division Director

Juneja, Harinder, M.D.

Professors

Kulmacz, Richard, Ph.D.

Tsai, Ah-Lim, Ph.D.

Associate Professor

Wang, Lee-Ho, Ph.D.

Assistant Professors

Escobar, Miguel, M.D.

Idowu, Modupe, M.D.

Division of Infectious Diseases

Division faculty members provide medical students and house staff with the opportunity to obtain information on clinical diagnosis of infectious illness, and infection control procedures in the prevention of nosocomial microbiology, diagnostic bacteriology and virology, appropriate use of antimicrobial agents and host factors important to pathogenesis of infection. A regular medical student/house staff conference is conducted to provide the opportunity to acquire the principles of diagnosis of infectious diseases.

Busy consultative services at Memorial Hermann Hospital and Lyndon B. Johnson General Hospital, and outpatient practices at Thomas Street Health Center and UTPB provide fellows in infectious diseases, medical residents, and often fourth-year medical students the opportunity to learn about Infectious Diseases under the direction of one of the faculty members.

Professor and Division Director

**J. Ralph Meadows Professor in
Internal Medicine**

Murray, Barbara E., M.D.

**Professor and Head, Clinical
Infectious Diseases**

Ericsson, Charles D., M.D.

Mary Wilson Kelsey Professor in the Medical Sciences

DuPont, Herbert L., M.D.

Professors

Arduino, Roberto C., M.D.

DuPont, Herbert L., M.D.

Lewis, Dorothy, Ph.D.

Okhuysen, Pablo, M.D.

Associate Professors

Barnett, Ben M.D.

Hasbun, Rodrigo, M.D.

Ostrosky, Luis M.D.

Singh, Kavindra, Ph.D.

Assistant Professors

Arias, Cesar, M.D., Ph.D.

Armitige, Lisa M.D., Ph.D.

Bell, Tanvir, M.D.

Roh, Jung, Ph.D.

Vigil, Karen, M.D.

Instructor

Sillanpaa, Jouko, Ph.D.

Division of Medical Genetics

The division's program provides medical students and house staff exposure to the rapidly expanding field of human genetic diseases. Clinical services focus on diagnosing adult onset genetic diseases, genetic counseling, and pre-symptomatic diagnosis of genetic disorders. Clinical training is provided through consult services at Memorial Hermann – Texas Medical Center, Texas Heart Institute/St. Luke's Hospital, and outpatient clinics. Clinical and basic research opportunities are available in the field of cardiovascular genetic diseases. Teaching conferences are held two times a week.

Professor and Division Director

Milewicz, Dianna, M.D., Ph.D.

Assistant Professors

Gong, Limin, Ph.D.

Guo, Dongchuan, Ph.D.

Johnson, Jay, Ph.D., M.A.H.S., M.A.T.

Kuang, Shao-Qing, Ph.D., M.D.

Prakash, Siddharth K, Ph.D.

Instructor

Bensend, Tracy, MS

Cecchi, Alana, MS

Regalado, Ellen, MS

Division of Oncology

The aim of the Division of Oncology is to practice and teach excellence in medicine by highlighting cancer biology through clinical research and applying that knowledge to diagnosis and patient care. Through a multimodality approach to cancer care that emphasizes integrated roles of medical, surgical, and radiation oncology, students are exposed to both common and rare presentations of cancer.

The Division of Oncology has a strong outpatient clinic that is part of UT Physicians and the Memorial Hermann Cancer Center as well as an inpatient hospital consulting service at Memorial Hermann Hospital - Texas Medical Center. Medical students learn about cancer prevention and screening and the interpretation of radiologic imaging, laboratory studies, and tissue pathology as it relates to cancer diagnosis and staging. Students also are exposed to the vast array of chemotherapy agents, molecular targeted agents, immunotherapy and thermochemotherapy used in the treatment of solid tumors. The division conducts tumor-specific tumor boards, journal club meetings, patient care conference, as well as several didactic teaching sessions that cover topics ranging from common malignancies to cutting-edge developments in the field of oncology. Faculty and students participate in multi-disciplinary, tumor-specific conferences, which translates into the ability to provide the best possible care for our patients.

Our research and standard of care approaches focus on cellular and molecular biology, pathology, surgery, radiotherapy, and the role of radiology, neurology, psychiatry, immunology, and palliative care in the treatment of patients with cancer. Molecular biology and genomics are taught as the basis of cancer diagnosis and therapy. The analysis of data, the gathering of evidence and the summation of findings based on the application of the principles of scientific method make a coherent conclusion of diagnosis and subsequent treatment. Division faculty members also discuss the social and economic issues of cancer care today. All this is done within the framework of a process of critical thinking under the leadership of the diversely skilled division faculty.

The Division of Oncology focuses on personalizing treatment for patients through the use of proteomics and genomics, and it has a keen interest in new and emerging oncology treatments.

The Oncology Division is an integral part of the Medical School's Department of Internal Medicine and collaborates regularly with the other subspecialty Divisions of Internal Medicine, the Brown Foundation Institute of Molecular Medicine, the Departments of Integrative Biology and Pharmacology, Diagnostic & Interventional Imaging, Surgery, Radiology, and Pathology & Laboratory Medicine, as well as the University Clinical Research Unit (CRU) and the Center for Clinical and Translational Sciences (CCTS). These interactions greatly enhance research and development of cancer immunotherapies, teaching, and patient-care activities.

In association with the Memorial Hermann Hospital - Texas Medical Center, the Division has the unique opportunity to care for our patients while teaching about common malignancies (e.g., breast, cervix, ovarian, central nervous system, blood and bone marrow, skin, liver, pancreatic, bladder, prostate, renal cell, head and neck, gastrointestinal, lung) and highly unusual diagnoses and disease presentations. This care begins at the laboratory bench and in the classroom, and it carries through to the clinic and the patient's bedside.

Division of Oncology Faculty:

Professors:

Amato, Robert, D.O.
Bull, Joan M.C., M.D.

Associate Professors:

Quesada, Jorge R., M.D.
Rios, Adan, M.D.

Assistant Professors:

Ansari, Maria, M.D.
Cen, Putao, M.D.
Gonzalez, Annaliese, M.D.

Adjunct Assistant Professor

Rowe-Horwege, Ruth W., Ph.D.

Division of Rheumatology and Clinical Immunogenetics

This division emphasizes excellence in teaching, basic and clinical investigation, and patient care relevant to rheumatic and autoimmune diseases. Clinical and investigative training are available for students, house staff, and postdoctoral fellows. Full-time faculty participate in teaching and patient care activities in clinics in The University of Texas Health Science Center Professional Building, the LBJ Hospital, the Thomas Street HIV Clinic, and the Internal Medicine Inpatient Services of Memorial Hermann and LBJ General hospitals.

Basic and clinical investigative interests focus on the multisystem rheumatic diseases, especially ankylosing spondylitis, scleroderma, systemic lupus erythematosus, Sjögren's syndrome, rheumatoid arthritis, polymyositis, HIV-associated rheumatic diseases, and other types of arthritis. Genetic control of disease susceptibility, autoantibody production, outcome studies, and pathogenic mechanisms, especially by the HLA and other genetic systems, is a major research interest and provides many projects, technologies, and collaborations for interested trainees.

Division Director,
Professor, George S. Bruce, Jr. Professorship in Arthritis and Other Rheumatic Diseases and Linda and Ronny Finger Foundation Distinguished Chair in Neuroimmunologic Disorders Director
Reveille, John D., M.D.

Professor and Elizabeth Bidgood Chair in Rheumatology
Mayes, Maureen D., M.D., M.P.H.

Professor and Linda K. Finger Chair in Autoimmune and Connective Tissue Diseases
Tan, Filemon K., M.D., Ph.D.

Professor
Warner, Noranna M., M.D., Ph.D.

Associate Professor
Zhou, Xiaodong, M.D.

Assistant Professors
Agarwal, Sandeep, M.D., Ph.D.
Assassi, Shervin, M.D., MS
Nguyen, Binh Y, M.D.

Divisions of Pulmonary, Critical Care and Sleep Medicine

The teaching program of the Divisions of Pulmonary, Critical Care Medicine and Sleep Medicine provides opportunities for students, residents, , and fellows to acquire education in the basic and clinical aspects of respiratory, critical care and sleep medicine. Emphasis is placed on pathophysiology, , pulmonary diagnosis and therapy, critical care management, mechanical ventilation, pulmonary function testing, exercise testing, polysomnography diagnostic techniques, and the clinical evidenced-based approach to diseases of the chest, sleep and of the critically ill.

Students in the fourth year of medical school participate in the Critical Care Course. They rotate through the Memorial Hermann – Texas Medical Center MICU, STICU, NTICU, the Lyndon B. Johnson General Hospital MSICU, M.D. Anderson Cancer Center ICUs and the Methodist Hospital SICU. The residents rotate through the MICU at Memorial Hermann and MSICU at Lyndon. B General Hospital during their critical care rotations on multidisciplinary teams lead by our faculty and fellows. Our pulmonary consult services at at Memorial Hermann – Texas medical Center and the Lyndon B. Johnson General Hospital offer education in inpatient and outpatient pulmonary disease, pulmonary function testing, cardiopulmonary exercise testing and post-operative surgery critical care. Ambulatory teaching at the pulmonary and sleep clinics is an integral part of the clinical elective and is conducted at the UT Pulmonary Clinic and UT Sleep Clinic in the UT Professional Building and in the Harris County Pulmonary and Sleep Clinics at LBJ Hospital. Student and resident electives

are available in sleep medicine at Memorial Hermann– Texas Medical Center and Lyndon B. Johnson General Hospital. The sleep medicine elective at Memorial Hermann– TMC includes pediatric as well as adult sleep medicine.

There are several conferences: Weekly pulmonary, critical care and sleep medicine multidisciplinary grand rounds, and clinical case conferences; monthly journal club; radiology and pathology conferences; performance improvement conferences; research conferences; pathophysiology conference; citywide conference, including faculty from Baylor, UT M. D. Anderson Cancer Center, and surrounding institutions in sleep medicine and bimonthly in pulmonary and critical care medicine. There also are 15 conferences a month, and weekly skills sessions in the Clinical Skills Center for fourth-year medical students during the critical care elective from faculty in medicine and surgery critical care from UT, Methodist, and M. D. Anderson. Residents and fourth-year students are expected to attend and participate in all of the scheduled conferences.

The divisions offer two ACGME-accredited clinical fellowships: (1) a three-year fellowship in Pulmonary and Critical Care Medicine, which includes rotations at Memorial Hermann – Texas Medical Center, UT MD Anderson Cancer Center, Lyndon B. Johnson General Hospital, and Select Specialty Hospital in pulmonary, medical and surgical critical care, interventional bronchoscopy and sleep medicine, and (2) A one-year fellowship in sleep medicine is also offered with rotations at the Memorial Hermann Sleep Disorders Center – Texas Medical Center, the Harris County Sleep Disorders Center at Lyndon B. Johnson Hospital and the UT MD Anderson Cancer Center Sleep Laboratory as well as sleep clinics at the UT Professional Building in the TMC, Lyndon B. General Hospital, and UT MD Anderson Cancer Center. Sleep fellows learn all the aspects of sleep medicine in all age groups, including children.

There are several major areas of active research in sleep medicine, pulmonary interstitial lung disease, pulmonary hypertension, critical care endocrinology, sepsis and medical ethics.

**Professor and Division Director of Pulmonary, Critical Care and Sleep Medicine
Program Director for Sleep Medicine Fellowship Program**

Castriotta, Richard, M.D.

**Associate Professor and Division Director of Critical Care Medicine
Program Director for Pulmonary and Critical Care Medicine Fellowship Program and 4th year Critical Care Selective Course Director**

Patel, Bela, M.D.

Associate Professor

Estrada-Y-Martin, Rosa Maria, M.D. Associate Program Director, Pulmonary/Critical Care
Lodato, Robert F., MD., Ph.D.

Assistant Professors

Almoosa, Khalid F., M.D., Chief Quality Officer for Internal Medicine
Doshi, Pratik, M.D.
Hassan, Iman, M.D.,
Majid, Ruckshanda, M.D., Associate Program Director, Sleep Medicine
McKelvy, Brandy, M.D. 4th year Critical Care Selective Course Skills Workshop Director
Murthy, Jayarama S., M.D.
Murugan, Anandhi, M.D.
Nassif, George, M.D.

Department of Microbiology and Molecular Genetics

The objective of this department is to teach how microorganisms interact with and respond to their environment at the molecular level. To pursue this objective, the department faculty members study diverse microbial systems by applying a molecular genetic/molecular biological focus to their research programs.

A first-year Medical School course is designed to offer the student the opportunity to develop a working knowledge of taxonomy, pathophysiology, and growth characteristics of bacteria, fungi, parasites, and viruses important to human disease.

A series of cross-appointments with faculty in other departments, divisions, and units having an interest in the training of medical and graduate students is utilized to expand the available opportunities for the training and teaching of students and includes such units as: Biochemistry and Molecular Biology, Internal Medicine, Infectious Diseases, Pathology and Laboratory Medicine, and programs at M. D. Anderson Cancer Center.

Professor and Interim Chair

Koehler, Theresa M., Ph.D.

Professor

Christie, Peter J. Ph.D.

Goldschmidt, Millicent E., Ph.D.

Koehler, Theresa M., Ph.D.

Margolin, William, Ph.D.

Associate Professors

Garsin, Danielle, Ph.D.

Kaplan, Heidi B., Ph.D.

Lorenz, Michael, Ph.D.

Morano, Kevin J., Ph.D.

Ton-That, Hung, Ph.D.

Assistant Professors

Ziyin Li, Ph.D.

Research Assistant Professors

Mackenzie, R. Chris, Ph.D.

Eraso, Jesus, Ph.D.

Department of Nanomedicine and Biomedical Engineering

The objective of this department is focused on inter-disciplinary research to combine NanoMedicine, Biomedical Engineering and computational sciences to develop novel therapeutic and diagnostic platforms for combating diseases including cancer, cardiovascular diseases and infectious diseases.

A NanoMedicine and Biomedical Engineering Scholarly Concentration is designed to offer the student the opportunity to learn emerging new technologies in biomedical nanotechnology and engineering.

A series of cross-appointments with faculty in other departments, divisions, and units and adjunct appointments with faculty in other collaborating institutions through The Alliance for NanoHealth and other Texas Medical Center institutions are utilized to enhance multidisciplinary research and expand the available opportunities for the training and teaching of students.

Professor and Interim Chair

Gorenstein, David, Ph.D.

Professors

Annapragada, Ananath, Ph.D.
Byrne, John, Ph.D.
Cox Jr., Charles, M.D.
Geng, Yong-Jian, M.D., Ph.D.
Hancock, John, MA MB BChir PhD MRCP(UK) FRACP
Lopez-Berestein, Gabriel, M.D.
Moeller, Gerry, M.D.
Narayana, Ponnada, Ph.D.
Zhiqiang, An, Ph.D.

Associate Professors

Ambrose, Catherine, Ph.D.
Klegerman, Melvin, Ph.D.
Rosenblatt, Kevin, M.D., Ph.D.

Assistant Professors

Kim, Hyunggun, Ph.D.
Liu, Xuewu, Ph.D.
Volk, David (Director, Scholarly Concentration), Ph.D.

Department of Neurobiology and Anatomy

The Department of Neurobiology and Anatomy provides educational research and training programs in the anatomical sciences and fundamental neurosciences.

Course offerings to first-year medical and graduate students include developmental anatomy, gross anatomy, and medical neuroscience. The medical neuroscience course presents an integrated study of the human nervous system and encompasses the disciplines of neuroanatomy, neurophysiology, neuropharmacology, neurochemistry, developmental neurobiology, neuroendocrinology, and neuropsychology. The department's courses in gross anatomy and developmental anatomy are designed to provide students with the opportunity to acquire a fundamental knowledge of the anatomical structure of the human body and its relevance to medicine, emphasizing, among other things, the relationship of structure to function. Each of the three first-year courses is enhanced by demonstrations of the practical application of the material to clinical situations. The department participates in the elective program for medical students and in postgraduate seminars and presentations related to human morphology and the nervous system.

Laboratory electives in single or multidisciplinary areas are available to medical students and graduate students, as are special research projects and fellowships, either clinically related or directed toward basic science research. In addition, the department offers a seminar series as an integral part of its didactic program for both faculty and students. Department faculty have diverse research programs in the neurosciences, with a particular focus on issues related to neuronal plasticity and learning and memory.

Learn more about the Department of Neurobiology and Anatomy by visiting our website at <http://nba.uth.tmc.edu>.

June and Virgil Waggoner Chair and Professor

Byrne, John H., Ph.D.

Levit Family Professor in the Neurosciences

Waymire, Jack C., Ph.D.

William M. Wheless, III Professor in Biomedical Sciences

Waxham, M. Neal, Ph.D.

Professors

Baxter, Douglas, A., Ph.D. (Research Professor)
Cleary, Leonard J., Ph.D. (Research Professor)
Crow, Terry, Ph.D.
Dafny, Nachum, Ph.D.
Dash, Pramod, K. Ph.D.
Gibson, Kathleen, Ph.D. (Emeritus)
Heidelberger, Ruth, M.D., Ph.D.
Marshak, David W., Ph.D.
Serenio, Anne B., Ph.D.
Wright, Anthony, Ph.D.

Associate Professors

Bean, Andrew, Ph.D.
Beauchamp, Michael, Ph.D.
Chen, Wei R., Ph.D.
Dragoi, Valentin, Ph.D.
Felleman, Daniel J., Ph.D.
Rogers, Carla, Ph.D. (Research Associate Professor)
Shouval, Harel, Ph.D.
Zhang, Han, M.D. (Research Associate Professor)

Assistant Professors

Beierlein, Michael, Ph.D.
Janz, Roger, Ph.D.
Kubota, Yoshihisa, M.D., Ph.D. (Research Assistant Professor)
Liu, Yin, Ph.D.
Nagayama, Shin, Ph.D. (Research Assistant Professor)
Patel, Saumil, Ph.D. (Research Assistant Professor)
Smolen, Paul, Ph.D. (Research Assistant Professor)

Department of Neurology

The Department of Neurology provides medical education opportunities in clinical neurology at undergraduate, graduate, and postgraduate levels of training. The clinical facilities of Memorial Hermann - Texas Medical Center and Lyndon B. Johnson General Hospital are available for the care and study of a variety of acute and chronic neurological disorders. A four-week clerkship is required in the third year. Clinical experience is directed toward history-taking, physical and laboratory examinations in neurological disorders, and the management of neurological disorders such as stroke, epilepsy, multiple sclerosis, coma, muscle/nerve disorders, parkinsonism, and dementia. Several fourth-year electives also are available that provide advanced exposure to neurologic subspecialties in our out-patient offices, and a sub-internship on our stroke unit at Memorial Hermann. We also provide opportunities for mentored laboratory and clinical research throughout the student and resident educational continuum.

Fellowships are available in electrodiagnostics (EEG, EEG/video monitoring, EMG, and evoked potentials), stroke, epilepsy, movement disorders, and multiple sclerosis/neurovirology neuroimmunology.

Professors

Roy M. and Phyllis Gough Huffington Distinguished Chair and Chair
Grotta, James C., M.D.

Kraft W. Eidman Professor in the Medical Sciences

Ferrendelli, James A., M.D.

Bartels Family Professor in Neurology and Opal C. Rankin Professorship in Neurology

Wolinsky, Jerry S., M.D.

Emeritus Professor

Frank M. Yatsu, M.D.

Professors

Aronowski, Jarek, Ph.D.

Brod, Staley A., M.D.

Lindsey, J. William, M.D.

Martin, Raymond A., M.D.

Schiess, Mya C., M.D.

Sheikh, Kazim, M.D.

Soto, Claudio, Ph.D.

Van Horn, Gage, M.D.

Associate Professors

Infante, Ernesto, M.D.

Lopez, George A., M.D.

Savitz, Sean I., M.D.

Schulz, Paul E., M.D.

Slater, Jeremy D., M.D.

Zhao, Xiurong, M.D.

Assistant Professors

Athar, Parveen, M.D.

Barreto, Andrew, M.D.

Biliciler, Suur, M.D.

Furr-Stimming, Erin, M.D.

Gonzales, Nicole R., M.D.

Hope, Omotola, M.D.

Ifejika-Jones, Nneka, M.D.

Kalamangalam, Giridhar, M.D.

Madan, Anita, M.D.

Misra, Vivek, M.D.

Nelson, Flavia, M.D.

Tayebi, Mourad, D.V.M., Ph.D.

Thomas, Melissa S., M.D.

Urayama, Akihiko, Ph.D.

Varner, Holly, M.D.

Wu, Tzu-Ching, M.D.

Zhang, Gang, Ph.D.

Department of Neurosurgery

The Department of Neurosurgery is concerned with diagnosis and treatment of conditions affecting the brain, spinal cord, and peripheral nerves, especially those best treated by surgical or endovascular intervention.. As part of the fourth-year neurology/neurosurgery rotation, students participate with neurosurgeons in the operating room, at the bedside, and in outpatient activities. Emphasis is placed on information of general interest, such as neurological examination, management of acute head injury, care of patients with vascular or

neoplastic diseases of the nervous system, spinal disorders and evaluation and management of patients with intractable pain. Students are given an opportunity to become familiar with and know how to recognize neurosurgery problems.

An elective period of study can be arranged for interested students who have adequate background to pursue more specific areas within the field of neurosurgery.

Professor and Chair

Kim, Dong H., M.D.

Professors

Clifton, Guy L, M.D.

Day, Arthur L., M.D.

Powner, David J., M.D.

Xia, Ying, Ph.D.

Associate Professors

Aisiku, Imoigele, M.D.

Cao, Qi Lin, Ph.D.

Tandon, Nitin M.D.

Assistant Professors

Ashley, William W. M.D., Ph.D.

Chen, Peng, M.D.

Ellmore, Tim Ph.D.

Fenoy, Albert, M.D.

Hergenroeder, Georgene W.,RN, MHA, CCRC

Johnson, Michele M., M.D.

Kobori, Nobuhide, Ph.D.

Li, Min Ph.D.

Liu, Ying, Ph.D.

Moore, Meredith L., Ph.D. Oh, Bryan, M.D.

Santiago-Sim, Teresa, Ph.D.

Schmitt, Karl, M.D.

Shepard, Scott, M.D.

Tandon, Nitin, M.D.

Wu, Jia Qian PhD

Zhu, Jay-Jiguang MD

Instructors

Cocco, Edward, P.A.

Hickman, Lindsay, P.A.

John, Ambili, N.P.

Shagagi, Nazila, P.A.

Wagner, Ken, P.A.

Department of Obstetrics, Gynecology and Reproductive Sciences

This department's primary purpose is the education of medical students, resident house staff, fellows, and practicing physicians in the broad areas of primary health care of women and reproductive biology. Educational programs, designed to integrate basic biologic tenets with clinical practice, are provided by a faculty with training in general obstetrics and gynecology, and subspecialty training in maternal and fetal medicine, urogynecology, gynecologic oncology, and reproductive endocrinology and infertility. The

principles of maternal and fetal medicine, family planning and population control, medical and surgical gynecology, gynecologic oncology, reproductive endocrinology and infertility, sexuality, and primary care for women are taught in the ambulatory care setting, in the classroom, and in the facilities of Memorial Hermann– Texas Medical Center, Memorial Hermann Memorial City, Memorial Hermann Katy, Memorial Hermann Southeast, Memorial Hermann Southwest, Memorial Hermann Sugar Land, Lyndon B. Johnson (LBJ) General Hospital, M. D. Anderson Cancer Center, and St. Joseph’s Hospital.

The department is responsible for teaching reproductive biology, which is required for all second-year medical students. An six-week clinical clerkship for third-year students is conducted. The department also offers a wide variety of electives to fourth-year students in clinical and laboratory investigative aspects of the specialty.

The department is responsible for two separate but integrated residency programs in obstetrics and gynecology. One program is based at Memorial Hermann - Texas Medical Center and the other at LBJ Hospital. There are cross-rotations between these programs and experience is provided at Memorial Hermann– Texas Medical Center, Memorial Hermann Hospital Plaza Ambulatory Surgical Center, Memorial Hermann Southeast, Memorial Hermann Southwest, Memorial Hermann Northwest, Memorial Hermann Sugar Land, The Woman’s Hospital of Texas, MD Anderson Cancer Center, LBJ General Hospital, , and Houston Fertility Institute at Memorial Hermann Plaza.. A program of post-doctoral and fellowship training in maternal and fetal medicine is offered to qualified physicians. The department also offers, in conjunction with the UT Graduate School of Biomedical Sciences, opportunities for study leading to advanced degrees in the reproductive sciences.

Interim Chair and Associate Professor

Blackwell, Sean, M.D.

Robert K. Creasy, M.D. Professor, Vice Chair, and Director of the General Obstetrics Division

Katz, Allan R., M.D.

Dr. John T. Armstrong Professor in Obstetrics, Gynecology and Reproductive Sciences, Vice Chair, Professor and Chief of Service at LBJ Hospital

Sebastian Faro, M.D., Ph.D

Patti Jayne Ross Professorship in Obstetrics and Gynecology and Medical Student Clerkship Director

Ross, Patti Jayne, M.D.

Associate Professor and Director of the Obstetrics-Gynecology Residency Program at Memorial Hermann– Texas Medical Center

Promecene, Pamela, M.D.

Professors

Berens, Pamela, M.D.

Curtis, Michele, M.D.

Faro, Sebastian, M.D.

Lucas, Michael, M.D.

Miller, Harold, M.D.

Nader-Eftekhari, Shahla, M.D.

Ramirez, Mildred, M.D.

Clinical Professors

Toy, Eugene, M.D.

Associate Professors

Ali, Vaseem, M.D.
Berens, Pamela, M.D.
Blackwell, Sean C., M.D.
Dalrymple, John, M.D.
Huang, Jaou-Chen, M.D.
Promocene, Pamela, M.D.
Riggs, John, M.D.
Schneider, Karen, M.D.

Assistant Professors

Adler, Michael, M.D.
Antoniewicz (Harris), Leah, M.D.
Chohan, Lubna, M.D.
Duret-Uzodinma, Jenny, M.D.
Friel, Laura, M.D.
Hall, Nicole, M.D.
Hoskovec, Jennifer, M.S.
Kilpatrick, Charles, M.D.
Linares, Silvia T., M.D.
Orejuela, Francisco, M.D.
Siddiqui, Gazala, M.D.

Clinical Assistant Professors

Aga, Irene, M.D.
Cooper, Constance, M.D.
Robbins-Furman, Patricia, M.P.H.

Instructors

Carter, Rebecca, M.S.
Czerwinski (Sherrill), Jennifer, M.S.
Hunt, Lynda, W.H.N.P.
Korte, Mary, C.N.M.
O'Sullivan, Merita, C.N.M.
Sullivan, Cathy, M.S.
Warren, Melita, C.N.M.
Wilson, Kate, M.S.

Department of Ophthalmology and Visual Science

The department provides a full complement of inpatient and outpatient clinical services through its primary teaching facilities: the Cizik Eye Clinic, Memorial Hermann Hospital, Lyndon B. Johnson General Hospital, Settegast Community Health Center, Baytown Community Clinic, and the Acres Home Community Health Center. In addition, indigent patients from San Jose Clinic are seen at the Eye Clinic. The Cizik Eye Clinic is located on the 18th floor of the Memorial Hermann Medical Plaza. A complete spectrum of ophthalmology services is provided at the Cizik Eye Clinic, which has a low vision unit, a photography section, an electrodiagnostic unit, a pediatric unit, a minor surgery unit, and a contact lens unit.

The Medical School coordinates all residency training programs. Each year, ophthalmology enrolls three residents out of approximately 300 applicants for the three-year residency program. The department has been approved for an additional resident beginning in 2010. Approximately 75 percent of the department's graduating residents continue in fellowships of advanced subspecialty training under the department's faculty or in some other ophthalmology program. Monthly resident conferences and rounds include grand rounds, ethics rounds, journal club, photography conference, and case conferences in addition to reviews in

basic and clinical science specialty lecture series. The department offers a monthlong basic science course in ophthalmology, as well as various other continuing education courses throughout the year.

Vision research is a high priority of the department, with eight full-time researchers on the faculty. A stimulating research environment is fostered by the collaborative relationships between the Medical School and the School of Health Information Sciences, School of Dentistry, School of Public Health, School of Nursing, and the Graduate School of Biomedical Sciences. In addition, the health science center has a number of interdisciplinary centers, institutes, and programs.

The department's outstanding research faculty has collectively received many prestigious national grants and awards, including Research to Prevent Blindness (RPB) Career Development Awards, an RPB Dolly Green Scholars Award, grants from Fight for Sight, several major National Institutes of Health awards, and numerous grants from private research foundations. The department holds both a Core Grant for Vision Research and a Vision Training Grant from the National Eye Institute.

The department has strong ties with researchers in other departments of the Medical School and other institutions in the Texas Medical Center and with the College of Optometry at the University of Houston. A number of these individuals hold courtesy or joint appointments in the department. There are currently 10 to 12 collaborative research projects in addition to the clinical and basic science research being conducted by individual departmental faculty. The Cizik Eye Clinic is also a site for several clinical trial research projects.

Involvement in research is available and encouraged for the ophthalmologist in training; however, clinical ophthalmology is emphasized.

Clinical Professor and Chair

Richard S. Ruiz Distinguished University Chair

Feldman, Robert M., M.D.

John S. Dunn Distinguished

University Chair, and Clinical Professor

Ruiz, Richard S., M.D.

Elizabeth Morford Chair in

Ophthalmology and Professor

Massey, Stephen C., Ph.D.

Bernice Weingarten Chair in

Ophthalmology and Clinical Professor

Garcia, Charles A., M.D.

Alfred W. Lasher III Professor in

Ophthalmology and Clinical Professor

Mintz-Hittner, Helen A., M.D.

Joe M. Green, Jr., Chair in

Ophthalmology and Clinical Professor

Yee, Richard W., M.D.

Stephen A. Lasher Professor in

Ophthalmology and Clinical Associate Professor

Kellaway, Judianne, M.D.

John P. McGovern Distinguished Professor in

Ophthalmology and Associate Professor

Mills, Stephen L., Ph.D

**Walter and Ruth Sterling Professor
and Clinical Associate Professor**

Wang, Nan, M.D., Ph.D.

**Vale Asche Russell Professor in
Ophthalmology and Associate Professor**

O'Brien, John, Ph.D

**A.G. McNeese, Jr. Professor
and Clinical Associate Professor**

Bell, Nicholas P., M.D.

**Gibson and Martha Gayle Professor
and Associate Professor**

Chuang, Alice Z., Ph.D.

Professor

Marshak, David W., Ph.D.

Associate Professors

Carter-Dawson, Louvenia, Ph.D.

Felleman, Daniel J., Ph.D.

Heidelberger, Ruth, M.D., Ph.D.

Assistant Professors

Wang, Steven, W., Ph.D.

Zhao, Xinping C., Ph.D.

Clinical Assistant Professors

Butner, Robert W., M.D.

Clinical Instructors

Breckel, Michael C., O.D.

Esfandiari, Saina, O.D.

Farahani, Reza D., O.D.

Iyer, Bhavani, O.D. FFAO

Department of Orthopaedic Surgery

The department seeks to provide training for medical students and residents in the field of orthopaedics. The training program incorporates scheduled rotations at several area institutions affiliated with the program for the purpose of education. These institutions include Memorial Hermann – Texas Medical Center, and Lyndon B. Johnson General Hospital.

Orthopaedic training opportunities exist for fourth-year medical students as a four-week clinical rotation. Operative and non-operative experiences are available as the students rotate through the different attendings' offices and the surgical suites, and they also participate in patient care on the floors.

Orthopaedic residents participate in a five-year residency program. The first year is under the faculty's direct supervision and includes rotations in general surgery, ICU, plastics/burns, trauma, anesthesiology, radiology,

rheumatology, in addition to three months in orthopaedics. The remaining four years are spent in the different sub-specialties of orthopaedics—foot and ankle, general orthopaedics, hand/upper extremity, pediatrics, spine, sports medicine, total joints, and trauma. The didactic/educational program includes weekly conferences covering all of the above sub-specialties, as well as anatomy, basic science, wet labs, oncology, research, and grand rounds.

Chair and Professor

Lowe, Walter, M.D.

Professors

Burgess, Andrew M.D.

Clyburn, Terry M.D.

Ivey, Frank M.D.

Associate Professors

Ambrose, Catherine G., Ph.D.

Grecula, Michael, M.D.

Kearney, Joseph M.D.

Marco, Rex AW, M.D.

McGarvey, William C., M.D.

Assistant Professors

Adickes, Mark M.D.

Ahmed, Sonya M.D.

Crumbie, Jr. David M.D.

Flores, Steven M.D.

Fullick, Robert M.D.

Gary, Joshua M.D.

Jones, William Mosi M.D.

Kodali, Pradeep M.D.

Melton, Danielle M.D.

Munz, John M.D.

Prasarn, Mark M.D.

Sen, Milan, MD

Simonich, Stephen, M.D.

Tucker, Jeffery, M.D.

Department of Otorhinolaryngology - Head and Neck Surgery

The Department of Otorhinolaryngology - Head and Neck Surgery conducts training programs for medical students and residents. The hospitals affiliated with this program are Memorial Hermann – Texas Medical Center, M. D. Anderson Cancer Center and Lyndon B. Johnson General Hospital.

Department faculty participate in teaching medical student courses: in the first year, Developmental Anatomy, Neuroscience and Computers in Research and in the second year, Physical Diagnosis. . Third year medical students may complete a two week rotation in the department as a part of their Surgery Core Clerkship, and may opt for a more intensive three week rotation later in the year if they develop an early interest in Otolaryngology. Fourth-year medical students may select a four-week subinternship rotation on the service.

Residency training requires one year of mandatory rotations in general surgery, anesthesia, emergency medicine, intensive care and other selectives in surgical subspecialties. The first year is followed by four

years in Otorhinolaryngology-Head and Neck Surgery. This includes 8-12 months of training at M. D. Anderson Cancer Center. Two physicians are accepted each year into this residency program.

The department conducts a weekly continuing medical education lecture series by faculty and guest speakers, in addition to various educational activities including resident seminars, journal clubs and multidisciplinary conferences.

Professor and Chairman

Citardi, Martin J., M.D., F.A.C.S

Associate Professor and Residency Program Director

Fakhri, Samer, M.D., F.A.C.S., F.R.C.S.(C)

Associate Professor and Director of Pediatric Otolaryngology

Soham Roy, M.D., F.A.C.S., F.A.A.P

Assistant Professor and Assistant Residency Program Director

Alexander, Ronda E., M.D.

Assistant Professor

Byrd, Michael, M.D.

Ho, Tang, M.D.

Karni, Ron J., M.D.

Luong, Amber U., M.D., Ph.D.

Weinstock, Y. Etan, M.D.

Yuksel, Sancak, M.D.

Department of Pathology and Laboratory Medicine

Because pathology is the keystone that bridges the basic sciences and the clinical sciences, the activities of the department are balanced among research, teaching, and service. The goal of the courses is to build on the students' knowledge of basic science to prepare them for the clinical years.

The department is responsible for teaching histology, immunology, pathology, and laboratory medicine and some microbiology to the medical students during the first and second years and for providing electives during the fourth year. The second-year pathology course includes didactic lectures as well as laboratories featuring illustrative material and clinicopathological correlation. The course is designed to provide analytical approaches, as well as factual information that medical students need to make rational diagnostic and prognostic decisions. Formal electives of four weeks or more are available to fourth-year students in autopsy pathology, surgical pathology, cytopathology, neuropathology, laboratory medicine, or basic or clinical research arranged with individual faculty members. Research training for graduate students and postdoctoral fellows includes molecular biology, immunohistology, pathology, infectious diseases, heart disease, and cancer. The department also has a fully certified residency program in anatomic and clinical pathology.

Distinguished Chair in Molecular Pathology, Professor and Chair

Hunter, Robert L., Jr., M.D., Ph.D.

Rosenberg Chair in Pathology and Laboratory Medicine, Professor and Vice Chair

Brown, Robert E., M.D.

**Professor and Vice Chair for
Education**

Uthman, Margaret O., M.D.

Robert Greer Professor and Vice Chair for Research

Norris, Steven J., Ph.D.

Professorship in Forensic Pathology

Sanchez, Luis A., M.D.

Professors

Actor, Jeffrey K., Ph.D.

Bhattacharjee, Meenakshi B., M.B.B.S., M.D.

Buja, L. Maximilian, M.D.

Dasgupta, Amitava, Ph.D.

Glass, II, William F., M.D., Ph.D.

Milam, John D., M.D.

Nguyen, Andy, M.D.

Papasozomenos, Sozos Ch., M.D.

Paul, Sudhir, Ph.D.

Risin, Semyon A., M.D., Ph.D.

Rosenberg, Harvey S., M.D.

Stoops, James K., Ph.D.

Verani, Regina R., M.D.

Associate Professors

Bick, Diane H., Ph.D.

Bick, Roger J., FAHA

Jagannath, Chinnaswamy, Ph.D.

Kott, Marylee M., M.D.

Liu, Jing, M.D., Ph.D.

Nishiyama, Yasuhiro, Ph.D.

Tatevian, Nina, M.D., Ph.D.

Wanger, Audrey, Ph.D.

Zhang, Songlin, M.D., Ph.D.

Assistant Professors

Bai, Yu, M.D., Ph.D.

Buryanek, Jamie, M.D.

Chen, Lei, M.D.

Covinsky, Michael H., M.D., Ph.D.

Edmondson, Diane, Ph.D.

Ghorbani, Rhonda P., M.D.

Hwang, Shen-An, Ph.D.

Lin, Tao, M.D., Ph.D.

Liu, Jun, Ph.D.

Nedelcu, Elena, M.D.

O'Hare, Jacqueline T.N., D.O.

Planque, Stephanie, Ph.D.

Pottumarthy-Boddu, Sudha, M.D.

Samathanam, Christina A., M.D., Ph.D., M.B.A.

Smith, Keri C., Ph.D.

Wahed, Md Amer, M.B.B.S.

Weerasinghe, Priya , M.D., MSc, Ph.D.
Yakoushina, Tatiana, M.D.
Yan, Peisha, M.D.
Zhang, Rongzhen, M.D., Ph.D.
Zhao, Bihong, M.D., Ph.D.

Senior Lecturer

Rittman, Barry R.J., Ph.D.

Instructors

Schniederjan, Ryan, P. A.

Department of Pediatric Surgery

The Department of Pediatric Surgery provides the opportunity for third- and fourth-year students, as well as anesthesia, family practice, pediatric, and surgical house staff to serve on its clinical service. Third-year students spend time on the pediatric surgical service during their core clerkship in surgery. During this time, they are exposed to many of the surgical problems of childhood, congenital defects, traumatic injuries, and patients with childhood malignancies. Teaching sessions include a weekly residents conference and department grand rounds. The department's ambulatory clinics are an integral part of the teaching program. The students and residents interact daily with the pediatric surgery fellow, who is responsible for managing the service.

Fourth-year students may elect to spend one month in the department, where they function as acting interns. Particular attention is paid to the patients admitted to the pediatric intensive care units. In addition, both parenteral and enteral nutrition are emphasized, and fourth-year students are given the direct responsibility of administering these therapies under close supervision. Students also may rotate with the sections of pediatric urology or plastic surgery.

Residents from the general surgery program routinely are assigned to the pediatric surgical department. The department sub specialties divisions include Pediatric Neurosurgery, Pediatric Plastic Surgery, and Pediatric Cardiovascular Surgery. Elective time for residents in other training programs is provided. The responsibility of these residents is centered on pre- and post-operative diagnosis and care, nutritional therapy, and technical capabilities such as vascular access in the pediatric patient.

Pediatric General Surgery

**A.G. McNeese Chair in Pediatric
General Surgery, and Professor and Chairman**
Lally, Kevin P., M.D.

**Children's Fund Professor and
Professor of Pediatric Surgery**
Cox, Charles, M.D.

Assistant Professors

Austin, Mary M.D.
Hayes-Jordan, Andrea, M.D.
Moore-Olufemi, Stacy MD
Tsao, KuoJen, M.D.
Vogel, Adam, M.D.

Division of Pediatric Trauma Nurse Practitioners

The Division of Pediatric Trauma Nurse Practitioners provides opportunities for medical students to spend time working with the trauma team in all units from the emergency department, operating room and all inpatient units. During this time, medical students are exposed to the comprehensive physical assessment of trauma patients. In addition, exposure to the medical and surgical management of trauma patients provides ongoing learning opportunities. There are also opportunities for research and publication in collaboration with the pediatric trauma surgical director and pediatric neurosurgeons.

Instructors:

Goins, Trisha RN, CPNP-AC
Peters, Rebecca RN, CPNP-AC
Sansalone, Lisa MSN, RN, CPNP-AC

Division of Pediatric Orthopaedic Surgery

The University of Texas Health Science Center at Houston provides a comprehensive and strategic management system of care for all pediatric patients locally, nationally, and worldwide. The partnership between the University and Children's Memorial Hermann Hospital allows the division to provide pediatric orthopaedic care in a superior, world renowned Level I trauma center. Pediatric Orthopaedics is a subspecialty of orthopaedics which focuses on the study and treatment of congenital, developmental, acquired and traumatic bone and joint conditions in neonates, infants, children and adolescents. There are many variations of neurological and musculoskeletal conditions and deformities which the division evaluates and treats.

Services provided include inpatient and emergency department consults, hospital rounds, outpatient clinic, and surgery. Treatment techniques range from observation of growth and development, physical therapy, bracing and splinting as well as surgical intervention to treat various deformities, injuries, and neurological disorders.

The Division of Pediatric Orthopaedics at UTHealth work in concert with acute care/trauma nurse practitioners and resident physicians in the following specialties: pediatrics, orthopaedics, radiology, infectious disease, and anesthesia. Our collaborative efforts and skills ensure a systematic approach while providing an excellent and high quality level of care to a diverse multicultural pediatric population.

Assistant Professor

Younas, Shiraz, M.D.

Physician Assistant

Alexander, Marlon

Division of Pediatric Urology

The Division of Pediatric Urology offers an opportunity for medical students to be exposed to urological problems unique to children. Most pediatric urologists spend the majority of their time caring for children with urinary tract abnormalities. Students would be encounter a variety of clinical scenarios from complex congenital abnormalities to routine outpatient care. In addition, there would be opportunity to experience the counseling and potential interventions with prenatally diagnosed urological abnormalities. Pediatric urologist commonly treat children with hydroceles, hernias, testicular torsion, undescended testicles, malignancies of the bladder and testicle, vesicoureteral reflux, and urinary tract infections. In addition, students may encounter more complex urological problems such as posterior urethral valves, ureteropelvic junction obstruction, ambiguous genitalia, and bladder exstrophy.

Associate Professor

Ribbeck, Michaelene, NP, PhD

Division of Pediatric Neurosurgery

The University of Texas Neurosurgeons for Children provides a comprehensive system of care for children with a variety of disorders of the nervous system. Based at Memorial Hermann Children's Hospital, the division has provided pediatric neurosurgical care since 1975.

In conjunction with the Texas Comprehensive Epilepsy Program, the division's epilepsy program is one of the largest in the country. Craniofacial abnormalities in children have been an interest here for 20 years. The non-surgical management of these problems has created a flow of patients to Houston from around the country and various parts of the world. Our ability to transport extremely critical patients over long distance with one of the first air ambulance programs developed in the United States has resulted in saving many patients. The division is part of one of the largest pediatric neurosurgical trauma services in the country.

A consequence of having a large dedicated 24-hour critical neurosurgical service is the development of extensive experience not only in trauma, but other critical events such as pediatric vascular disease. Our long standing interest in the surgical management of brain tumors is accentuated by our Gamma Knife program.

Faculty work closely with our associates at the UT M.D. Anderson Cancer Center to provide a comprehensive management scheme for nervous system cancer in children. Congenital anomalies are addressed on a daily basis. Complex spine disorders are handled at a variety of institutions, including a long-standing relationship with the Shriner's Hospital for Crippled Children in Houston. Taking the lead to help develop the Memorial Hermann Pediatric Neuroscience Center in conjunction with a variety of specialists in the neurosciences, division surgeons look forward to helping children with nervous system disorders.

Pediatric Neurosurgery:
Associate Professor and Chief
Fletcher, Stephen, D.O.

Assistant Professor
Jones, John, M.D.

Physician Assistant
Conrad, Lee Ann PA

Division of Pediatric Plastic and Reconstructive Surgery

The Division of Pediatric Plastic and Reconstructive Surgery provides opportunities for fourth year medical students and externs after their first year of medical school to spend time working with the craniofacial team. During this time they are exposed to the surgical management of cleft lip and cleft palate, craniosynostosis and other cranial conditions as well as the treatment of nevi and hemangiomas. There are also opportunities for research and publication.

The Division of Pediatric Plastic and Reconstructive Surgery is home to the Texas Cleft and Craniofacial Team, providing comprehensive multispecialty team care of patients with craniofacial anomalies.

Division surgeons have pioneered innovative treatments such as the microscopic approach to the release of cranial sutures, internal distraction osteogenesis, and use of computer simulation for surgical planning.

Pediatric Plastic and Reconstructive Surgery:
Professor and Chief,
Teichgraeber, John F., MD

Assistant Professor

Lypka, Michael M.D.

Division of Pediatric Cardiovascular Surgery

Children with congenital and acquired heart disease have more treatment options than ever before. Today, more than 95 percent of congenital heart disorders can be repaired through surgery, often in the first two years of life. Advances in imaging and surgical techniques have made extraordinary life-saving feats possible in fetal cardiac intervention and in the treatment of pediatric heart patients. A child's heart surgery may be the most stressful event a family will experience. The pediatric heart surgery team is dedicated to giving children the very best chance for a successful outcome in a caring, supportive environment. The team works closely with many other specialists, including pediatric cardiology, neonatology, pediatric cardiac anesthesiology, pediatric critical care and pediatric perfusion to achieve clinical excellence in pediatric and congenital heart surgery. Pediatric cardiovascular surgeons perform the full-spectrum of pediatric cardiac surgery, including newborn cardiac surgery, single ventricle palliation, the norwood procedure, the arterial switch procedure, aortic arch reconstructions, repair of tetralogy of fallot, and pediatric cardiovascular surgery. The Division of Pediatric cardiovascular surgery provides opportunities for fourth-year medical students and externs to spend time working with the CV surgical team.

Pediatric Cardiovascular Surgery:
Associate Professor and Chief
Douglas, William I., M.D.

Professor
Hines, Michael., M.D.

Instructor
Haase, Doug M.M.S., R.R.T, P.A.-C

Department of Pediatrics

Faculty in the Department of Pediatrics emphasize teaching designed to maximize the health of each pediatric patient, with special focus on optimization of growth and development. Students are expected to develop their own approach to assist patients in achieving these goals. Children, from premature infants through adolescents, are followed in the inpatient and outpatient settings. Each patient encounter is viewed as an opportunity for the student to improve his or her abilities to work with pediatric patients and their families.

The department is responsible for a formal course in human genetics. In addition, the faculty includes subspecialists in adolescent medicine, cardiology, critical care medicine, developmental pediatrics, neonatal-perinatal medicine, genetics and metabolism, endocrinology, infectious diseases, hematology and oncology, nephrology, immunology, pulmonology, gastroenterology, and sports medicine. While there are numerous elective opportunities available in two- or four-week units in the various subspecialty clinical and laboratory aspects of pediatrics and its subspecialties, the importance of primary care is not lost. A major focus of the department is exposure to primary care in every student experience, whether it be in a general pediatric setting or in one of the specialty clinics.

The pediatric residency program is integrated into a curriculum involving Memorial Hermann Children's Hospital, M. D. Anderson Cancer Center, and Lyndon B. Johnson General (LBJ) Hospital. These residency programs, too, have a special emphasis on primary care and are designed to train general pediatricians.

Accredited post-residency subspecialty fellowships training programs are available in the Department of Pediatrics and include child neurology, endocrinology, genetics/dysmorphology, hematology/oncology,

neonatology, and nephrology, infectious diseases, ambulatory pediatrics, pulmonology, adolescent medicine, and critical care medicine.

Professor and Interim Chair

King, Brent, M.D.

Michelle Bain Distinguished

Professor in Medicine and Public Health and Professor

Tyson, Jon E., M.D., MPH.

Professor of Pediatrics, Vice Chair of Pediatrics, Chief of Pediatrics

Garcia, Jose, M.D., SM

Pediatric Hematology Assistant Professor and Division Director

Brown, Deborah M., MD

Michael Mathew Knight Professor of Pediatrics, Director, Children's Learning Institute

Landry, Susan, Ph.D.

Professor and Infectious Diseases Interim Division Director

Heresi, Gloria, MD

Professor and Gastroenterology-

Division Director

Rhoads, Marc J., M.D.

Associate Professor and Interim Nephrology Division Director

Swinford, Rita, M.D.

Professor and Cardiology Division Director

Bricker, Timothy, M.D.

Professor and Adolescent Medicine

Division Director

Risser, William L., Ph.D.

Assistant Professor and Endocrinology

Division Director

Yafi, Michael, M.D.

Associate Professor and Housestaff Director, Vice Chair for Education and Training

Crandell, Sharon S., M.D.

Professor and Medical Genetics

Division Director

Northrup, Hope, M.D.

**Professor and Community and
General Pediatrics Division Director**

Yetman, Robert J., M.D.

Professor and A. Blood Chair, Division Director of Neurology

Butler, Ian J., M.D.

Professor and Pulmonary, Allergy & Immunology Division Director

Stark, James M., M.D.

Professors

Barnes, Marcia, M.D.

Barratt, Michelle S., M.D.

Breier, Joshua I., M.D.

Butler, Ian J., M.D.

Colasurdo, Giuseppe N., M.D.

Garcia, Jose, M.D., SM

Ewing-Cobbs, Linda, Ph.D.

Gleason, Jr. Wallace, M.D.

Hecht, Jacqueline T., Ph.D.

Heresi, Gloria, M.D.

Kennedy, Kathleen, M.D.

Landry, Susan Ph.D.

Lasky, Robert, Ph.D.

Mazur, Lynnette J., M.D.

McNeese, Margaret C., M.D.

Northrup, Hope, M.D.

Papanicolaou, Andrew C., M.D.

Rao, Syamasundar, M.D.

Rhoads, Marc C., M.D.

Risser, William L., M.D.

Smith, Kimberly C., M.D.

Stark, James M., M.D.

Swank, Paul, Ph.D.

Tyson, Jon E., M.D.

Williamson, Daniel W., MD

Yetman, Robert J., M.D.

Associate Professors

Alcorn, Joseph L., Ph.D.

Anthony, Jason, Ph.D. (CLI)

Assel, Michael, Ph.D.

Brown, Deborah, M.D.

Castillo, Eduardo, Ph.D.

Crandell, Sharon M.D.

Denton, Carolyn Ph.D. (CLI)

Eissa, Mona, M.D.

Gambello, Michael, M.D.

Girardet, Rebecca, M.D.

Greeley, Christopher S., M.D.

Gupta, Monesha, M.D.

Haque, Ikram IA M.D.

Hecht, Steven A., Ph.D.

Hormann, Mark D., M.D.

Khan, Amir, M.D.

Lahoti. Sheela L., M.D.

Lopez, Suzanne M., M.D.

Mancias, Pedro, M.D.

Numan, Mohammed T., M.D.

Pacheco, Susan E., M.D.

Samuels, Joshua, M.D.
Swinford, Rita, M.D.
Thapar, Mohinder, M.D.

Assistant Professors

Anegi, Chiamaka N., M.D.
Angelo, Joseph R., M.D.
Araiza, Virginia, M.D.
Archibong, Emma V., M.D.
Au, Kit-Sing, Ph.D.
Balaguru, Duraisamy, M.D.
Beaudoin, Ebony M.D.
Benjamins, Laura J., M.D., Ph.D.
Biliciler-Denktaş, Gurur, M.D.
Braun, Michael, M.D.
Brown, Matthew, M.D.
Bruce, Shirley R., Ph.D.
Chan, See Wai, M.D.
Chapman, John, M.D.
Cheung, Kim K., M.D.
Cho, Seo-Hee, Ph.D.
De Ybarrondo, Lisa, M.D.
DebRoy, Ashish M.D.
Ekong, Mfon, M.D.
Erikson, Christian L, M.D.
Evans, Patricia W., M.D.
Foster, Timothy C., M.D.
Gelfer, Polina, M.D.
Geltmeyer, Abby M., M.D.
Gourishankar, Anand, M.D.
Green, Charles, Ph.D.
Guardiola, Amalia, M.D.
Guttentag, Cathy, Ph.D.
Halbardier, Brenda, N.N.P.
Hashmi, Syed, M.D., Ph.D.
Horenstein, Maria M.D.
Huseby, Valerie, N.N.P.
Imseis, Essam M., M.D.
Ivan, Daniel L., M.D.
Jimenez, Margarita, M.D., Ph.D.
Johnston, Richard A., Ph.D.
Jon, Cindy, M.D.
Jones, Patrick M., M.D.
Juranek, Jenifer, Ph.D.
Kamdar, Ankur M.D.
Katakam, Lakshmi, M.D.
Khan, Mona S., M.D.
Khatua, Sutapa, M.D.
Kim, Seonhee, Ph.D.
King, Terri M., Ph.D.
Koenig, Mary K., M.D.
Liaw, Shih-Ning, M.D.
Liu, Yuying, Ph.D.
Lorch, Steven M., M.D.
Love, LaTanya J., M.D.

Moore, Heather, M.D.
Moulik, Mousumi, M.D.
Navarro, Fernando, M.D.
Parks, Kenya M., M.D.
Pedroza, Claudia, Ph.D.
Perez, Norma, D.O.
Posey, Karen, Ph.D.
Rivera-Davila Michelle, M.D.
Record, Sharon, P.N.P.
Rodriguez, Nidra I., M.D.
Rubio, Jr. Nunilo, M.D.
Salinas, Ezequiel D. III, M.D.
Samuels, Joshua, M.D.
Sanders, Jason, M.D.
Sexton, Crystal, W., Ph.D.
Singletary, Claire N., M.S., CGC
Smith, Keely G., M.D.
Strobel, Nathaniel H.P., M.D.
Swindell, Eric C., Ph.D.
Taylor, Heather, Ph.D.
Thapar, Vandana C., M.D.
Tran, Dat Q., M.D., Ph.D.
Tsakiri, Sophia, M.D.
Turiy, Yuliya, M.D.
Von Allmen, Gretchen K., M.D.
Wenderfer, Scott D., M.D., Ph.D.
Williams, Jeffrey M., Ph.D. (CLI)
Wootton, Susan H., M.D.
Yafi, Michael, M.D.
Zucker, Tricia, Ph.D. (CLI)

Clinical Assistant Professors

Frazier, Johnnie P., M.D., M.Ed, FAAP
Holzmann-Pazgal, Galit M.D.
Noblin, Sarah J., M.A.
Shelburne, Julia T., M.D.
Volek-Smith, Holly, M.D.

Clinical Professors

Instructors

Raia, Marianna, M. S.

Visiting Professor

Bricker, J. Timothy, M.D.
Filipek, Pauline, M.D.

Visiting Adjunct Professor

Murphy, James R., Ph.D.

Visiting Associate Professor

Cody Arnold, M.D.
Eichenwald, Eric M., M.D.

Adjunct Assistant Professor

Avritscher, Elenir, M.D.
Prasad, Mary, Ph.D.

Adjunct Instructor

Bass, Pam, MA

Clinical Instructor

Saavedra, Heather, M.S.

Staff Physicians

Cohan, Stuart, M.D.
Conlon, Rosemary M.D.
Hakemack, Brenda S., M.D.
Siddiki, Saba K., M.D.
Wong, Christina, M.D.

Staff Nurse Practitioner

Gunner, Kathy B., NP

**Department of Physical
Medicine and Rehabilitation**

The Department of Physical Medicine & Rehabilitation (PM&R) is concerned with the evaluation and management of patients with a broad range of disabling conditions. Physiatrists are experts in the diagnosis and management of problems patients may have with their nerves, bones, joints, muscles, and other tissues. The types of conditions commonly treated by physiatrists include spinal-cord injury, brain injury, amputation, multiple trauma, stroke, burns, acute musculoskeletal-pain problems, chronic degenerative diseases like arthritis, and neurologic diseases like multiple sclerosis.

The Medical School's PM&R department has joined forces with the PM&R department at Baylor College of Medicine for education and research purposes. All of the hospitals in the Texas Medical Center, as well as several outside, are affiliated with this new alliance. The physiatrists at Memorial Hermann treat mostly patients with musculoskeletal problems and stroke. Those at TIRR treat patients with more catastrophic disabilities like spinal cord or brain injury.

Students and residents have the opportunity to rotate through any of the clinical sites in close supervision with the faculty and those participating in PM&R fellowships. The highly motivated student has the opportunity to work as an extern and provide first-call services for patients with appropriate faculty supervision. Independent study projects, as well as research projects, can be arranged for credit. PM&R faculty are also conducting joint research on spinal cord injured and brain-injured patients with other specialties, including neurosurgery, and basic science disciplines, including microbiology.

Chair and Clinical Associate Professor

Francisco, Gerard, M.D.

Clinical Professor

Donovan, William H., M.D.

Associate Professor

Boake, Corwin, Ph.D.

Clinical Assistant Professors.

Berliner, Jeffrey, M.D.
Crump, Monica, M.D.
Davis, Matt, M.D.
Fontera, Joel, M.D.
Khalifa, Ahmed, M.D.
Joseph, Prathap, M.D.
Mapa, Meilani, M.D.
Melton, Danielle H, M.D.
Thomas, Judy, M.D.
Verduzco-Gutierrez, Monica, M.D.
Wilde, Mark, Psy.D.

Department of Psychiatry and Behavioral Sciences

The goal of the Department of Psychiatry and Behavioral Sciences is to provide medical students, whatever their ultimate medical specialty choice, with opportunities to acquire (1) an appreciation for the patient as a whole person with an emotional as well as a physical life; (2) the ability to diagnose and treat the most frequent mental disorders; and (3) a positive attitude toward the importance of psychological well-being. In the second year, medical students are introduced to the biopsychosocial aspects of behavior. Using the life cycle as a framework, human growth and development, determinants of behavior, human sexuality, death and dying, and medical ethics are discussed. Information is presented on interviewing, communication and interpersonal skills; psychopathology, the psychosocial aspects of mental illness; and community and preventive medicine. During the third-year clerkship, students spend six weeks in the Department of Psychiatry outpatient clinics at the Behavioral and Biomedical Sciences Building, the UT Harris County Psychiatric Center, M. D. Anderson Cancer Center, Memorial Herman - Texas Medical Center, and Lyndon B. Johnson General Hospital where they see and follow patients with psychiatric disorders. Several clinical and research electives are available to fourth-year students.

Professor and Chair

Soares, Jair, M.D.

Pat R. Rutherford, Jr. Chair in Psychiatry and Professor

Swann, Alan C., M.D.

Professors

Bukstein, Oscar, M.D.
Butler, Patricia, M.D.
Harper, R. Andrew, M.D.
Lane, Scott, Ph.D.
Loveland, Katherine, Ph.D.
Meisch, Richard A., M.D., Ph.D.
Moeller, F. Gerard, M.D.
Pearson, Deborah, Ph.D.
Pigott, Teresa, M.D.
Pinell, Octavio, M.D.
Schmitz, Joy, Ph.D.

Associate Professors

Cowan, Katherine, M.D.
Gajwani, Prashant, M.D.
John, Vineeth, M.D.
Krajewski, Kenneth J., M.D.

Patterson, Guy, M.D.
Saunders, Ann, M.D.
Saxena, Kirti, M.D.
Shad, Mujeeb, M.D.
Shah, Nurun, M.D., M.P.H.
Steinberg, Joel, M.D.
Tsopelas, Nicholas
Wassef, Adel, M.D.

Assistant Professors

Ashraf, Deeba, M.D.
Barr, Jeffrey, M.D.
Godsy, Tyson, M.D.
Hashmi, Aqeel, M.D.
Johnson, Samoan, Ph.D.
Kazimi, Iram, M.D.
Malkina, Svetlana, M.D.
Person, Cheryl, M.D.
Randle, Sonja, M.D.
Schatte, Dawnelle, M.D.
Schneider, Laurie, M.D.
Siddiqui, Samina, M.D.
Ware, Steven, M.D.

Clinical Professors

Santos, Cynthia, M.D.

Clinical Assistant Professors

Daniel, Vivi, M.D.
Fernandez, Jose, M.D.
Kahan, Kara, M.D.
Smeal, Janis, D.O.

Department of Surgery

The goal of the Department of Surgery is to achieve excellence in patient care, clinical training, and basic and applied research.

The junior surgery clerkship is the core clerkship in surgery that is required of all students. The curriculum emphasizes basic clinical and surgical skills as applied to a common core of presenting problems. Students are introduced to preoperative, postoperative, traumatic, and ambulatory care of patients. By the completion of this educational program, students should demonstrate an understanding of the pathophysiology of surgically treatable diseases and should have acquired sufficient knowledge and diagnostic skills to be able to recognize when a patient's condition might best be served by a surgical consultation. Students will also develop the fundamental skills for safe and efficient management of patients in the hospital and ambulatory setting, clinical skills, and operative skills during the eight-week clerkship.

At least one month of the clerkship will be spent working with full-time faculty on a surgical service at Memorial Hermann – Texas Medical Center or at the Lyndon B. Johnson (LBJ) General Hospital. The remaining month of the clerkship will be spent working on a general or surgical specialty service at Memorial Hermann or participating hospitals/services.

Clinical patient care is a significant part of students' surgical experience. The students are expected to make rounds in the morning and evening with their residents and/or faculty member, be available for on-call assignments, attend resident conferences, and assist in the work-up of patients who are admitted to their service. They are expected to write daily progress notes on the patients to whom they are assigned. Additional time may be spent in resident and/or faculty clinics. By and large, this will be an in-hospital experience.

The senior surgery clerkship is a four-week elective experience. Fourth-year students select this experience from a list of approved electives.

Postgraduate training begins with the categorical first-year program in surgery, specifically designed to provide graduates the opportunity to combine medical school knowledge with practical skills and to lay a firm foundation for the pursuit of any surgery or medicine specialty. Beyond that, full residencies in general surgery and surgery specialties are offered.

Denton A. Cooley, M.D. Chair in Surgery,
Jack H. Mayfield, M.D. Distinguished University Chair in Surgery
Professor and Chair,
Chief of General Surgery
Andrassy, Richard J., M.D.

Division of Acute Care Surgery

The Division of Acute Care surgery includes the section of Trauma, Emergency General Surgery, Critical Care Surgery and Burn Surgery. This Division is concerned with the broad aspects of injury, critical care, burns and the care of patients with emergent general surgery conditions. This has been a very busy service over the years since our primary teaching hospital is one of the busiest in the United States and we are the only Burn Center in Houston. Many students and residents have participated in research, both basic and clinical, as part of our Trauma Center Grant and T-32 training programs. Students are encouraged to participate in ongoing trials or laboratory research. An evidence based approach to patient care is highlighted.

The junior surgical clerkship is conducted at Memorial Hermann – Texas Medical Center, LBJ General Hospital, and M. D. Anderson Cancer Center. Senior clerkships may be done at these institutions with selected clinical faculty. Summer research opportunities are available for all levels of medical school training.

The residency training program is a minimum of 5 years of progressively increased surgical experience. Many of the residents will pursue 2 or more years of research experience during their training. Following residency, fellowships in trauma, critical care, burns or acute care surgery are offered.

Professor and Chief of Acute Care Surgery
Holcomb, John B., M.D.

Professor and Chief of Trauma Surgery
Kozar, Rosemary, M.D., Ph.D.

Professor and Chief of Burn Surgery
Cross, James M., M.D., Ph.D.

Associate Professor and Chief of Critical Care Surgery
Cotton, Bryan A., Jr., M.D.

Professors
Duke, James H., M.D.

Kulkarni, Anil, Ph.D.
Moody, Frank G., M.D.
Potts, John R., III, M.D.
Wade, Charles E., Ph.D.
Wainwright, David J., M.D.

Associate Professors

Adams, Phillip R., M.D.
Cotton, Bryan A., M.D., M.P.H
Kao, Lillian, M.D.
Gill, Brijesh, M.D.
Robinson, Emily, M.D.

Assistant Professors

Albarado, Rondel P., M.D.
Freet, Daniel J., M.D.
Khan, Saleem A., M.D.
Matijevic, Nena, Ph.D.
McNutt, Michelle K., M.D.
Moore, Laura J., M.D.
Nahouraii, Richard A., M.D.
Pati, Shibani, M.D., Ph.D.
Tyson, George H., M.D.

Division of Minimally Invasive Surgery, Bariatrics and Elective General Surgery

This Division includes MIST (Minimally Invasive Surgeons of Texas), bariatric surgery, surgical oncology, endocrine surgery, breast surgery, abdominal wall defects (hernias) and colorectal surgery. Students participate in a very busy and diverse general surgery experience. Clinical research trials are ongoing and many students and residents participate in these studies. Residents are given progressive responsibility including introduction to advanced laparoscopic techniques and robotic surgery.

Associate Professor and Chief of Minimally Invasive Surgery

Wilson, Erik B., M.D.

Professors

Andrassy, Richard J., M.D.

Associate Professor

Robinson, Emily K., M.D.

Assistant Professor

Bajwa, Kulvinder S., M.D.
Lesslie, Donald P., D.O.
Mehta, Sheilendra S., M.D.
Snyder, Brad E., M.D.
Wilson, Todd D., M.D.

Division of Surgery, LBJ General Hospital

The Division provides a broad variety of surgical care at our county hospital. Many of the faculty also work at Memorial Hermann – Texas Medical Center. This is an ideal site for student education and increased responsibilities. The patients are numerous and with high levels of surgical illness. Large volumes of colorectal,

minimally invasive and general surgical procedures are performed. Faculty teaching at this site is stressed and residents provide significant teaching opportunities for the students.

Professor and Chief of LBJ Surgery

Ko, Tien C., M.D.

Professors

Andrassy, Richard J., M.D.

Potts, John R., M.D.

Souchon, Eduardo A., M.D.

Associate Professors

Kao, Lillian S., M.D.

Robinson, Emily K., M.D.

Assistant Professor

Millas, Stefanos G., M.D.

Wray, Curtis J., M.D.

Division of Immunology and Organ Transplantation

The division seeks to apply basic immunologic findings to clinical practice in the field of organ transplantation. Members of the division offer basic courses and clinical experience in transplantation by participating in the first-year introductory immunology course and the third-year clinical clerkship. The fourth-year clinical and research electives also provide experience in the organ transplantation center. Emphasis during these electives is placed on actual and potential applications of basic immunology to clinical practice. Students have the opportunity to acquire the techniques for measuring the components of the immune system in man, study immunodeficiency syndromes in man, and learn the principles of diagnosis and treatment of end-stage disorders of the kidney, liver, and heart.

The division collaborates with 20 satellite dialysis centers by offering renal transplantation services. By virtue of the evaluation of end-stage renal disease patients and continuing clinical follow-up post-transplantation, the student has the opportunity to understand renal failure at various stages and to assess treatment options.

Specialized training in immunology in the division leading to the Ph.D. degree is available through the program in immunology in the Graduate School of Biomedical Sciences.

Professor and Division Director

Bynon, Steve J., M.D

Associate Professor

Saggi, Bob H., M.D.

Assistant Professor

Varga, Karoly, M.D.

Division of Oral and Maxillofacial Surgery

The division is concerned with the diagnosis and treatment of congenital, acquired, traumatic, and pathological conditions of the oral and maxillofacial regions.

The division, in conjunction with the Department of Oral and Maxillofacial Surgery at the UT Dental Branch, provides students with the opportunity to acquire the basic principles of diagnosis and treatment pertinent to the discipline. A postgraduate four-year program includes a basic science program and a six-year double-degree program with advanced placement in medical school. Rotations are at Memorial Hermann – Texas Medical Center, The Methodist Hospital, Lyndon B. Johnson General Hospital, Ben Taub General Hospital, and the Michael DeBakey Veterans Affairs Medical Center.

Associate Professors

Gilbert, Harry, D.D.S.

Wilson, James, D.D.S.

Wong, Mark E., B.D.S.

Division of Plastic and Reconstructive Surgery

Basic principles of wound healing, critical analysis of clinical problems, and meticulous, innovative techniques are the hallmarks of plastic surgery. The Division of Plastic and Reconstructive Surgery provides fourth-year medical students with the opportunity to acquire these important principles during the surgery clinical clerkship.

Students are offered the opportunity to expand their knowledge and sharpen clinical skills by spending one month in an elective assignment to the plastic surgery service. Students participate at a level commensurate with their ability and interest. They are exposed to a variety of reconstructive problems and, given the opportunity, become proficient at basic wound care. Students participate in the teaching conferences and attend plastic surgery grand rounds.

Dr. Thomas D. Cronin Chair, Professor, and Division Director

Parks, Donald H., M.D.

Professor

Wainwright, David J., M.D.

Associate Professor

Cross, James M., M.D.

Assistant Professors

Freet, Daniel, M.D.

Marques, Erik, M.D.

Division of Urology

The primary goal of this division's educational program is to allow students to recognize and treat diseases of the urinary tract and male genital tract and recognize when the assistance of a urologist is required. A series of urology lectures is given to third-year medical students during the general surgery rotation.

The pathophysiology, diagnosis, and treatment of hematuria, prostatism, urinary tract neoplasms, trauma and infections, urinary calculi, and pediatric logic problems are discussed.

Two electives are offered in urology. One month can be spent at Memorial Hermann – Texas Medical Center and Lyndon B. Johnson (LBJ) General hospitals. Surgical procedures, evaluation, and diagnosis of diseases of the urinary and male genital tract and the care of the ambulatory patient are stressed. Students attend a weekly radiology conferences and a residents conference. For students interested in oncology, an elective can be arranged at M. D. Anderson Cancer Center.

Professor and Interim Chief

Andrassy, Richard J., M.D., F.A.C.S., F.A.A.P.

Professor

Wang, Run, M.D.

Associate Professor

Canfield, Steven, M.D.

Assistant Professors

Frankel, Gerald, M.D.

Smith, Gerald G., M.D.