THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON

MCGOVERN MEDICAL SCHOOL

2018-20 CATALOG ADDENDUM

Index Page

ADDENDUM to
McGovern Medical School
2018-2020 CATALOG

CURRENT: Pages 19-20

Please note curriculum changes beginning the Second Academic Year as approved by the Curriculum Committee.

Second Academic Year

Required Courses:

Fall Semester/20 instructional weeks

Gastrointestinal System
Nervous System and Behavior
Endocrine System
Doctoring 3: Longitudinal Clinical Experience

Spring Semester/9 instructional weeks

Reproductive System
Musculoskeletal and Integumentary Systems
Doctoring 3: Longitudinal Clinical Experience (continued) Students are required to complete Basic Life Skills during the Doctoring 3 course.

Third Academic Year

Required Clerkships:
49 instructional weeks

Transition to Clerkships

This course prepares students for the clerkships. It is composed of required sessions including large group and skills sessions.

Clerkships

The required clerkships include family medicine, geriatrics, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery, as well as one elective. The goal of the clerkships is to provide broad exposure to the major disciplines of medicine.

Students will have four weeks of vacation during this time period.

Fourth Academic Year
Required courses:
42 instructional weeks

Career Focus Tracks

The final phase consists of the Career Focus tracks. The goal of the Career Focus tracks is to provide career mentoring and guidance. There are four tracks: primary care, acute care, medical sciences, and applied anatomy. During the tracks, the students complete three required advanced clinical selectives: ambulatory care, advanced patient care, and critical care. Additionally, the career focus tracks incorporate seven (7) four-week electives tailored to the students' intended career path.

McGovern 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 https://med.uth.edu/admissions/current-students/ms4/

The Transition to Residency course occurs in the spring of the fourth year and prepares students for residency. This course is composed of required sessions, workshops and skill sessions that are selected by the students.

Three, four-week periods are available for vacation or additional electives. These vacation periods may be used during the required clerkships in special circumstances and with prior approval of the Office of Admissions and Student Affairs.

CHANGE TO:

Second Academic Year

Required Courses:

Fall Semester/20 instructional weeks

Gastrointestinal System
Nervous System and Behavior
Endocrine System
Doctoring 3: Longitudinal Clinical Experience
Students are required to complete Basic Life Skills during the Doctoring 3 course.

Spring Semester/10 instructional weeks

Reproductive System
Musculoskeletal and Integumentary Systems

Doctoring 3: Longitudinal Clinical Experience (continued)
Transition to Clerkships

This course prepares students for the clerkships. It is composed of required sessions including large group and skills sessions.

Third Academic Year

Required Clerkships:
48 instructional weeks

Clerkships

The required clerkships include family medicine, geriatrics, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery, as well as one elective. The goal of the clerkships is to provide broad exposure to the major disciplines of medicine. Geriatrics and the elective are pass/fail.

Students will have four weeks of vacation during this time period.

Fourth Academic Year
Required courses:
42 instructional weeks

Students will take the Comprehensive Clinical Competency Examination (CCCE) at the beginning of the fourth academic year.

Career Focus Tracks

The final phase consists of the Career Focus tracks. The goal of the Career Focus tracks is to provide career mentoring and guidance. There are four tracks: primary care, acute care, medical sciences, and applied anatomy. During the tracks, the students complete three required advanced clinical selectives: ambulatory care, advanced patient care, and critical care. Additionally, the career focus tracks incorporate seven (7) four-week electives tailored to the students' intended career path.

McGovern 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 https://med.uth.edu/admissions/current-students/ms4/

The Transition to Residency course occurs in the spring of the fourth year and prepares students for residency. This course is composed of required sessions, workshops and skill sessions that are selected by the students.

Ten weeks are available for vacation or additional electives. These weeks may be used during the required clerkships in special circumstances and with prior approval of the Office of Admissions and Student Affairs.

CURRENT: Pages 20-23

Please note changes to the MD Curriculum Goals and Objectives as approved by Curriculum Committee.

MD Curriculum Goals and Objectives

Educational Goals and Objectives for McGovern Medical School

(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 Competencies and Objectives

Patient Care and Clinical Skills

Graduates must be able to provide patient-centered care that is compassionate, appropriate and effective for the treatment of disease and the promotion of health.

Specific Objectives:

The graduating student will be able to:

- Form an effective therapeutic relationship with patients and, when appropriate, with their families
- 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, basic CPR, bag-mask ventilation, venipuncture, inserting an intravenous catheter, inserting a nasogastric tube, inserting a bladder catheter, sterile technique, and suturing lacerations.
• Identify, initiate and explain treatment plans that are safe, effective, and efficient
• 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.
• Discuss with patients their prognosis and possible adverse effects of diagnostic tests and treatment
• Apply the scientific method (including evidence-based medicine principles) to patient care whenever applicable and feasible.
• Care for patients mindful of salient legal, ethical, spiritual, cultural, and psychosocial constructs.
• Apply the principles of pain management to reduce patient suffering.
• Demonstrate effective transitions of patient care.
• Function collaboratively on health care teams that include health professionals from other disciplines to provide coordinated services to patients.

Medical Knowledge

Graduates must be able to demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

Specific Objectives:

The graduating student will be able to:

• Identify the most appropriate sources for obtaining medical knowledge and how to retrieve them.
• 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, and behavioral determinants of 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.
• Explain 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 forpatients.
• 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.

Interpretation of Medical Data/Practice-Based Learning and Improvement

Graduates must be able to demonstrate the ability to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care based on constant self-evaluation and life-long learning.

Specific Objectives:

The graduating student will be able to:

- Use technology to access medical information resourcesto 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.
- 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 forself-directed and life-long learning and improvement.

Interpersonal and Communication Skills

Graduates must be able to demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, families, and other health professionals.

Specific Objectives:

The graduating student will be able to:

- Make case presentations that are accurate and well organized; accurately record information in the patient's chart to 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 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.
- Communicate bad news to patients, obtain consent for treatments, and help patients anticipate and make end-of-life decisions.
- Participate in the education of patients and their families, peers, and other healthcare professionals.
- Work with other healthcare professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity and trust.

Professionalism
Graduates must be able to demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

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 healthcare.
- 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, race, age, disabilities, sexual orientation, gender, and religion.
- Apply ethical principles to the study and practice of medicine, including compliance with relevant laws, policies, and regulations.
- Demonstrate respect for patient privacy and autonomy.
- Maintain an appropriate balance between personal and professional commitments.
- 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, families, residents, and other healthcare professionals.
- Compare and contrast the roles of health care team members and how each member contributes to patient care.

Systems-Based Practice

Graduates must be able to demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Specific Objectives:

The graduating student will be able to:

- Identify persons at risk for inadequate medical services, and develop plans to engage resources to ensure appropriate care.
- Describe policies, organization, finances, and delivery of health care in the United States, both in the hospital and the community, and compare with other health care systems.
- Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care.
- Advocate for quality patient care and optimal patient care systems.
- Participate in identifying system errors and implementing potential system solutions.

CHANGE TO:

MD Curriculum Goals and Objectives

Educational Goals for McGovern Medical School

(d) 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.

(e) 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.

(f) Students should acquire and demonstrate ATTITUDES that foster patient-centered care and support the highest standards of the medical profession.

Competencies and Medical Education Program Objectives
McGovern Medical School expects all of its students to demonstrate the following competencies prior to graduating with the M.D. degree.

1. **Patient Care and Clinical Skills** – Graduates must be able to provide patient-centered care that is compassionate, appropriate, and effective for the promotion of health and the evaluation and management of disease.
2. **Medical Knowledge** – Graduates must be able to demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.
3. **Interpretation of Medical Data/ Practice-Based Learning and Improvement** – Graduates must be able to demonstrate the ability to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care based on constant self-evaluation and life-long learning.
4. **Interpersonal and Communication Skills** – Graduates must be able to demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.
5. **Professionalism** – Graduates must be able to demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
6. **Systems-Based Practice** – Graduates must be able to demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

The medical education program objectives are specified for each competency area and can be found here: https://med.uth.edu/oep/files/2019/03/Approved-Core-Competencies_2018-19_UPDATED.pdf

UTHealth®
The University of Texas
Health Science Center at Houston

McGovern
Medical School

2018-2020 Catalog

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.

The McGovern Medical School is accredited by the Liaison Committee on Medical Education located at: 655 K Street, NW, Suite 100, Washington, DC 20001. Telephone: 202.828.0596.

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 UTHealth on the basis of race, color, national origin, religion, sex, sexual orientation, gender expression or gender identity, age, veteran status, genetic information, disability or any other basis prohibited by law.

A Message from the Dean of McGovern Medical School

Hello,

McGovern Medical School is proud to offer an excellent curriculum to educate and mentor compassionate physicians and biomedical scientists instilled with a passion for lifelong learning. Our outcomes-based curriculum is founded within a context of medical humanities and innovative technology.

Within the expanse of The University of Texas Health Science Center at Houston (UTHealth) and the Texas Medical Center, McGovern Medical School is poised to offer a collaborative and supportive environment.

Our school fosters a culturally diverse and inclusive community and promotes professionalism and leadership. With our hospital affiliates, including Memorial Hermann Hospital-Texas Medical Center, LBJ General Hospital, and UT Harris County Psychiatric Center, we offer an outstanding clinical environment for learners, providing excellent care and working to eliminate health care disparities.

I invite you to learn more about our degree programs and curriculum.

Warm regards,

Barbara J. Stoll, MD
Dean and H. Wayne Hightower Distinguished Professor in the Medical Sciences
McGovern Medical School at University of Texas Health Science Center at Houston

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Assistant Dean for Graduate Medical Education

Soham Roy, MD
Assistant Dean for Admissions and Student Affairs

Julia Shelburne, MD
Assistant Dean for Graduate Medical Education

Eugene C. Toy, MD
Assistant Dean for Educational Programs

Departments and Chairs

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Biochemistry and Molecular Biology
Rodney E. Kellems, PhD

Cardiothoracic and Vascular Surgery
Hazim J. Safi, MD

Dermatology
Ronald P. Rapini, MD

Diagnostic and Interventional Imaging
Susan D. John, MD

Emergency Medicine
James J. McCarthy, MD

Family and Community Medicine
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Microbiology and Molecular Genetics
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Neurobiology and Anatomy
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Neurology
Louise D. McCullough, MD, PhD

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Kevin P. Lally, MD

Pediatrics
Kevin P. Lally, MD (Interim)

Physical Medicine and Rehabilitation
Gerard Francisco, MD

Psychiatry and Behavioral Sciences
Jair C. Soares, MD

Surgery
Richard J. Andrassy, MD

Introduction

On November 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 University of Texas Medical School at Houston was created by act of the Legislature, and an appropriation for its initial cost became effective September 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 University of Texas Medical School at Houston 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 University of Texas Medical School at Houston, along with five other UTHealth programs, was incorporated into The University of Texas Health Science Center at Houston (UTHealth).

In November 2015, after a transformational gift from the McGovern Foundation, the school was renamed The University of Texas John P. and Kathrine G. McGovern Medical School at Houston, placing a renewed emphasis on humanism, ethics, research, and scholarship.

Now, more than 40 years later, McGovern Medical School has achieved a position of excellence among the other notable institutions in the Texas Medical Center. It has remained fully accredited throughout this time and was re-accredited in 2012 for eight years.

Academic Calendar

Please see the Office of the Registrar's website for the most up-to-date calendar:
https://www.uth.edu/registrar/current-students/student-information/academic-calendar.htm

Mission

The mission of the McGovern Medical School is to educate a diverse body of future physicians and biomedical scientists for a career dedicated to the highest ideals of their profession; to provide outstanding patient-centered care; and to conduct innovative research that benefits the health and well-being of the population of Texas and beyond.

In pursuit of this mission, McGovern 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.

Core Values

- Deliver compassionate patient care focusing on effectiveness, quality, safety, and service
- Provide a competency-based curriculum emphasizing integrity and professionalism
- Embrace a culture of lifelong learning, evidence-based practice, open inquiry, and scholarship
- Cultivate professional and respectful communication
- Foster a diverse and inclusive learning community
- Support the health and well-being of students, faculty, and staff
- Promote interprofessional collaboration
- Support leadership and innovation in teaching, research, and service
- Advocate for excellent care for the underserved and for the reduction of health care disparities

Facilities

The nine-story McGovern Medical School building is connected to Memorial Hermann Hospital – Texas Medical Center (TMC). The building bridges Ross Sterling Avenue to form one continuous structure with Memorial Hermann Hospital – TMC's Cullen, Jones, Robertson, and Hermann pavilions. A sky bridge across Fannin Street provides a link with the UT Professional Building, a major UT Physicians location. UT Physicians is the affiliated clinical practice of McGovern Medical School, and its clinicsare located throughout the Greater Houston area.

The 960,000 square-foot McGovern 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 square-foot research building. This Medical School Expansion building is connected to the McGovern Medical School building at several levels and opened during the winter of 2007. In 2016, the 100,000 square-foot Jesse Jones Library building was acquired by UTHealth to provide additional space for administrative suites and offices; the Texas Medical Center Library continues to be housed on the ground level.

The Fayez S. Sarofim Fayez Research Building houses The Brown Foundation Institute for Molecular Medicine for the Prevention of Human Diseases (IMM), which opened in 2006. In January 2011, the IMM became part of McGovern Medical School and provides state of the art research facilities and offices for six academic research centers.

In 2010, a new Behavioral and Biomedical Sciences Building opened on the south campus of UTHealth, which houses the McGovern Medical School's Department of Psychiatry and Behavioral Sciences and its clinic facility, along with other UTHealth research groups.

Affiliated Hospitals

Memorial Hermann Hospital – TMC, a partner in the Memorial Hermann Healthcare System, is the primary teaching hospital of McGovern Medical School in the 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 McGovern 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. In 2014, a renovation and expansion project began on the main hospital building and is expected to be completed in 2019. This expansion will add an additional 1.3 million square feet of available space, 160 beds, 24 operating rooms and 16 emergency medicine bays. Medical students develop much of their inpatient clinical experience in this outstanding facility.

Children's Memorial Hermann Hospital was founded in 1986 and is the primary teaching hospital for the pediatric and obstetrics/gynecology programs at McGovern Medical School. A recent facility expansion increased capacity to 240 beds, making it one of the country's largest pediatric hospitals; the Women's Center operates an additional 68 beds. Children's Memorial Hermann Hospital offers care in more than thirty pediatric and women's related specialties including the latest advances in maternal-fetal medicine and neonatal critical care services, and renowned

programs in pediatric trauma, neurosciences, pulmonology and cardiac care. More than 37,000 children come to Children's Memorial Hermann Hospital each year.

TIRR Memorial Hermann, which at its inception in the early 1950s was one of the first polio treatment centers in the nation, is a 119-bed rehabilitation and research facility located in the TMC and is a nationally ranked hospital by U.S. News and World Report. Students have the opportunity to participate in rotations across a spectrum of subspecialties which includes brain injury, spinal cord injury, and general rehabilitation. Further, TIRR is a premier research institution where faculty and students from UTHealth are engaged in collaborative and cutting-edge research leading to improved outcomes and enriching the lives of their patients.

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 McGovern 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), through which UTHealth staffs LBJ, and Baylor College of Medicine 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 (EC), a level III trauma center. EC volumes increased 25% within the first month of operation. The Westlands, an ambulatory care facility, is approximately 122,000 square feet and increased LBJ's bed capacity for numerous clinics.

The University of Texas MD Anderson Cancer Center, located in the TMC, is widely regarded as one of the world's foremost centers for cancer care, research, education, and prevention. Since its opening in 1944, MD Anderson has treated more than 1,000,000 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. MD Anderson Cancer Center participates in a wide range of training programs involving 6,500 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. Several new buildings have recently opened: the Cancer Prevention Building, the Ambulatory Clinic Building, the Basic Sciences Research Building, and the Mid Campus 1 Building which is a state of the art administrative facility. The MD Anderson Cancer Center had more than 1,363,000 outpatient clinic visits, treatments, procedures in Fiscal Year 2013-14.

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 9,000 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 The Harris Center for Mental Health and IDD, respectively. McGovern 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 McGovern Medical School in downtown Houston. This hospital is the site of several programs for student rotations overseen by UTHealth 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 TMC. Student rotations from McGovern Medical School take place in neurology and internal medicine. St. Luke's is also home to the Texas Heart Institute, with which UTHealth 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 McGovern Medical School, as well as at satellite locations outside of the TMC, including facilities in Bellaire, Missouri City, on the campuses of several Memorial Hermann Healthcare System hospitals, and on the campus of St. Joseph Medical Center; at six community health centers operated by the Harris County Hospital District; at seven WIC (Women, Infants and Children) clinics; and at several other clinical outreach programs located throughout the greater Houston community.

MD Admissions

Admission to McGovern Medical School is determined by the Admissions Committee, which is composed of faculty members from both basic science and clinical departments.

For all medical and dental schools of The University of Texas System, the Texas Legislature requires that 90% of the admitted class each year be Texas residents; therefore, no more than 10% of the entering class can be non-residents.

UTHealth endeavors to foster an educational 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, disability, genetic information, gender identity or expression or any other basis prohibited by law.

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 the Equal Opportunity Advisor in the Office of Diversity & Equal Opportunity.

The full policy can be found online in the UTHealth Handbook of Operating Procedures (HOOP) Policy 183,

Nondiscrimination, Anti-Harassment and Equal Opportunity (**https://www.uth.edu/hoop/policy.htm?id=1448214**).

Academic Prerequisites

Applicants must complete at least 90 undergraduate semester hours, including the specific prerequisite coursework listed below, at a regionally accredited United States or Canadian college or university. Preference is given to students who obtain a baccalaureate degree prior to admission to medical school. Graduate courses do not satisfy premedical requirements.

Prerequisite Coursework:
English: a minimum of 6 semester hours of college English. Courses should be taken in the English department.

Biology: 14 semester hours (12 lecture hours plus 2 lab 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.

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

Organic Chemistry: 8 semester hours (6 lecture hours plus 2 lab hours). The courses should be for science majors, including the corresponding laboratory experience.

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

Medical College Admission Test

The Medical College Admissions Test (MCAT) is required for admission. The exam should be taken no later than the last September test date in the year of application submission (i.e. no later than September 30 of the year before you expect to begin medical school).

Evaluation of Applicants

McGovern 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
- 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. Essential Functions/Technical Standards
All individuals, without exception, who apply for admission to McGovern Medical School 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, with or without reasonable accommodation, will not be considered for admission. Students can obtain information concerning program-related accommodations from the school's Section 504 Coordinator. See also HOOP 101, Disability Accommodation. A candidate for the MD degree at McGovern 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

Applicants to the MD program at McGovern Medical School must apply through the Texas Medical and Dental Schools Application Service (TMDSAS). Applications for entry are typically accepted between May 1 and October 1 of the preceding year. Early application is encouraged due to the large number of applicants. Applicants should contact TMDSAS for the most current information. Application information is available on TMDSAS's website: **www.tmdsas.com**

Mailing address:
Texas Medical and Dental Schools Application Service

P.O. Box 2175
Austin, Texas 78768
512-499-4785

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

Once applications are processed by TMDSAS, they are forwarded to McGovern Medical School, where they are reviewed and evaluated by the Admissions Committee The same criteria for evaluation are applied to all candidates.

After receiving an offer of 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 at another institution should give prompt notice of withdrawal to McGovern Medical School.

McGovern 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 McGovern 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.

MD Student Development

Evaluation and Promotion

The official policies for evaluation of academic performance, promotion, grade grievance, and academic dismissal are outlined in the McGovern Medical School Policy and Guidelines for Evaluation and Promotions of Medical Students on the McGovern Medical School student handbook website at https://med.uth.edu/admissions/student-affairs/policies/, Paper copies are available in the Office of Admissions and Student Affairs.

McGovern Medical School uses the following grade system: Honors, High Pass, Pass, Below Pass, or Fail. Grades and other information relative to a student's academic performance are transmitted to the Student Evaluation and Promotions 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 Admissions and Student Affairs. A Peer Tutoring Service is also available to all students at no charge.

Conduct and Discipline

Students are responsible for knowledge of and compliance with University policies concerning student conduct and discipline as set forth in HOOP Policy 186, Student Conduct and Discipline, and the McGovern Medical School's Policy and Guidelines for the Evaluation and Promotions of Medical Students. Students may access the HOOP online at **https://www.uth.edu/hoop/index.htm**.

For information regarding student academic and behavioral issues, contact:
Margaret C. McNeese, MD
Vice Dean for Admissions and Student Affairs
McGovern Medical School
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 McGovern Medical School. McGovern Medical School offers a Summer Research Program, which provides an intensive, hands-on, 10-week, 40 hours/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 on 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 the fall. Students who complete the Program receive a certificate of completion and an acknowledgement letter in their permanent academic file, also known as, their Blue Book.

Students also may continue their research until graduation either independently with their mentor or as a participant in one of the eleven current "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 conduct an independent scholarly project. Students who successfully complete the concentration requirements receive a certificate of completion and recognition at graduation.

A limited number of short-term NIH training stipends, and other sources of financial support are available for medical students.

Contact: Gary Rosenfeld, PhD
Program Director, 713-500-7435
e-mail: Gary.C.Rosenfeld@uth.tmc.edu

MD Expenses

Tuition

Tuition and fees are subject to change and become effective on the date enacted. The Texas Legislature does not set the specific amount for any particular student fee. Student fees are authorized by state statute; the specific fee amounts and the determination to increase fees are made by the university administration and The University of Texas System Board of Regents.

Please refer to the Office of Registrar website at https://www.uth.edu/registrar/current-students/registration/tuition--fee-schedule.htm for the current Tuition and Fee Schedules. This site reflects current information regarding tuition and fee exceptions and/or waivers, Veterans education benefits, and the Policy for Texas Resident Tuition.

Fees and Charges

	Fee
Computer Resource Fee	$200
Graduation Fee[1]	$100
Information Technology Access Fee (Annual)	$108
Health Insurance[2]	$2335
Installment Use Fee	$20
Late Payment Fee	$25
Laboratory Fee (charged to MS1 and MS2 students)	$35/year
Library Resource Fee	$125
Liability Insurance (Annual)	$25
Technology Fee (Annual)[3]	$1000
Foundations of Medical Science Course Fee (MS1 Year)	$500
Student Services Fee (Annual)[4]	$566.25
Standardized Patient Fee (Annual)	$1150
Student Records Fee (Annual)	$15
Reinstatement Fee[5]	$200
Evacuation/Repatriation Insurance [6]	$96

[1] A graduation fee of $100 payable at registration for the final academic term is required of all students. This fee does not include regalia rental.

[2] Health insurance is required of all UTHealth 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 available through the Auxiliary Enterprise Office.

[3] The Technology Fee will increase by $150 for each incoming class beginning academic year 2019-2020 up through academic year 2021-2022.

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

[5] Assessed to students who want to re-enroll after being dropped for nonpayment on the 12th day of class.

[6] Assessed to international students who do not elect to carry the student Health Insurance Policy.

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 some graduate courses for credit at McGovern Medical School, subject to the approval of the instructor. In addition, McGovern Medical School graduate students may take some 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.

Scholarships

Scholarships are awarded based on need, merit, or a combination of both. Scholarships do not need to be repaid, but may have specific criteria for the recipient to remain eligible (i.e., grade point average, hometown, undergraduate university, high school, etc.). Competitive scholarships are reviewed in the same manner as all other scholarships. Students may apply online through the Office of Admissions and Students Affairs once each aid year.

Scholarship award decisions are made by the Scholarship Committee.

Books and Supplies

For the 2018-2019 curriculum, the cost of required textbooks and supplies averages $3434.00 (excluding cost of computer) for the pre-clerkship curriculum and $4773.00 for the clerkships and required advanced clinical experiences. Information regarding specific textbook requirements and costs may be found here: https://med.uth.edu/oep/medical-education/information-resources/

Laptop Requirement

Information technology and informatics 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 on the Office of Admissions and Student Affairs web site.

Disability Insurance

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

Liability Insurance

Students may be required to show evidence of student liability insurance when enrolled in extramural electives. Basic coverage is included for $25 a year as one of the required fees.

Ethics

McGovern Medical School 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 McGovern Medical School and its faculty.

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

Ethical Pledge (Code of Professional Conduct)

Incoming students are asked to agree to and sign the following ethical pledge following their acceptance to McGovern 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

The White Coat Ceremony was initially conceived by Dr. Arnold P. Gold, a faculty member at Columbia University College of Physicians and Surgeons. The White Coat Ceremony marks students' initial entry into the medical profession. Incoming students are presented white coats, which symbolize their journey to becoming physicians. At the end of the ceremony, the students recite The Physician's Oath of Hippocrates and re-affirm the Ethical Pledge.

MD Academic Organization

During medical school, students are required to take USMLE Step 1 after completion of the pre-clerkship courses and prior to the start of the clinical clerkships. Students are required to take USMLE Step 2 CK and CS prior to graduation.

The Curriculum Committee is charged by the Dean to provide oversight of the medical education program, including the design, management, integration, evaluation, and enhancement of a coherent and coordinated medical curriculum.

Curriculum

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

First Academic Year

Required Courses:

Fall Semester/20 instructional weeks

Foundations of Medical Science (Pass/Fail; $500 course fee – anatomy)
Doctoring 1: History and Physical Examination (Pass/Fail)

Spring Semester/18 instructional weeks

Hematology and Introduction to Pathology Cardiovascular System
Renal System
Pulmonary System
Doctoring 2: Longitudinal Clinical Experience

Second Academic Year

Required Courses:

Fall Semester/20 instructional weeks

Gastrointestinal System
Nervous System and Behavior
Endocrine System
Doctoring 3: Longitudinal Clinical Experience

Spring Semester/9 instructional weeks

Reproductive System
Musculoskeletal and Integumentary Systems
Doctoring 3: Longitudinal Clinical Experience (continued) Students are required to complete Basic Life Skills during the Doctoring 3 course.

Third Academic Year

Required Clerkships:
49 instructional weeks

Transition to Clerkships

This course prepares students for the clerkships. It is composed of required sessions including large group and skills sessions.

Clerkships

The required clerkships include family medicine, geriatrics, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery, as well as one elective. The goal of the clerkships is to provide broad exposure to the major disciplines of medicine.

Students will have four weeks of vacation during this time period.

Fourth Academic Year
Required courses:
42 instructional weeks

Career Focus Tracks

The final phase consists of the Career Focus tracks. The goal of the Career Focus tracks is to provide career mentoring and guidance. There are four tracks: primary care, acute care, medical sciences, and applied anatomy. During the tracks, the students complete three required advanced clinical selectives: ambulatory care, advanced patient care, and critical care. Additionally, the career focus tracks incorporate seven (7) four-week electives tailored to the students' intended career path.

McGovern 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 https://med.uth.edu/admissions/current-students/ms4/

The Transition to Residency course occurs in the spring of the fourth year and prepares students for residency. This course is composed of required sessions, workshops and skill sessions that are selected by the students.

Three, four-week periods are available for vacation or additional electives. These vacation periods may be used during the required clerkships in special circumstances and with prior approval of the Office of Admissions and Student Affairs.

MD Curriculum Goals and Objectives

Educational Goals and Objectives for McGovern Medical School

(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 Competencies and Objectives

Patient Care and Clinical Skills

Graduates must be able to provide patient-centered care that is compassionate, appropriate and effective for the treatment of disease and the promotion of health.

Specific Objectives:

The graduating student will be able to:

- Form an effective therapeutic relationship with patients and, when appropriate, with their families
- 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, basic CPR, bag-mask ventilation, venipuncture, inserting an intravenous catheter, inserting a nasogastric tube, inserting a bladder catheter, sterile technique, and suturing lacerations.
- Identify, initiate and explain treatment plans that are safe, effective, and efficient
- 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.
- Discuss with patients their prognosis and possible adverse effects of diagnostic tests and treatment
- Apply the scientific method (including evidence-based medicine principles) to patient care whenever applicable and feasible.
- Care for patients mindful of salient legal, ethical, spiritual, cultural, and psychosocial constructs.
- Apply the principles of pain management to reduce patient suffering.
- Demonstrate effective transitions of patient care.
- Function collaboratively on health care teams that include health professionals from other disciplines to provide coordinated services to patients.

Medical Knowledge

Graduates must be able to demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

Specific Objectives:

The graduating student will be able to:

- Identify the most appropriate sources for obtaining medical knowledge and how to retrieve them.
- 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, and behavioral determinants of 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.
- Explain 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.
- 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.

Interpretation of Medical Data/Practice-Based Learning and Improvement

Graduates must be able to demonstrate the ability to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care based on constant self-evaluation and life-long learning.

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.
- 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 and life-long learning and improvement.

Interpersonal and Communication Skills

Graduates must be able to demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, families, and other health professionals.

Specific Objectives:

The graduating student will be able to:

- Make case presentations that are accurate and well organized; accurately record information in the patient's chart to 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 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.
- Communicate bad news to patients, obtain consent for treatments, and help patients anticipate and make end-of-life decisions.
- Participate in the education of patients and their families, peers, and other healthcare professionals.
- Work with other healthcare professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity and trust.

Professionalism

Graduates must be able to demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

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, race, age, disabilities, sexual orientation, gender, and religion.
- Apply ethical principles to the study and practice of medicine, including compliance with relevant laws, policies, and regulations.

- Demonstrate respect for patient privacy and autonomy.
- Maintain an appropriate balance between personal and professional commitments.
- 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, families, residents, and other healthcare professionals.
- Compare and contrast the roles of health care team members and how each member contributes to patient care.

Systems-Based Practice

Graduates must be able to demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Specific Objectives:

The graduating student will be able to:

- Identify persons at risk for inadequate medical services, and develop plans to engage resources to ensure appropriate care.
- Describe policies, organization, finances, and delivery of health care in the United States, both in the hospital and the community, and compare with other health care systems.
- Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care.
- Advocate for quality patient care and optimal patient care systems.
- Participate in identifying system errors and implementing potential system solutions.

Pre-Entry Program

The Pre-Entry Program is an intensive four-week program offered to a subset of students prior to the matriculation to the first year of medical school. The program includes course content in anatomy, biochemistry, histology, immunology, microbiology, and physiology/neuroscience taught by McGovern Medical School faculty members. Students are also introduced to study skills. The noncredit program is designed to assist students prepare for the academic rigors of the medical school curriculum. Invitations are sent to students who might benefit from the program. Students may also request consideration for participation in this program. A Peer Tutoring Service is available to all students participating in the Pre-Entry Program.

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

Patricia Butler, MD
Vice Dean for Educational Programs
McGovern Medical School, a part of UTHealth
6431 Fannin, JJL 304
Houston, Texas 77030

Visit the Pre-Entry Program Web site:
https://med.uth.tmc.edu/oep/medical-education/student-programs/pre-entry-program/

Learning Resource Center (LRC)

The LRC supports the teaching and learning functions of McGovern Medical School. It works closely with the faculty and students to identify and promote the utilization of innovative teaching resources and learning strategies in support of the McGovern Medical School's curricular offerings. Housed in a state-of-the-art facility, the LRC occupies over 10,000 square feet of dedicated space in the McGovern Medical School building with seating for more than 250. There are 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 McGovern Medical School's Problem Based Learning curriculum. Also included in the LRC are 2 fully equipped physical diagnosis practice rooms. With wireless and ethernet connectivity throughout the facility, the LRC also 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.

Dual Programs

MD/PhD Program

The MD/PhD Program is a dual degree program of The University of Texas McGovern Medical School and MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences. The program educates physician-scientists and draws from faculty expertise at UTHealth and MD Anderson Cancer Center. This rich training environment – encompassing laboratories, hospitals and clinics in the Texas Medical Center – ensures that graduates are uniquely prepared for careers in translational research, where basic research is applied to improving patient care and promoting well-being, and observations/samples from patients are taken to the laboratory to improve understanding of disease mechanisms.

Students must meet the admissions requirements of McGovern Medical School to qualify for admission to the MD/PhD program. The program is restricted in size and provides stipend support for exceptional MD/PhD candidates. For information, visit the program's Web site at **https://gsbs.uth.edu/mdphd/**

Those interested in the MD/PhD Program should inquire through the Office of Admissions and Student Affairs at McGovern 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 **https://gsbs.uth.edu/mdphd/apply-here.htm**. 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 MD/PhD Program Manager, Betsy Kindred at 713-500-6607 or by e-mail at: betsy.c.kindred@uth.tmc.edu.

MD/MPH Program

McGovern Medical School and the UTHealth School of Public Health (UTSPH) offer a dual degree program leading to an MD degree and a Master of Public Health (MPH). 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.

Information regarding the MD/MPH dual degree program with examples of suggested degree plans for either the four or five-year option can be found online at:
https://sph.uth.edu/academics/dual-degree/mdmph-uthealth/

Students must meet the admission requirements of both schools to qualify for the dual MD/MPH program. Acceptance to UTSPH is accomplished by applying during the regular application cycles – deadlines are March 1 (for Summer/Fall admission) and August 1 (for Spring admission).

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

Both a four-year and six-year Advanced Education Program in Oral and Maxillofacial Surgery are offered by UTHealth. The six-year program is offered jointly through the UTHealth School of Dentistry and McGovern 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 the four- and six-year programs are a DDS or DMD degree from an ADA accredited dental school.

The six-year program adopts a similar schedule to the four-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, eight 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 six-year program, residents receive a certificate in oral and maxillofacial surgery and a MD degree.

More information on the MD/OMS Program is found at:
https://dentistry.uth.edu/students/advanced-education/programs/index.htm#students-oms

MD/MBA Program

The challenges of managing healthcare entities demand leaders prepared in the business as well as the science of medicine. McGovern Medical School and the University of Houston Clear Lake College of Business (UHCL) offer a dual degree program leading to a Doctor of Medicine (MD) degree and a Master of Business Administration (MBA). The requirements established for the program meet the general requirements of both degrees. The curricula are integrated along either a four-year or a five-year path to support student career objectives.

Students must meet the admission requirements of both schools to qualify for the dual MD/MBA program. Acceptance to the MBA program at UHCL is accomplished by applying through the **www.applytexas.org** link. The MCAT is accepted in lieu of the GRE. Students who wish to or have applied should email Chakoa Jefferson (jefferson@uhcl.edu) with their name and application number to facilitate the process at UHCL.

Any questions or requests for information should be forwarded to Michael W. Bungo, MD, Program Director MD/MBA Dual Degree Program, at michael.w.bungo@uth.tmc.edu. Additional information is also available on the website at https://med.uth.tmc.edu/dualdegreeprograms/mdmba.

Graduate Medical Education

The learning process encompasses more than a student's four years in medical school. All graduates may 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.

McGovern Medical School conducts its residency and fellowship training programs at hospitals and clinics affiliated with The University of Texas Health Science Center 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. McGovern 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.

McGovern Medical School 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. McGovern 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 McGovern Medical School, contact:
The Office of Graduate Medical Education
McGovern Medical School
6431 Fannin, Suite JJL 310
Houston, Texas 77030
Web site: **https://med.uth.edu/oep/gme/**

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 scheduled series, 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 McGovern Medical School departments and divisions.

The joint UTMB/McGovern Medical School CME program is fully accredited by the Accreditation Council for Continuing Medical Education. For further information, call 713-500-5231, or visit **www.UTcme.net**.

Office of Continuing Medical Education
McGovern Medical School
6431 Fannin, MSB 4.161
Houston, Texas 77030

Master of Science in Clinical Research Degree Program

The Master of Science in Clinical Research Degree Program has been offered at McGovern Medical School since the fall of 2002. This MS degree program was 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 three to four years, depending on the amount of time a student devotes to the program. For updated information about this program, see:
https://med.uth.edu/pediatrics/crebm/clinical-research-education/ms-in-clinical-research/

MS 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 to meet one of the following two types (a or b) of academic criteria:

a) Advanced degree in health-related field:
   (1) MD or DO
   (2) PhD in a related field
   (3) DDS or DMD
   (4) RPh or PharmD

b) Bachelor's or master's degree with a G.P.A. of greater than 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
https://www.uth.edu/registrar/applicants/application-forms.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
McGovern 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
713-500-3388

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 MyUTH (**https://my.uth.tmc.edu**)

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 in the program. Candidates from institutions outside of UTHealth will be considered for admission if arrangements can be made for appropriate departmental and methodological 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 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 three 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 postulate a sound new research question and design and clinical research study to address this question using the most unbiased feasible design.
To properly analyze and interpret clinical research findings

d) A GPA of 3.0 (B) must be achieved in the graded courses offered at McGovern Medical School for the MS in Clinical Research Degree Program (or courses deemed to be equivalent by the student's advisers).

e) Students must be enrolled for at least one credit hour during the semester in which they complete the degree requirements.

f) Students admitted to the program will need a minimum of three thesis credit hours. (A maximum of six 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
Social and Behavioral Aspects of Clinical Research
Health Care Quality and Safety
Health Care Quality and Safety (1.0)
Biostatistics for Clinical Investigators
Literature Appraisal
Ethical Aspects of Clinical Research
Introduction to Translational Research
Clinical Research Design Workshop
Translational Research Design Workshop
Use of Computers in Clinical Research

Additional Coursework for Master's Degree

The curriculum for the Master's Program consists of two tracks — the Patient-Based Clinical Research Track and the Translational Research Track. In either track, the specific courses (usually four to five) 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 Clinical Research Study Design
Advanced Biostatistics for Clinical Investigators
Using Research to Inform Health Care Policy and Practice
Methods of Economic Evaluation in Clinical Research

Examples of elective courses available at other UTHealth schools:
Methods of Economic Evaluation of Health Programs (School of Public Health, SPH)
Economic and Social Determinants of Health (SPH)
Developmental Biology (Graduate School of Biomedical Sciences, GSBS)
Molecular and Cellular Approaches to Human Genetics (GSBS)

Genetics and Human Disease (GSBS)
Eukaryotic Gene Expression (GSBS)
Cancer Biology (GSBS)

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 UTHealth.

Petitioning for Course Equivalency

A student who wishes to receive credit for courses taken outside the MS in Clinical Research Degree Program at UTHealth 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 McGovern 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.

MS Tuition and Fees

The resident tuition is $96 per semester credit hour. The non-resident tuition will be $511 per semester credit hour. Tuition and fees are subject to change according to the actions of the Texas Legislature or the UT System Board of Regents and are effective when enacted.

The Texas Legislature does not set the specific amount for any particular student fee. Student fees are authorized by state statute; the specific fee amounts and the determination to increase fees are made by the university administration and The University of Texas System Board of Regents.

Please refer to the Office of Registrar website at https://www.uth.edu/registrar/current-students/registration/tuition--fee-schedule.htm for the current Tuition and Fee Schedules. This site reflects current information regarding tuition and fee exceptions and/or waivers, Veterans education benefits, and the Policy for Texas Resident Tuition.

	Fee
Audit Fee (per course)	$25.00
Graduation Fee[1]	$100.00
Information Technology Access Fee (per semester)	$36.00
Installment Use Fee	$20.00
Late Payment Fee	$25.00
Return Check/E-check fee	$25.00
Credit Card Use Fee	2.5%
Health Insurance[2] (annual)	$2504.00
Student Record Fee (per semester)	$5.00
Reinstatement Fee[3]	$200.00
Student Services Fee (Annual)[4]	$566.25
Evacuation/Repatriation Insurance[5]	$96.00

[1] A graduation fee of $100 payable at registration for the final academic term is required of all students. This fee does not include regalia rental.

[2] Health insurance is required of all UTHealth 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 available through the Auxiliary Enterprise Office.

[3] Assessed to students who want to re-enroll after being dropped for nonpayment on the 12th day of class

[4] Required of all students, assessed per semester credit hour with a maximum charge of $566.25 annually. The fee provides for student health clinic and counseling services, student government, recreation center, and shuttle services.

[5] Assessed to international students who do not elect to carry the student Health Insurance Policy

Texas Residence Requirements

Please see the Office of the Registrar's Web site
https://www.uth.edu/registrar/current-students/student-information/policy-for-texas-resident-tuition.htm

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 some graduate courses for credit through the MS in Clinical Research Program at McGovern Medical School, subject to approval of the instructor. In addition, full-time students (taking at least nine credit hours) at McGovern Medical School may take some 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.

MS 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 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 school's website under Academic Guidelines (Grade Grievance Policy), https://med.uth.edu/admissions/student-affairs/policies/.

Satisfactory Academic Progress

The faculty of McGovern Medical School is responsible for identifying students who are having academic difficulty and determining whether the deficiency can be remediated. 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/her in achieving the maximum potential and in assessing progress toward academic goals. Students are expected to complete the program within five years, unless extraordinary circumstances warrant an extension. At least one thesis component must be completed each academic year after admission to the MS Degree Program. 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 once each semester by his/her Advisory Committee. A student placed on probation for failing grades will be taken off probation when he/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 every other year. 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/she successfully completes at least four 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. 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 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. Any degree student who has not been granted a leave of absence and who fails to complete at least one degree requirement (course, practicum, or thesis component) within a one-year period will be considered to have withdrawn from the program. Once having been withdrawn, a student who wishes to resume participation in the program must apply to be readmitted to the program. 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 Number: CLRS 5001
Course Name: Introduction to Epidemiology Research
Instructor: Charles Miller, PhD, Joshua Samuels, MD MPH
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)
(1.0-1.5 credit hours)

Course Number: CLRS 5002
Course Name: Clinical Trial Design
Instructor: Jon Tyson, MD MPH, Andrew Barreto, MD MS
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)
(1.0-1.5 credit hours)

Course Number: CLRS 5004
Course Name: Social and Behavioral Aspects of Clinical Research
Instructor: Angela Stotts, PhD
Course Description: This course will provide an overview of the role of social and behavioral factors in patient health outcomes, as well as an introduction to research methods specific to studying such factors.
Prerequisite: None (above admission requirements for MS in Clinical Research Program)
(1.0 credit hours)

Course Number: CLRS 5005
Course Name: Healthcare Quality and Safety
Instructor: Eric Thomas, MD MPH
Course Description: This course begins with an overview of health services research. Subsequent classes will focus on either important topics within HSR or methods used in HSR; conceptualization of healthcare quality and safety; quality of care measurements; improvement science; and introductions to survey research and qualitative research.
Prerequisites: 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: Claudia Pedroza, PhD, Charles Green, PhD
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: Joyce Samuel, MD MS, Susan Wootton, MD MPH
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: Jon Tyson, MD MPH, Susan Wootton, MD MPH
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)
(1.0 credit hour)

Course Number: CLRS 5013
Course Name: Introduction to Translational Research
Instructor: Shervin Assassi, MD MS
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)
(1.0 credit hour)

Course Number: CLRS 5003
Course Name: Clinical Research Design Workshop
Instructor: Jon Tyson, MD MPH, Charles Miller, PhD
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
(1.5 credit hours)

Course Number: CLRS 5014
Course Name: Translational Research Design Workshop
Instructor: Shervin Assassi, MD MS
Course Description: This workshop course provides a hands-on venue to introduce fundamentals of genetics, epigenetics, and gene expression profiling to clinicians. The goal is to provide clinical researchers with a good understanding of the high-throughput molecular technologies that are needed to conduct clinically relevant translational research. This course is run in a small group format (10 students) to facilitate active participation and interaction.
Prerequisite: Consent of instructor
(1.5 credit hours)

Course Number: CLRS 5007
Course Name: Use of Computers in Clinical Research
Instructor: Joyce Samuel, MD MS
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).

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 5015
Course Name: Using Research to Inform Health Care Policy and Practice
Instructor: Susan Wootton, MD MPH, Joyce Samuel, MD MS
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 5020
Course Name: Methods of Economic Evaluation in Clinical Research
Instructors: Elenir AvritscherMD, PhD, MBA; Cecilia Ganduglia, MD, DrPH; Henry Wang, MD, MPH, MS
Course Description: This course will provide an in-depth exposure to the different economic evaluation methods used to assess the value of health care interventions and programs. Participants will learn how to critique and interpret economic evaluation studies and apply it in their own research projects. The course will also provide an introduction to research involving research networks, registry and administrative data with hands-on introduction to publicly available datasets that the students will have the opportunity to use in preparation for their required research proposal. A working knowledge of the principles of epidemiology, literature appraisal, and study design is required.
Prerequisite: Biostatistics for Clinical Investigators or consent of instructor
(4 credit hours)

Course Number: CLRS 5017
Course Name: Advanced Clinical Research Study Design
Instructor: Jon Tyson, MD MPH
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, or permission of instructor.
(4 credit hours)

Course Number: CLRS 5010
Course Name: Advanced Biostatistics for Clinical Investigators
Instructor: Claudia Pedroza, PhD; Charles Green, PhD
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 comprehensive postoperative management with acute and chronic pain management, implementation of the surgical home model of care, and critical care medicine. Intensive experience is offered in both the outpatient and inpatient areas. The department accentuates management of multidisciplinary intensive care unit patients and trauma care and transplant anesthesia. Emphasis is also placed on regional anesthesia, perioperative echocardiography, and advanced difficult airway management. Through clinical, classroom, high fidelity simulation, 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 journal clubs, and an innovative didactic program that provides a varied and rich learning environment.

Professor and Chair
Eltzchig, Holger, MD, PhD

Department of Biochemistry and Molecular Biology

The Biochemistry and Molecular Biology (BMB) faculty is a well-funded community of curiosity-driven scientists conducting significant and innovative biomedical research on many frontiers. Because the research activities are not restricted by arbitrary boundaries BMB is free to recruit faculty members in emerging areas of biomedical research with promising future potential. Current research programs include basic research in cell biology, structural biology, circadian biology, gene regulation, cell signaling, RNA biology, and neurobiology. Preclinical and translational research is carried out in the areas of pulmonary disease, cardiovascular disease, hypertension, sickle cell disease, metabolic disease, aging and cancer. BMB is home to three research centers that represent areas of research strength within the department: The Center for Membrane Biology, the Structural Biology Imaging Center, and the Pulmonary Center of Excellence. BMB enjoys its diversity and thrives on the interdisciplinary research opportunities that its diversity provides. The multifaceted biomedical, biochemical and structural research conducted by BMB faculty provides meaning to the term “molecular medicine.”

BMB faculty also have productive collaborations with many faculty members from other departments, which enhances the overall research environment of the school, and provides an atmosphere of discovery and learning that enriches medical and graduate school educational activities. BMB faculty members are effective and important contributors to numerous McGovern Medical School course offerings including a first-year medical school course that strongly emphasizes the relevance of biochemistry and molecular biology to human health and disease. BMB faculty members provide assistance to students during small group conferences throughout the medical curriculum. Entering medical school students may enroll in a summer pre-entry course designed to prepare them for the biochemistry topics they will encounter during medical school. Departmental faculty members facilitate a problem-based learning course that is taken by second-year medical students. BMB faculty members also invest heavily in the education and research activities of graduate students. Members of the BMB faculty teach several well-attended courses designed specifically for graduate students. A weekly seminar series provides students with the opportunity to listen to, learn from, and meet with internationally prominent visiting scientists. A weekly research workshop provides important training opportunities for graduate students and postdoctoral fellows to present their research findings and receive critical feedback.

Faculty in the Department of Biochemistry and Molecular Biology are committed to excellence in the research programs, and to leadership in activities that globally benefit both the research and education missions of the McGovern Medical School.

Chair
Kellems, Rodney E., PhD

Vice Chair
Putkey, John A., PhD

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, Memorial Hermann Northeast, Memorial Hermann Memorial City, Katy, Sugarland, Greater Heights, and Bellaire Clinics and the Lyndon B. Johnson Hospital. Relationships also exist with the UT 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 McGovern Medical School laboratories comprises both basic and applied science investigations on the pathophysiology of major vascular and cardiac disorders. The research programs in the Department of Cardiothoracic and Vascular Surgery are focused on development of new knowledge in the origins and prevention of surgical complications, and on continuous innovation and improvement in quality of care. Patients benefit directly from the department's focus on innovation, and the department prioritizes the dissemination of discoveries through peer-reviewed publications in the medical literature and through the department's internationally prominent Houston Aortic Symposium. The department has published hundreds of research articles and continues to be at the forefront of many national cooperative research efforts.

Professor and Chair
Safi, Hazim J., MD, FACS

Professor and Vice Chair for Research
Miller, Charles C. III, PhD

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 Marvin E. Chernosky, MD Distinguished Chair (Joint Medical School and MD Anderson Cancer Center)
Rapini, Ronald P., MD

Professor and Deputy Chair (UT MD Anderson Cancer Center)
Duvic, Madeleine, MD

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 its 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 short 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 MD. 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., MD

Department of Emergency Medicine

The Emergency Medicine Department provides both third-year (EMER 3030) and fourth-year (EMER 4004) students with an elective rotation in the emergency centers of Memorial Hermann – Texas Medical Center and Lyndon B. Johnson General Hospital. These electives are Pass/Fail. There is also an Advanced Patient Care (APC) elective (APC 4110) offered during the fourth year which is a graded option for students looking for the "acting intern" experience as well as the opportunity to fulfill their APC requirement.

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 is approximately 70,000 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, with a significant subset of Spanish-only speaking patients.

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; emphasis is placed on the undifferentiated presentation, diagnosis, and treatment of the wide spectrum of diseases commonly seen in emergency centers.

Interim Co-Chairs, Department of Emergency Medicine

Associate Professor & Vice Chair, Education and Academic Affairs
Luber, Samuel D., MD, MPH

Assistant Professor
Prater, Samuel, J., MD

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 Hospital – Texas Medical Center, Lyndon B. Johnson (LBJ) General Hospital, the UT Physicians Center for Family Medicine, the Acres Home Community Health Center, and the Aldine Community Health Center. The department, which has faculty at 13 sites in the Houston area, provides medical staffing for eight community health centers owned and operated by the Harris Health System. 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 in addition to offering multiple electives.

The department also administers The Family Medicine Residency Training Program and a Sports Medicine Fellowship 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., MD, MSPH

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. 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 at 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. The department also investigates GI and renal physiology, making extensive use of a wide range of genetically tractable model organisms including mice, Drosophila, Zebrafish, Aplysia and Arabidopsis; computational techniques including classical and advanced molecular dynamics simulations, structural bioinformatics, and novel bioinformatic approaches to interrogate gene expression data sets; and contemporary molecular cell biology, biochemistry and electrophysiology.

IBP has an advanced cell-imaging facility that provides for confocal, TIRF, electron, 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 students and run an active graduate studies program in Cell and Regulatory Biology. They 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
Executive Director, The Brown Foundation Institute of Molecular Medicine for the Prevention of Human Diseases
Professor and Chair
John S. Dunn Distinguished University Chair in Physiology and Medicine
Hancock, John, F., MA, MB, BChir, PhD, ScD, MRCP, FRACP

Professor and Vice-Chair
Dessauer, Carmen, PhD

Department of Internal Medicine

The Department of Internal Medicine provides opportunities for students, residents, and fellows to acquire training in the broad field of internal medicine and its sub-disciplines. The training program is designed to include clinically enriching experiences in bedside internal medicine and ambulatory care, as well as contemplative exercises in which students, house staff, 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 experiences of the department are housed at Memorial Hermann Hospital (MHH) - Texas Medical Center, Lyndon B. Johnson (LBJ) General Hospital, and UT MD Anderson Cancer Center. The third-year student clerkship involves a two-month period during which medical students rotate through two four-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. A separate one-week Geriatrics/Palliative Care clerkship, which is required of all students, is an excellent opportunity for students to be exposed to the corresponding patient population. In addition, several Internal Medicine subspecialties offer a three-week third-year 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 fourth-year ambulatory experience, a one-month selective in advanced patient care as part of the required fourth-year in-patient experience, and a one-month selective in critical care as part of the required fourth-year critical care experience. In addition, fourth-year electives are offered in each of the subspecialties of Internal Medicine.

The Department offers a three-year fully accredited Medicine Residency Program. The first of these three years, termed the PGY-1 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, Michael E. Debakey VA Medical Center, and UT MD Anderson Cancer Center. In the remaining two years of the internal medicine training program, PGY-2 and PGY-3 residents spend time on consultative services in the subspecialties, in addition to further rotations on hospital inpatient services.

The department also offers a combined Internal Medicine/Pediatrics Residency Program. This four-year program splits each academic year into a six-month experience in internal medicine and the other six months in pediatrics. Upon completion of this training program, the resident is board-eligible in both fields.

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

Chairman, Internal Medicine
McPherson, David, MD

Executive Vice Chair
Finkel, Kevin, MD

Vice Chair for Ambulatory Medicine
Johnson, Philip, MD

Vice Chair for Memorial Hermann Hospital Affairs
Vice Dean for Healthcare Quality
Patel, Bela, MD

Vice Chair for Education
Orlander, Philip, MD

Vice Chair for Research-Mentoring
Milewicz, Dianna, MD, PhD

Vice Chair for Research-Initiatives
Reveille, John, MD

Vice Chair for Harris Health Affairs
Foringer, John, MD

Vice Chair Quality
Ostrosky, Luis, MD
Vice Chair for Clinical Research & Operations
Vacant

Division of Cardiovascular Medicine
The Division of Cardiovascular Medicine provides medical students, residents, and fellows with a vision for world-class excellence, 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, and a center for statistical programs and core angiographic image processing; an angiographic animal laboratory; animal physiology laboratories; and extensive metabolic, biochemistry, and molecular biology research laboratories. There is a 17-bed coronary-care unit at Memorial Hermann Hospital - 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, 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), heart and lung transplant, percutaneous interventional aortic and mitral valve placement procedures, mitral clip, and peripheral interventions. There is state-of-the-art imaging including PET for sophisticated myocardial metabolism; 3D echo for cardiac synchronization therapy, CT angiography and cardiac MRI; 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, and a laser and non-laser lead extraction system.

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

Professor and Director
Division of Cardiovascular Medicine
The James T. and Nancy B. Willerson Chair of Internal Medicine
Medical Director Heart & Vascular Institute

Memorial Hermann - Texas Medical Center
McPherson, David D., MD, FACP, FACC, FAHA

Division of Clinical and Translational Sciences
The Division of Clinical and Translational Sciences (DCTS) serves as a primary home for faculty in Biostatistics/ Epidemiology/Research Design (BERD), a core component of the Center for Clinical and Translational Science (CCTS). CCTS was established in 2006 by one of the first 12 National Institutes of Health (NIH) Clinical and Translational Awards (CTSA), which were designed to transform clinical research at academic institutions. DCTS aims to link academic and community health centers across local, regional, national, and international collaborative networks to increase the efficiency, quality, and impact of clinical and translational research on patient- centered outcomes and population health. From the broad patient-centered perspective, this division applies cutting-edge theory and technology to determine the most appropriate, ethical, and cost effective study design, data quality assurance, and analysis strategies needed to answer important clinical and translational research questions conclusively.

DCTS provides leadership in the establishment, development, coordination, and delivery of biostatistics, epidemiology, and research design expertise to investigators. DCTS faculty members collaborate with methodologic experts across the CCTS and the CTSA-affiliated networks. For example, DCTS faculty have active collaborations with BERD experts at UT MD Anderson Cancer Center, UT Health School of Public Health, and UTHealth Center for Clinical Research and Evidence Based Medicine to extend the application of adaptive Bayesian trial designs developed for cancer and non-cancer health issues such as stroke and heart failure.

The mission of DCTS is to promote innovative, state-of-the-art clinical and translational (CT) research of maximum public health and scientific benefit by contributing to the enhancement and further development of CT research infrastructure within DCTS and across UTHealth; developing short- and long-term collaborations between CT investigators and members of DCTS's network of BERD experts; contribute to the formal training and mentoring of the next generation of CT scientists with the necessary BERD skills they need to be successful; and contributing to advances in BERD within CT research.

DCTS supports research with a particular focus on study design, data management, and statistical analysis, and interpretation is provided by DCTS in one or more of the following capacities: collaboration, consultation, or fee-for service. Additionally, DCTS also has expertise in managing large data coordinating centers and data cores, clinical trial services, grant proposal support, publication support, statistical analysis plan and sample size calculation, randomization schemes, stopping rules, designing adaptive trials, and other related services. DCTS faculty members are committed to customer service, which is a basic premise for interaction with investigators in various CCTS-affiliated institutions, schools, and departments. The initial BERD consultation to assess an investigator's research needs is offered free of charge. After the initial consult, DCTS faculty members make an assessment regarding the needs of the project.

DCTS mainly handles clinical research in areas including, but not limited to, clinical trials, data management analysis, autism spectrum disorders, environmental sciences, genetics, methodology development, stroke, and trauma. In collaboration with networks of investigators from other departments, universities, and regional, national, and international organizations, the division both leads and supports numerous grants and projects funded by NIH and other agencies.

Professor and Director
Division of Clinical and Translational Sciences
Rahbar, Mohammad H., PhD

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, and other endocrine disorders. An elective for third- and fourth-year medical students is available monthly.

Students and residents rotate through consultative services at the Memorial Hermann Hospital (MHH) – Texas Medical Center and the Lyndon B. Johnson General (LBJ) 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 at the Harris County Endocrinology and Diabetes Clinic at Quentin Mease Community Hospital. The Quentin Mease clinic sees patients on a referral basis from the community clinics and includes a substantial number of patients with thyroid disorders and neoplasms. There is a weekly thyroid nodule

clinic with ultrasound and fine needle aspirations, as well as a twice-weekly reproductive endocrinology clinic. There are several divisional conferences: Faculty Didactic, Fellows Didactic, Endocrine Tumor Board, journal club, and a weekly citywide conference including faculty from Baylor COM, UT MD Anderson Cancer Center, and surrounding institutions.

There are several major areas of active research in the division. Clinical research interests of the endocrine faculty include insulin resistance and ovulatory dysfunction (Dr. Nader), cardiovascular consequences of diabetes (Dr. Orlander), and lipid disorders and diabetes (Dr. Guttierez).

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

Professor and Director
Division of Endocrinology, Diabetes and Metabolism
Vice-Chair for Education in Internal Medicine
Associate Program Director, Internal Medicine Residency Program
Orlander, Philip R., MD

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 Hospital - Texas Medical Center and LBJ General Hospitals. Members of the consult team at both institutions 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 house staff 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 a strong theoretical background and supplements the clinical experiences in the service.

The gastroenterology fellowship training program and its affiliated hospitals (Memorial Hermann (MHH) - Texas Medical Center, Lyndon B. Johnson General (LBJ) Hospital, and UT MD Anderson Cancer Center) offer clinical training for the fellows in 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. Additionally, the division has a one-year advanced endoscopic fellowship for physicians who have completed an accredited gastroenterology fellowship program and want to gain knowledge and expertise in performing advanced endoscopic procedures.

Professor and Director
Division of Gastroenterology, Hepatology and Nutrition
Cash, Brooks D., MD, AGAF, FACG, FACP

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 (MHH) – Texas Medical Center, Lyndon B. Johnson General (LBJ) 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 General Medicine faculty have several NIH-sponsored grants in patient safety and the 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 Division of General Medicine faculty is 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 Director
Division of General Medicine
Vice Chair for Ambulatory Medicine within Internal Medicine
Johnson, Philip C., MD

Division of Geriatric and Palliative Medicine
The Division of Geriatric and Palliative Medicine was established to prepare students from all health care disciplines, as well as residents, to care for older patients and skillfully provide compassionate end of life care. In order to do this, geriatric and palliative medicine services have been established at both the Lyndon B. Johnson General (LBJ) and Memorial Hermann Hospital (MHH) – Texas Medical Center to serve diverse sectors of the community and provide both public and private training sites. Trainees attend interdisciplinary team meetings and teaching conferences such as journal club, webinar presentations, and Huffington lecture series. Clinical areas include acute and chronic geriatric medicine, palliative medicine, pain control, elder mistreatment, and wound care. Clinical settings include patient units at Lyndon B. Johnson General (LBJ) and Memorial Hermann Hospital (MHH) – Texas Medical Center, public and private outpatient clinics, and house calls.

The Division offers two fellowship programs in Geriatric Medicine and Hospice and Palliative Medicine. The Geriatric Medicine program was established for Internal Medicine or Family Practice residents who wish to become geriatricians. This fellowship is currently a one-year clinical fellowship which will be expanded in future years to a two-year fellowship in order to offer research and clinical education. The Hospice and Palliative Medicine program was established for Internal Medicine, Family Practice, Pediatrics, and Internal Medicine/Pediatrics residents who wish to become palliative care physicians. This fellowship program is currently a one-year clinical fellowship.

Associate Professor and Division Director
Division of Geriatric and Palliative Medicine
Holmes, Holly, M., MD, MS, AGSF

Division of Hematology
Education: The Hematology Division's major academic goal is to promote the understanding of a wide scope of hematological diseases. The diagnosis and management of these diseases require broadly-based knowledge of bone marrow physiology and biochemistry, tumor cell growth, hemostasis and thrombosis, red blood cells and hemoglobin molecular biology, and immunology. 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.

Clinical: The Hematology Division provides both inpatient and ambulatory care services. It provides consultation services at Memorial Hermann Hospital (MHH) – Texas Medical Center and Lyndon B. Johnson General (LBJ) hospitals. Dr. Miguel Escobar directs the Gulf States Hemophilia Diagnostic Treatment Center and has an academic appointment in the Hematology Division as well.

The UT Physicians Comprehensive Sickle Cell Center Clinic was opened in mid-August, 2015. It is funded by a Network Access Improvement Program (NAIP) grant from the Centers for Medicare & Medicaid Services (CMS). It is a free-

standing clinic, which will function as a "sickle cell home". The major aims of the Sickle Cell Center are to decrease the disease burden in patients and their families and to treat patients at the clinic in order to reduce the need for emergency visits and hospitalizations.

Research: The Hematology Division has developed strong, cohesive NIH-supported research programs focusing on the biochemistry and cell biology of several heme-containing proteins, including the cell and molecular biology of prostaglandin and nitric oxide synthases, nitric oxide sensors, hemoglobin and cytochrome b reductase. These basic and clinical investigations have greatly enhanced the understanding of endothelial cell and blood cell functions in the contexts of health and disease. Clinical faculty members, in collaboration with the Department of Biochemistry and Molecular Biology, are investigating the role of several metabolites, including adenosine, in sickling of red blood cells.

Collaborations: Hematology Division faculty members have extensive interactions with faculty elsewhere in McGovern Medical School (Biochemistry & Molecular Biology, Pathology & Laboratory Medicine, and Integrative Biology & Pharmacology), the clinical fellowship program in hematology-oncology at UT MD Anderson Cancer Center, and at Baylor College of Medicine (Texas Children's Hematology Center). These interactions enhance research, teaching, and patient activities.

Professor and Director
Division of Hematology
Juneja, Harinder S., MD

Division of Hyperbaric Medicine and Wound Care
The division of Hyperbaric Medicine and Wound Care facilitates the treatment of acute and chronic indicated conditions with oxygen by using pressures greater than atmospheric (room air). Indicated conditions include decompression sickness (the bends), severe tissue infections, chronic and deep or infected diabetic foot ulcers, sudden loss of vision due to blockage of blood flow, carbon monoxide poisoning, delayed radiation injury, and air or gas trapped in blood vessels.

Assistant Professor and Director
Division of Hyperbaric Medicine and Wound Care
Nevarez, Joseph G., MD, CWSP, FABPM-UHM

Division of Infectious Diseases
Busy consultative services at Memorial Hermann Hospital (MHH) - Texas Medical Center and Lyndon B. Johnson General (LBJ) Hospital and outpatient practices at Thomas Street Health Center, UT Physicians, and the Bellaire clinic provide fellows (in general Infectious Diseases, HIV medicine, and Transplant Infectious Diseases), medical residents, and fourth-year medical students the opportunity to learn about infectious diseases under the direction of one of the faculty members.

Division faculty members provide medical students and house staff with the opportunity to obtain information on clinical diagnosis and treatment of infectious illness, infection control procedures in the prevention of nosocomial infection, diagnostic bacteriology and virology, appropriate use of antimicrobial agents, and host factors important to pathogenesis of infection. Two weekly medical student/house staff clinical conferences (one focused on general ID clinical cases and the other on Transplant ID and HIV medicine), a weekly journal club, and a weekly citywide conference are conducted to provide the opportunity to acquire the principles of the diagnosis and management of infectious diseases.

NIH-funded research is an important component of the division's activities, which, together with industry-funded research on *in vitro* studies, preclinical evaluations, and clinical trials, provides many opportunities for learning about and carrying out research projects relating to HIV, antibiotic resistance, infection prevention and antibiotic stewardship, and viral causes of meningoencephalitis, among others.

Professor and Director
Division of Infectious Diseases
Murray, Barbara E., MD

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 the pre-symptomatic diagnosis of genetic disorders. Clinical training is provided through consult services at Memorial Hermann Hospital (MHH) – 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 Director
Division of Medical Genetics
Vice Chair for Research (Mentoring) in Internal Medicine
Milewicz, Dianna M., MD, PhD

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 multimodal 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. Faculty members are specialists in various tumor systems (e.g., urologic, gastrointestinal, gynecologic, thoracic, and hematologic cancers). Additionally, the department actively recruits other tumor specialists and academic-community general oncologists. Staff includes research nurses and coordinators, research scientists and laboratory technicians, regulatory specialists, bioinformatics and statistics staff, a genetic counselor, and a scientific editor – all of whom are available to assist with the Division's educational mandate.

The division's busy research program provides students with the opportunity to gain experience in translational research, giving them the bench-to-bedside training needed for physician-scientists. The division's approach combines research with standard of care therapy, focusing 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. By analyzing data, gathering evidence, and summarizing findings based on the application of the principles of scientific method, coherent conclusions regarding diagnosis and subsequent treatment are reached. The division faculty members also discuss the current social and economic issues of cancer care. All this is done within the framework of a process of critical thinking under the leadership of the diversely skilled division faculty.

The division's research efforts are enabled by a fully-equipped laboratory and an IRB-approved tissue banking and genomic repository protocols. Active research protocols include:

- Determining correspondences between pathologic features and molecular alterations in tumor tissue
- Detecting molecular alterations associated with treatment assignment and response
- Enumeration of circulating tumor cells (CTCs) from cancer patients
- Isolation of CTCs for characterization of molecular alterations and 3D cell culture
- Development of mouse models for specific tumor systems using patient xenografts
- Exploration of new techniques in proteomics, messenger RNA, microRNA, and free circulating DNA as cancer biomarkers

The division has a close partnership with the Memorial Hermann Health System; it oversees the Memorial Hermann Cancer Center, works closely with both Memorial Hermann and UT Physicians, and has a large regional referral base. This provides ample hands-on teaching opportunities for students and residents (and, in the near future, post-doctoral fellows) in both standards of care and new and emerging oncology treatments such as clinical trials in new chemotherapy drugs and regimens, cancer vaccines, immunotherapies, and molecular targeted agents.

Educational offerings include mentorship opportunities, Seminar Series, Grand Rounds, specific tumor boards, journal club meetings, and patient care conferences, as well as several didactic teaching sessions that cover topics ranging from common malignancies to cutting-edge developments in the field of oncology. Students are also welcome at weekly research meetings reporting the progress of ongoing research projects.

The division's primary goal – to combine the highest quality clinical care with cutting-edge research – is tied closely to its educational mandate. The Division of Oncology is dedicated to creating the physician-scientists of the future.

Professor and Director
Division of Oncology
Amato, Robert J., DO

Division of Pulmonary and Sleep Medicine and Division of Critical Care
The teaching program of the Division of Pulmonary, Critical Care and Sleep Medicine provides opportunities for students, residents, and fellows to acquire education in the basic and clinical aspects of pulmonary diseases, 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 disorders, and diseases of the critically ill.

Students in the fourth-year at McGovern Medical School participate in the Required Critical Care Course. Students rotate through the Intensive Care Unit, receive multidisciplinary didactic curriculum in Critical Care Medicine, and participate in skill sessions utilizing bedside ultrasound and simulation. The students rotate through one of various Intensive Care Units, including: the Medical ICU (MICU), Shock-Trauma ICU, Neurologic Trauma ICU, Transplant Surgical ICU, Cardiovascular Surgery ICU, and Cardiac Care Unit or Heart Transplant ICU at Memorial Hermann (MHH) – Texas Medical Center; the Pediatric ICU at the Children's Memorial Hermann Hospital; the Medical-Surgical ICU (MSICU) at the Lyndon B. Johnson General (LBJ) Hospital; and the Medical and Surgical ICUs at UT MD Anderson Cancer Center. During their critical care rotations, the residents rotate through the MICU at Memorial Hermann (MHH) – Texas Medical Center and MSICU at Lyndon B. General (LBJ) Hospital on multidisciplinary teams lead by faculty and fellows. Pulmonary consult services at Memorial Hermann (MHH) – Texas Medical Center and the Lyndon B. Johnson General (LBJ) 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 UT Pulmonary Clinic and UT Sleep Clinic in the UT Professional Building, the Harris County Pulmonary Clinic at Lyndon B. Johnson General (LBJ) Hospital and the Harris County Sleep Clinics at Quentin Mease Hospital. Student and resident electives in sleep medicine are available at Memorial Hermann (MHH) – Texas Medical Center and Lyndon B. Johnson General (LBJ) Hospital. The sleep medicine elective at Memorial Hermann (MHH) – Texas Medical Center includes both pediatric and adult sleep medicine, as well as sleep clinics at McGovern Medical School and Quentin Mease Hospital.

There are several conferences: weekly pulmonary, critical care and sleep medicine multidisciplinary grand rounds and clinical case conferences; monthly journal club conferences; radiology and pathology conferences; performance improvement conferences; research conferences; a pathophysiology conference; and a citywide sleep conference which includes faculty from Baylor, UT MD Anderson Cancer Center, and surrounding institutions. Faculty from McGovern Medical School and UT MD Anderson Cancer Center facilitate fifteen conferences per month, as well as weekly skills sessions in the Clinical Skills Center for fourth-year medical students during the critical care elective. 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 Hospital (MHH) – Texas Medical Center, UT MD Anderson Cancer Center, Lyndon B. Johnson General (LBJ) Hospital, and Kindred Hospital in pulmonary, medical and surgical critical care, interventional bronchoscopy, and sleep medicine, and (2) a one-year fellowship in sleep medicine with rotations at the Memorial Hermann Hospital (MHH) – Texas Medical Center Sleep Disorders Center, the Harris Health Sleep Disorders Center at Quentin Meese Hospital, and the UT MD Anderson Cancer Center Sleep Laboratory, as well as sleep clinics at Quentin Mease Hospital and the UT Professional Building in the Texas Medical 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, interstitial lung disease, pulmonary hypertension, critical care, chronic heart failure and medical ethics.

Professor and Director
Division of Pulmonary and Sleep Medicine
Castriotta, Richard J., MD, FCCP

Professor and Director
Division of Critical Care Medicine
Vice Dean for Healthcare Quality
Patel, Bela, MD, FCCP

The Division of Renal Diseases and Hypertension

The Division of Renal Diseases and Hypertension strives to provide state-of-the-art patient care, innovative teaching, and cutting-edge research. These efforts are fostered by a dedicated and talented faculty of physicians and scientists, a vital and progressive academic community, and a rich clinical environment with a tradition of excellence in patient care.

The division has long been acknowledged as a center for teaching excellence for medical students, residents, and nephrology fellows. The division provides a superb clinical experience at four hospitals, three outpatient clinic sites, and two outpatient dialysis facilities. A large and diverse patient population provides students, residents, and fellows with stimulating and unique training experiences and the opportunity to apply new advances in renal diseases and hypertension to their clinical practice.

The division offers unique rotations in Critical Care Nephrology, Transplant Medicine, and Onco-Nephrology (at UT MD Anderson Cancer Center). The division also provides clinical consultation in all aspects of general nephrology, including: diabetic nephropathy; glomerulonephritis; fluid, acid-base, mineral, and electrolyte metabolism; and hypertension. The division also provides acute dialysis services, including a large number of continuous renal replacement therapies, for inpatients, as well as outpatient dialysis to a large population of patients.

Professor and Director
Division of Renal Diseases and Hypertension
Executive Vice Chair of Internal Medicine
Finkel, Kevin W., MD, FACP, FASN, FCCM

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 is available for students, house staff, and the postdoctoral fellows. Full-time faculty members participate in teaching and patient care activities in clinics in UT Professional Building, the Thomas Street HIV Clinic, and the Internal Medicine Inpatient Services of Memorial Hermann Hospital (MHH) – Texas Medical Center and Lyndon B. Johnson General (LBJ) hospitals.

Basic and clinical investigative interests focus on the multisystem rheumatic diseases, especially ankylosing spondylitis, scleroderma, systemic lupus erythematosus, and HIV-associated rheumatic diseases. . Genetic control of disease susceptibility, functional genomics, 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., MD

Professor and Elizabeth Bidgood Chair in Rheumatology
Mayes, Maureen D., MD, MPH

Professor and Linda K. Finger Chair in Autoimmune and Connective Tissue Diseases
Tan, Filemon K., MD, PhD, (Fellowship Program Director)

Department of Microbiology and Molecular Genetics

The faculty of the Department of Microbiology and Molecular Genetics has a shared research mission to discern molecular mechanisms of microbial fitness. For microbial pathogens, fitness can be defined as the ability to survive and reproduce in the host environment, and ultimately spread to new hosts. Microbial pathogen fitness is dependent upon the ability of the microbe to sense and use nutrients available in specific host niches. Departmental faculty members investigate a variety of microbial systems using multiple aspects of molecular and cellular biology, genetics, and biochemistry.

In the first-year Microbiology course, medical students acquire knowledge of bacteria, fungi, parasites, and viruses important to human disease.

The course is taught by departmental faculty and other faculty holding cross and adjunct appointments.

Professor and Chair
Koehler, Theresa M., PhD

Department of Neurobiology and Anatomy

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

Faculty members in the department make substantial contributions to the McGovern Medical School curriculum. In the Foundations of Medicine module given in the fall of first year, areas of strength include gross anatomy, developmental anatomy, and introductory neuroscience. By coordinating anatomy and physiology, students have 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. The Nervous System and Behavior module given in the fall of second year presents an advanced application of neurobiological principles to neurological and psychiatric diseases. Areas of emphasis include neuroanatomy, neurophysiology, neuropharmacology, neurochemistry, developmental neurobiology, neuroendocrinology, neuropathology, and neuropsychology. 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 members have diverse research programs in the neurosciences, with a particular focus on issues related to vision, neuronal plasticity and learning and memory.

Learn more about the Department of Neurobiology and Anatomy by visiting the department's website at https://med.uth.edu/nba

Interim Chair, and Nina and Michael Zilkha Distinguished Chair in Neurodegenerative Disease Research
Dash, Pramod, PhD

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 Hospital (MHH) - Texas Medical Center and Lyndon B. Johnson General (LBJ) 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 relevant to neurological disease, and the management of neurological disorders such as stroke, epilepsy, multiple sclerosis, coma, muscle/nerve disorders, Parkinsonism, and dementia. Also available are several fourth-year electives which provide advanced exposure to neurologic subspecialties in out-patient offices, as well as a sub-internship on the stroke unit at Memorial Hermann Hospital (MHH) – Texas Medical Center. The department also provides opportunities for mentored laboratory and clinical research throughout the student and resident educational continuum. Summer research electives are available for students in the MS1 and MS2 years. Education and mentoring is a central theme within the Cerebrovascular Research Group, beginning at the high school level. Undergraduate, graduate, post-graduate,

resident and fellowship level experiences are available through many mechanisms. The primary goal is to provide a rich educational environment that will prepare undergraduates, graduates and fellows for the interdisciplinary challenges that will lie ahead in their own careers.

Fellowships are available in clinical neurophysiology (Electroencephalography-EEG, Electromyography-EMG, vascular neurology, epilepsy, movement disorders, multiple sclerosis, neurocritical care, neurocognitive disorders, and neuropsychology.

Chair and Roy M. and Phyllis Gough Huffington Distinguished Chair of Neurology
McCullough, Louise D, MD, PhD

Department of Neurosurgery

The Department of Neurosurgery is concerned with the 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., MD

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- fetal medicine, urogynecology, gynecologic oncology, and reproductive endocrinology and infertility. The principles of maternal-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 Hospital– Texas Medical Center (MHH-TMC), Memorial Hermann Katy Hospital, Memorial Hermann Memorial City Hospital, Memorial Hermann Southeast Hospital, Memorial Hermann Sugar Land Hospital, Lyndon B. Johnson General Hospital (LBJ), UT MD Anderson Cancer Center, St. Joseph's Medical Center, UT Physicians Clinics, Cypress Fairbanks Medical Center, Memorial Hermann Pearland Hospital, Woman's Hospital of Texas, Memorial Hermann Cypress Hospital, and Memorial Hermann Greater Heights Hospital.

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

The departments two residency programs have historically been based out of two main hospitals: Lyndon B. Johnson General Hospital and Memorial Hermann Hospital, respectively. These hospitals provide different learning opportunities for residents and complement each other very well. The department has therefore, over the last two years, been working on merging the two residency programs. Currently, the LBJ and MHH residents spend an equal amount of time at all of the rotating sites providing them with a well-rounded educational experience. The goal is to fully merge the programs by the start of the 2018-19 academic year. A program of post-doctoral and fellowship training in maternal-fetal medicine is offered to qualified physicians. The department also offers, in conjunction with the MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences, opportunities for study leading to advanced degrees in the reproductive sciences.

Emma Sue Hightower Professor and Chair
Department of Obstetrics, Gynecology & Reproductive Sciences
Blackwell, Sean C., MD

Robert K. Creasy, MD Professor, Vice Chair, and Director of the General Obstetrics Division
Katz, Allan R., MD

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 (MHH) – Texas Medical Center, Lyndon B. Johnson (LBJ) 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 Cizik Eye Clinic, which 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 electro-diagnostic unit, a pediatric unit, a minor surgery unit, and a contact lens unit.

McGovern Medical School coordinates all residency training programs. Each year, ophthalmology enrolls four residents out of approximately 600 applicants for the three-year residency program. 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 month-long 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 seven full-time researchers on the faculty. A stimulating research environment is fostered by the collaborative relationships between McGovern Medical School and the UTHealth Schools of Health Information Sciences, Dentistry, Public Health, Nursing, and the MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences. In addition, UTHealth 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 has held both a Core Grant for Vision Research and a Vision Training Grant from the National Eye Institute.

The department has strong ties to researchers in other departments of McGovern Medical School and other institutions in the Texas Medical Center, as well as 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., MD

John S. Dunn Distinguished University Chair and Clinical Professor
Ruiz, Richard S., MD

Elizabeth Morford Chair in Ophthalmology and Professor
Massey, Stephen C., PhD

Bernice Weingarten Chair in Ophthalmology and Clinical Professor
Garcia, Charles A., MD

Department of Orthopaedic Surgery

The department seeks to provide training for medical students, residents, and fellows 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 Hospital (MHH) – Texas Medical Center, and Lyndon B. Johnson (LBJ) General Hospital.

Orthopaedic training opportunities exist for fourth-year medical students as a four-week clinical rotation and for third-year medical students as a three-week clinical rotation. Operative and non-operative experiences are available as the students rotate through the different attendings' offices and the surgical suites, and students 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, STICU, plastics/burns, trauma, anesthesiology, radiology and rheumatology, in addition to six 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.

Professor and Chair
Lowe, Walter, MD

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 Hospital (MHH) – Texas Medical Center, Children's Memorial Hermann Hospital, UT MD Anderson Cancer Center, and Lyndon B. Johnson (LBJ) General Hospital.

Department faculty members 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 three-week pass-fail elective rotation in the department during the third year. Fourth-year medical students may select a four-week Advanced Patient Care (APC) (subinternship) rotation on the service; in July and August of the fourth year, the subinternship serves to fulfill the APC requirement and is reserved for students anticipating pursuing residency training in Otorhinolaryngology – Head and Neck Surgery.

Residency training in Otorhinolaryngology – Head and Neck Surgery requires one year of surgical internship under the department of Otorhinolaryngology; mandatory rotations include general surgery, plastic and reconstructive surgery, anesthesia, emergency medicine, intensive care, Otolaryngology, and other electives in surgical subspecialties. The first year is followed by four years in Otorhinolaryngology-Head and Neck Surgery. This includes six months of training at UT MD Anderson Cancer Center during the course of residency (PGY 3 and 4 years). Three new physicians are accepted each year into the UTHealth Otorhinolaryngology residency program.

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

Professor and Chair
Citardi, Martin J., MD, FACS

Professor, Vice Chair and Director of Medical Student Education
Roy, Soham, MD, FACS, FAAP

Assistant Professor and Residency Program Director
Alexander, Ronda, MD, FACS

Department of Pathology and Laboratory Medicine

Pathologists produce approximately 70% of all data in medical records that influences the majority of all diagnostic and therapeutic decisions of medicine. Many scientific advances require new diagnostic tests and/or new interpretation of existing tests. Consequently, many, if not most, advances in the biologic sciences require pathologists to translate them into clinical practice. Pathologists have the tools to study tissues, body fluids, cells, cell interactions, DNA, RNA and proteins in the context of human disease with a precision not dreamt of even a decade ago. With a focus on the study of disease as it exists in the human body, pathologic samples are becoming the material of choice for studying human diseases while animal and tissue culture studies are used for back up. Pathologists are uniquely positioned to discover new knowledge of human disease and to translate it into improved practices of medicine. *In toto*, pathologists seek to integrate clinical service, research and teaching in ways that enhance all of medicine. Pathology is taught longitudinally in the medical curriculum and in the graduate school, and the department has fully accredited residency and fellowship programs in multiple disciplines.

Distinguished Chair in Molecular Pathology, Professor and Chair
Hunter, Robert L., Jr., MD, PhD

Rosenberg Chair in Pathology and Laboratory Medicine, Professor and Vice Chair
Brown, Robert E., MD

Distinguished Chair in Pathology and Laboratory Medicine, Professor and Vice Chair for Outreach
Ayala, Gustavo, MD

Professor and Vice Chair for Education
Uthman, Margaret O., MD

Robert Greer Professor and Vice Chair for Research
Norris, Steven J., PhD

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 services.

The department sub-specialties include Pediatric General and Thoracic Surgery, Pediatric Trauma Practitioners, Pediatric Urology, Pediatric Neurosurgery, Pediatric Plastic Surgery, and Pediatric Cardiovascular Surgery. Elective time for residents in other training programs is provided. The responsibilities of these residents are centered on pre- and post-operative diagnosis and care, nutritional therapy, and technical capabilities.

A.G. McNeese Chair in Pediatric General Surgery, and Professor and Chair
Lally, Kevin P., MD, MS

Pediatric General and Thoracic 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 division, where they function as acting interns. Particular attention is paid to the pediatric 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

Pediatric Trauma Practitioners

Pediatric Trauma 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.

Pediatric Urology

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 encounter a variety of clinical scenarios, from complex congenital abnormalities to routine outpatient care. In addition, there are opportunities to experience the counseling and potential interventions with prenatally diagnosed urological abnormalities. Pediatric urologists 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.

Pediatric Neurosurgery

Pediatric neurosurgeons perform surgical procedures involving the entire spectrum of brain and spine pathology in children. The division team provides a comprehensive system of care for children with a variety of disorders of the nervous system. Based at Children's Memorial Hermann Hospital, the division has provided pediatric neurosurgical care since 1975. The division also has a combined brain tumor program with the UT MD Anderson Cancer Center which offers state-of-the-art care for children with brain and spinal cord tumors. Novel clinical trials, including some only offered at the division's center, are an important component of this combined program and attract patients from across the United States and internationally.

Specializes in minimally invasive endoscopic brain surgeries for a variety of intracranial pathologies. For hydrocephalus, the most common problem treated by pediatric neurosurgeons, the focus is on endoscopic techniques such as Endoscopic Third Ventriculostomy, Choroid Plexus Cauterization, and Septostomy in order to avoid shunts whenever possible. In conjunction with the Texas Comprehensive Epilepsy Program, the division's epilepsy program is one of the largest in the country. The multidisciplinary Texas Cleft-Craniofacial Team has dedicated Pediatric Craniofacial Plastic Surgeons, Oral Maxillofacial Surgeons and Speech Therapists. The team has outstanding open calvarial vault remodeling and minimally-invasive endoscopic expertise in the treatment of craniofacial disorders. The Texas Comprehensive Spasticity Center at UTHealth is a multidisciplinary program offering minimally-invasive Selective Dorsal Rhizotomy for Spasticity and Deep Brain Stimulation for Dystonia, the latest treatment modalities for children with cerebral palsy. The neurosurgeons have great expertise in caring for children with Chiari Malformations and spina bifida, and the center performed the first in-utero repair for spina bifida in Texas. The division also provides comprehensive, multidisciplinary care for children with arteriovenous malformations and other vascular disorders of the brain. The Pediatric Spine Team offers expertise in the full range of pediatric spinal disease, such as Craniocervical fusion and Spinal tumors. The division is part of one of the largest pediatric neurosurgical trauma services in the country and prides itself on offering the most advanced and timely treatment, not only for brain and complex spine trauma, but for all neurosurgical emergencies.

Pediatric Plastic and Craniofacial Surgery

Pediatric Plastic and Craniofacial 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.

Home to the Texas Cleft and Craniofacial Team, providing comprehensive multispecialty team care of patients with craniofacial anomalies.

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 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 provides opportunities for fourth-year medical students and externs to spend time working with the CV surgical team.

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 subspecialty elective opportunities available in two- or four-week units in the various 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 Children's Memorial Hermann Hospital, UT MD 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 excellent general pediatricians.

Accredited post-residency subspecialty fellowships training programs are available in the department and include child neurology, endocrinology, genetics/dysmorphology, hematology/oncology, neonatology, nephrology, infectious diseases, pulmonology, adolescent medicine, child protection, palliative care, and critical care medicine.

More information and listing of divisions can be found at https://med.uth.edu/pediatrics/

Interim Chair
Stoll, Barbara, J., MD

Professor of Pediatrics and Community and General Pediatrics Division Director
Vice Chair for Clinical Operations
Yetman, Robert J., MD

Associate Professor
Vice Chair for Education and Training
Hormann, Mark D., MD

Professor of Pediatrics, Vice Chair of Pediatrics, Chief of Pediatrics, Lyndon B. Johnson General Hospital
Garcia, Jose, MD, SM

Professor and Pediatric Research Center Director
Vice Chair for Research
Hecht, Jacqueline T., PhD

Professor and Pediatric Medical Genetics Division Director
Vice Chair
Northrup, Hope, MD

Professor and Jacobo Geissler Distinguished Chair in West Syndrome Research, and Child and Adolescent Neurology Division Director Department of Pediatrics
Butler, Ian J., MD

Department of Physical Medicine and Rehabilitation

The Department of Physical Medicine & Rehabilitation (PM&R) provides services through the evaluation and management of patients with a broad range of disabling conditions. PM&R specialists, also called physiatrists, are experts in the diagnosis and management of problems involving the central and peripheral nervous, and musculoskeletal systems. Conditions commonly addressed by physiatrists include spinal-cord injury, brain injury, amputation, multiple trauma, stroke, burns, acute musculoskeletal-pain problems, chronic diseases such as pain and osteoarthritis, and other degenerative neurologic disorders.

The department is closely affiliated with the Memorial Hermann Rehabilitation System, and has its main base of operation at TIRR Memorial Hermann, ranked number 2 best rehabilitation hospitals by *US News and World Report.* It also operates the cutting-edge *NeuroRecovery Research Center* at TIRR Memorial Hermann, which consists of the Center for Wearable Exoskeletons; Neuromodulation laboratory; Human-Machine Interfaces laboratory; Neurorehabilitation laboratory; Myo-Neural Engineering laboratory; and the Spasticity Treatment and Research Center, all led and staffed by McGovern PM&R faculty researchers. Current studies include federally funded investigations in human-robot interface, neuromodulation, and myoneural engineering, in persons with stroke and spinal cord injuries.

The department of PM&R has a faculty of 25 physiatrists, most of whom have subspecialty certification in brain injury medicine, spinal cord medicine, pediatric rehabilitation, and electrodiagnostic medicine. Faculty mentor clinical and research post-doctoral fellows, residents, and medical students.

Professor and Chairman
Francisco, Gerard, MD

Department of Psychiatry and Behavioral Sciences

The goal of the Department of Psychiatry and Behavioral Sciences is to provide medical students of all medical specialty choices with opportunities to acquire an appreciation for the patient as a whole person with an emotional as well as a physical life, the ability to diagnose and treat the most frequent mental disorders using a biopsychosocial framework, and to develop a positive attitude toward the importance of psychological well-being. Beginning in the first year, students learn basic aspects of the psychiatric interview and mental status examination. In the second year, students are introduced to the major psychiatric diagnoses and their neuroscience underpinnings.. During the third-year clerkship, students spend six weeks rotating on services at the UT Harris County Psychiatric Center, Memorial Herman Hospital (MHH) - Texas Medical Center, and Lyndon B. Johnson General (LBJ) Hospital where they see and follow patients with a diverse range of psychiatric disorders. Many clinical and research electives are available to fourth-year students interested in furthering their training in psychiatry.

Professor and Chair
Pat R. Rutherford, Jr. Chair in Psychiatry
Soares, Jair, MD, PhD

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 third-year 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 Hospital (MHH) – 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 Hospital

(MHH) – Texas Medical Center, UT MD Anderson Cancer Center or Memorial Hermann Hospital – Sugar Land.

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. Students 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 fourth-year surgery clerkship is a four-week elective experience. Fourth-year students interested in general surgery or a surgical subspecialty select from a list of 10 advanced care sub internship selectives and 14 additional 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, MD Chair in Surgery,
Jack H. Mayfield, MD Distinguished University Chair in Surgery
Professor and Chair,
Chief of General Surgery
Andrassy, Richard J., MD

Division of Acute Care Surgery

The Division of Acute Care Surgery includes the sections 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 the department's primary teaching hospital is one of the busiest in the United States and is the only Burn Center in Houston. Many students and residents have participated in research, both basic and clinical, as part of the 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 third-year surgical clerkship is conducted at Memorial Hermann Hospital (MHH) – Texas Medical Center, Lyndon B. Johnson (LBJ) General Hospital, and UT MD Anderson Cancer Center. Fourth-year 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 two or more years of research experience during their training. Following residency, fellowships in trauma, critical care, burns or acute care surgery are offered.

Division of 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.

Division of General Surgery, Lyndon B. Johnson (LBJ) General Hospital

The division provides a broad variety of surgical care at the LBJ General Hospital. Many of the faculty also work at Memorial Hermann Hospital (MHH) – 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.

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 PhD degree is available through the program in immunology in the MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.

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 UTHealth School of Dentistry, 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 Hospital (MHH) – Texas Medical Center, The Methodist Hospital, Lyndon B. Johnson (LBJ) General Hospital, Ben Taub General Hospital, and the Michael E. DeBakey Veterans Affairs Medical Center.

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 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. Trainees 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.

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 an 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 Hospital (MHH) – 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 UT MD Anderson Cancer Center.

McGovern Medical School Faculty

The most current listing of faculty is available on each department's website.

Anesthesiology	https://med.uth.edu/anesthesiology/
Biochemistry and Molecular Biology	https://med.uth.edu/bmb/
Cardiothoracic and Vascular Surgery	https://med.uth.edu/cvs/
Dermatology	https://med.uth.edu/dermatology/
Diagnostic and Interventional Imaging	https://med.uth.edu/radiology/
Emergency Medicine	https://med.uth.edu/emergencymedicine/
Family and Community Medicine	https://med.uth.edu/familymedicine/
Integrative Biology and Pharmacology	https://med.uth.edu/ibp/
Internal Medicine	https://med.uth.edu/internalmedicine/
Microbiology and Molecular Genetics	https://med.uth.edu/mmg/
Neurobiology and Anatomy	https://med.uth.edu/nba/
Neurology	https://med.uth.edu/neurology/
Neurosurgery	https://med.uth.edu/neurosurgery/
Obstetrics, Gynecology and Reproductive Sciences	https://med.uth.edu/obgyn/
Ophthalmology and Visual Science	https://med.uth.edu/ophthalmology/
Orthopedic Surgery	https://med.uth.edu/ortho/
Otorhinolaryngology-Head and Neck Surgery	https://med.uth.edu/orl/
Pathology and Laboratory Medicine	https://med.uth.edu/pathology/
Pediatric Surgery	https://med.uth.edu/pediatricsurgery/
Pediatrics	https://med.uth.edu/pediatrics/
Physical Medicine and Rehabilitation	https://med.uth.edu/pmr/
Psychiatry and Behavioral Sciences	https://med.uth.edu/psychiatry/
Surgery	https://med.uth.edu/surgery/