

 UTHealth[®] Houston
McGovern Medical School

2023-2024 Academic Catalog Addendum



ADDENDUM TO

McGovern Medical School 2023-2024 Academic Catalog

Add New Master's Degree Program:

Master of Science in Anesthesia (MSA) First Class Enrollment - Fall 2024

PROGRAM DESCRIPTION

The Master of Science in Anesthesia (MSA) is a 28-month, full-time, graduate-level program that requires 100 semester credit hours taken over seven consecutive semesters. This competency-based program that integrates didactic learning, simulation-based training, and clinical instruction to prepare students for a career as an anesthesiologist assistant.

The MSA program will educate and train students to manage complex clinical cases as part of the Anesthesia Care Team. Students will learn standard anesthesia technical skills, how to use an anesthesia machine and understand its complex functions, how to communicate effectively with patients to provide safe care and how to manage anesthetic cases. After rigorous academic and clinical training, graduates will be qualified to provide anesthetic care under the direction of a physician anesthesiologist.

Students will receive didactic instruction encompassing all relevant topics appropriate to the clinical anesthetist. Students will benefit from learning from various teaching platforms, such as problem-based learning discussions, flipped classroom sessions, and traditional lectures. Procedural skills and anesthesia case management will be trained in a simulation lab focusing on both technical and non-technical skills to prepare students for the rigors of the perioperative environment. Students will complete a minimum of 2000 hours of clinical training, gaining exposure to unique and complex surgical procedures by leading medical and procedural experts at UTHealth Houston and Memorial Hermann Hospital.

Overall, Anesthesiologist Assistants receive training in basic medical science and clinical practice to utilize modern technology to monitor and interpret data in all anesthesia care environments. Upon completion of the program, graduates will be able to:

- Gather and interpret patient information
- Synthesize and present organized evaluations of their findings to physicians
- Interpret data from invasive monitoring, administer anesthetics and controlled substances under the direction of supervising physician anesthesiologists
- Establish and maintain appropriate airway management and provide ventilator support
- Evaluate and treat life-threatening events according to established life support protocols such as Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), and Pediatric Advanced Life Support (PALS).

Upon program completion, students will meet the requirements to take the National Certification Examination, administered by the National Commission for the Certification of Anesthesiologist Assistants (NCCAA). After passing, graduates become Certified Anesthesiologist Assistants.

ADMISSION REQUIREMENTS

The MSA program seeks students who have demonstrated excellence in science and mathematics during their undergraduate education.

General admission requirements for the MSA program are below:

1. Citizenship: Must be a US citizen or permanent resident

2. Degree: A Bachelor's Degree from an accredited institution of higher education
3. Prerequisites (All prerequisites must be completed prior to matriculation. Course substitutions will not be considered.) All prerequisites must be completed at a regionally accredited institution of higher education in the United States, U.S. territory or Canada:
 - One semester of human physiology with laboratory OR one semester of human anatomy and physiology with laboratory
 - Two semesters of biology with laboratory
 - Two semesters of general chemistry with laboratory
 - One semester of biochemistry
 - One semester of organic chemistry with laboratory; a second semester of organic chemistry with laboratory is recommended
 - Two semesters of general physics with laboratory
 - One semester of advanced college mathematics including calculus
 - One semester of statistics or a second semester of advanced mathematics
 - One semester of English

*Human anatomy, human physiology and biochemistry must be taken within 5 years of the application deadline. All other prerequisites must be taken within 7 years of the deadline.

4. GPA: Minimum of 2.8
5. Standardized Test Scores:
 - Medical College Admission Test (MCAT) is the preferred standardized exam for admission.
 - Minimum acceptance score: 494.
 - Graduate Record Examinations (GRE) scores will be considered.
 - Minimum Verbal Reasoning score: 153
 - Quantitative Reasoning score: 156
 - Analytical Writing Score: 4.0 or above.

Applicants with a strong application but who have not achieved the minimum standardized test score will be evaluated by the admissions team on an individual basis. Applicants who have taken the MCAT or GRE more than once will be evaluated based on the highest score achieved. If an applicant has taken both exams, they should submit official scores from both exams. Acceptance of an applicant into the program will be at the final discretion of the admissions committee.

6. Volunteer Work Experience: strongly encouraged.
7. Physical and Technical Requirements: All applicants must have the general abilities required of anesthesia healthcare providers. This includes:
 - a. Motor skills – the physical ability to perform the technical and procedural functions required in patient care, including the ability to perform complex two-handed skills.
 - b. Communication skills – the ability to effectively communicate with patients, faculty, staff and peers both in written and oral form.
 - c. Physical health – the physical capacity to stand for prolonged periods of time in an operating room and/or clinic, the ability to lift up to ten pounds of equipment (intravenous fluids, monitors and other equipment necessary to administer a complete anesthetic).
 - d. Sensory abilities – the ability to assess a patient utilizing the five senses, including sight, hearing and touch.
 - e. Professionalism – must exhibit professional behavior, including honesty, altruism, respect for others, compassion, empathy, and respect for patient privacy.

A disability does not preclude a student from admission. The UTHealth Houston MSA Program is

committed to providing equal opportunities for qualified students with disabilities in accordance with state and federal laws and regulations. The intent of the law is to ensure equal access to individuals with disabilities who are otherwise qualified to meet the essential demands of the program.

For more information see: [UTHealth Houston Handbook of Operating Procedures \(HOOP\) Policy 101 Disability and Pregnancy Accommodation at https://www.uth.edu/hoop/policy.htm?id=1448050](https://www.uth.edu/hoop/policy.htm?id=1448050)

8. Related Field Experience: shadowing experience, volunteer work in a healthcare setting(s), previous health-related employment
 - A minimum of eight (8) hours shadowing an anesthesia provider (Anesthesiologist, Anesthesiologist Assistant, or Certified Registered Nurse Anesthetist) is required prior to the application deadline.
9. Resume: Standard format
10. Personal Statement: A narrative explaining your motivation for applying to the Master of Science in Anesthesia Program.
11. Letters of Recommendation: Three professional letters of recommendation from individuals who can attest to your strengths and weaknesses. Evaluators will upload their letters onto the CASAA online evaluation portal (see application process). Confidential letters are preferred. Evaluations should specifically be written to describe the applicant's potential contribution to the field of medicine as an anesthesiologist assistant. Receipt of letters of recommendation that are written for other programs will not qualify.
12. Interview: Includes assessment of communication skills and social engagement, in addition to motivation/interest to enter the field.
13. Transfer of Credit: The MSA program does not accept transfer of credits from other MSA programs.

APPLICATION PROCEDURE

Applications should be submitted online to the UTHealth Houston 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 submit a personal statement that explains their interest in becoming an Anesthesiologist Assistant.
- b) Letters of reference (3) on official letterhead from individuals who are qualified to evaluate the applicant's academic or professional performance, as well as ability and motivation to complete the program.
- 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.

Applicants can contact the MSA Program Manager, Kimesha Webb (kimesha.webb@uth.tmc.edu) for further questions regarding the application process. The MSA program utilizes a rolling admission system where early offers can be made. The application must be completed by May 31st, 2024 for admission to the class matriculating in August of 2024.

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>)

TUITION AND FEES

Beginning Fall 2024, the MSA resident tuition will be \$1,080 per semester credit hour. The non-resident tuition will be \$1,920 per semester credit hour.

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.

DEGREE REQUIREMENTS

Students are required to complete 100 semester credit hours of coursework and to have participated in a minimum of 600 total anesthesia cases for completion of the MSA program. Students need to have a minimum of 2000 clinical hours to satisfy graduation requirements.

Time Limit to Completion:

Students must graduate within no more than four years after matriculation.

CURRICULUM

The curricular progression of the MSA program will provide a sequence of subjects leading to competence appropriate to the level of study and requirements promulgated by the Commission on Accreditation for Allied Health Education Programs (CAAHEP). The MSA program will be a contiguous seven-semester model (including summer sessions) encompassing a combination of didactic and simulation-based learning as well as significant clinical experience in anesthesia and perioperative medicine. A feature of the program will be an early introduction into the clinical setting to apply basic science and anesthesia-specific didactic knowledge. The primary clinical training sites will be at clinical affiliate anesthesiology groups within the Texas Medical Center located in Houston. Senior and advanced clinical experiences will also be gained at affiliated facilities through strategic partnerships with community anesthesiology groups throughout the Houston region and the State of Texas.

The curriculum is divided into three areas: (1) didactic coursework, (2) simulation labs, and (3) clinical work. Didactic courses are designed to build base knowledge of organ systems and their functions, pathophysiology, medical terminology, and the utility and function of anesthesia-related equipment. Simulation experience is utilized to apply didactic knowledge in a safe environment where students can practice both technical and clinical practice skills. Lastly, students further strengthen their clinical

knowledge by working with physician anesthesiologists and certified anesthesiologist assistants to manage patients in a clinical setting, focusing on airway management, hemodynamic support, anesthesia induction, maintenance and extubation, lab interpretation, crisis management and other core skills.

*There will not be an option to transfer credit, receive credit for professional experience or to place out of courses.

SEMESTER 1-Fall	COURSE NAME	SCH
ANES	Introduction to Physiology I	3
ANES	Anatomy	4
ANES	Pharmacology for the Anesthesiologist Assistant I	2
ANES	Medical Terminology	1
ANES	Airway Management	2
ANES	Introduction to Physiological Simulation	3
ANES	Orientation to Clinical Anesthesia	3
	Total	18
SEMESTER 2-Spring		
ANES	Patient Monitoring and Instrumentation I	2
ANES	Pharmacology for the Anesthesiologist Assistant II	2
ANES	Applied Physiology in Anesthesia I	3
ANES	Electrocardiophysiology (ECG)	1
ANES	Anesthesia Principles & Practice I	2
ANES	Principles of Life Support	1
ANES	Clinical Anesthesia Experience I	3
ANES	Case Based Simulation I	3
	Total	17
SEMESTER 3-Summer		
ANES	Anesthesia Principles & Practice II	2
ANES	Applied Physiology in Anesthesia II	3
ANES	Patient Monitoring and Instrumentation II	2
ANES	Clinical Anesthesia Experience II	3
ANES	Case Based Simulation II	2
	Total	12
SEMESTER 4-Fall		
ANES	Ethics & Professionalism	1
ANES	Anesthesia Principles & Practice III	2
ANES	Applied Physiology III	2
ANES	Current Trends in Anesthesia I	1
ANES	Clinical Anesthesia Experience III	8
ANES	Crisis Management Simulation	1
	Total	15
SEMESTER 5-Spring		
ANES	Anesthesia Practice Review I	1
ANES	Clinical Anesthesia Experience IV	10
ANES	Subspecialty Case Based Simulation I	1
	Total	12
SEMESTER 6-Summer		
ANES	Board Preparation	1
ANES	Anesthesia Practice Review II	1

ANES	Clinical Anesthesia Experience V	10
ANES	Subspecialty Case Based Simulation II	1
	Total	13
SEMESTER 7-Fall		
ANES	Anesthesia Practice Review III	1
ANES	Clinical Anesthesia Experience VI	10
ANES	Subspecialty Case Based Simulation III	1
ANES	Subspecialty Elective	1
	Total	13
	TOTAL SEMESTER CREDIT HOURS FOR COMPLETION	100

Graduation Requirements:

1. Satisfactory completion of the program of study
2. Satisfactory clinical performance as determined by the Program and Clinical faculty
3. Satisfactory discharge of all financial obligations to the University
4. Received recommendation for being awarded the degree Master of Science in Anesthesia from the Program Director, Medical Director(s) and approval by the Dean of the McGovern Medical School at UTHealth Houston.
5. Special program requirements:
 - a. Participation in a minimum of 2,000 clinical hours of direct patient care
 - b. Participation in a minimum of 600 anesthetics
 - c. Meet requirements for application to take the National Certification Examination administered by the National Commission for the Certification of Anesthesiologist Assistants (NCCAA): Eligibility to sit for the NCCAA Certification Exam includes graduation from an approved educational program, along with completion and documentation of NCCAA Standards of Clinical Experience.

More information can be found here: <https://www.nccaa.org/CertificationExamHandbook.pdf>

COURSE DESCRIPTIONS

SEMESTER I

ANES Introduction to Physiology I: Students will learn technical skills like peripheral intravenous catheter placement and participate in simulated clinical scenarios. This course will focus on patient monitoring (pulse oximetry, capnography, blood pressure measurement, heart rate/EKG, temperature, respiratory rate), exploration of anesthesia machine functionality, anesthetic alarm interpretation, breathing circuits, cardiac output monitoring, arterial pressure monitoring and central venous pressure monitoring.

ANES Anatomy: This course will integrate structural anatomy with radiographic visualizations to establish foundational knowledge necessary to comprehend and explore the anesthetic techniques utilized clinically to provide anesthesia for a complex array of surgical procedures, especially orthopedic cases benefiting from regional anesthetic techniques.

ANES Pharmacology for the Anesthesiologist Assistant I: The focus of this course is to instruct students on the pharmacokinetics and pharmacodynamics of the most commonly used medications in anesthesia.

ANES Medical Terminology: Students will be taught common medical terminology, abbreviations and symbols used to describe procedures, techniques, imaging types, body systems, disease processes and procedures.

ANES Airway Management: This course will explore the anatomy, structure, function and management of both the adult and pediatric airways. Students will be taught how to use standard airway equipment to secure an airway. Emphasis will be placed on bag-mask ventilation, oral airway placement, nasal airway placement, laryngeal airway placement, intubation, and confirmation of adequate ventilation. Students

will begin to explore the techniques and methods employed when basic airway skills are unsuccessful in securing an airway, such as fiberoptic intubation, video-assisted laryngoscopy and surgical airways.

ANES Introduction to Physiological Simulation: Students will learn technical skills like peripheral intravenous catheter placement and participate in simulated clinical scenarios. This course will focus on patient monitoring (pulse oximetry, capnography, blood pressure measurement, heart rate/EKG, temperature, respiratory rate), exploration of anesthesia machine functionality, anesthetic alarm interpretation, breathing circuits, cardiac output monitoring, arterial pressure monitoring and central venous pressure monitoring.

ANES Orientation to Clinical Anesthesia: This introductory course will orient students to the clinical environment and teach them how to assimilate into the anesthesia care team. Topics of study will include: infection control, universal precautions, hand washing, operating room standard protocols, sterile technique, an overview of the history of anesthesia, the types of anesthetics delivered, American Society of Anesthesiologists (ASA) standard monitoring, and the basics of the anesthesia machine.

SEMESTER II

ANES Patient Monitoring and Instrumentation I: This course will explore the ASA standard monitoring system, advanced patient monitoring, and the associated equipment and technical skills necessary to monitor patient vital signs. Monitoring modalities taught include electrophysiology, non-invasive and invasive blood pressure monitoring, bispectral index, pulse oximetry (including the medications and clinical scenarios that can alter this reading), respiratory gas analysis, temperature monitoring, advanced hemodynamic monitoring, coagulation studies (TEG analysis), neuromuscular junction monitoring, transesophageal echocardiography, cerebrovascular testing, microbial analysis and urinalysis.

ANES Pharmacology for the Anesthesiologist Assistant II: This is an advanced course focusing on the pharmacokinetics and pharmacodynamics of anesthetic agents. Instruction will include topics such as drug dilutions and calculations, context sensitive half-life and the second gas effect.

ANES Applied Physiology in Anesthesia I: This is an advanced course that will utilize an organ system approach to teach human pathology. Students will learn how to evaluate the severity of patient disease to determine anesthetic risk. The major organ systems (cardiac, neurological, renal, gastrointestinal, liver, and hematologic systems) will be covered.

ANES Electrocardiophysiology (EKG): This course will teach peri-operative electrocardiophysiology monitoring and advanced cardiac life support. Students will learn how to interpret and monitor EKG rhythms and manage pathologic conditions that are detected. The course will also emphasize relevant anatomy, physiology, pharmacology and medical equipment.

ANES Anesthesia Principles & Practice: This course will guide anesthesiologist assistant students on how to develop the critical thinking skills and advanced technical skills necessary to be a well-rounded, competent mid-level provider capable of assisting the anesthesiologist and other members of the perioperative care team manage crisis care. Students will spend a minimum of 40 hours working with the Department of Anesthesiology Critical Care team, rounding on patients, discussing the appropriate clinical management of patients with severe burn injuries, sepsis, post-surgical complications, and complex traumas, amongst many other pathologies.

ANES Principles of Life Support: This course is designed to teach the principles of cardiopulmonary resuscitation for adults and children. Students will be taught the most up to date resuscitation guidelines and will become certified in Basic Life Support (BLS) CPR, Advanced Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS).

ANES Clinical Anesthesia Experience I: This course exposes students to the face-paced, complex anesthesia intra-operative environment. Students will apply knowledge gained during the introductory didactic courses to practical clinical cases in the surgical environment. Students will receive supervised instruction in the operating room one-on-one with a faculty anesthesiologist, resident, certified

anesthesiologist assistant and/or a certified registered nurse anesthetist. This course has a 150-hour minimum in-hospital time for successful completion.

ANES Case-Based Simulation I: Students will engage in active learning and critical thinking by participation in clinical case-based scenarios structured to cover the most commonly encountered intra-operative complications. The cases will develop students' understanding of applied physiology, pharmacology, and advanced monitoring skills to detect and remedy simulated patient anesthetic complications and hemodynamic perturbations.

SEMESTER III

ANES Anesthesia Principles & Practice II (ICU): In this advanced course, students will spend a minimum of 40 hours working with the Department of Anesthesiology Critical Care team, rounding on patients, discussing the appropriate clinical management of patients with severe burn injuries, sepsis, post-surgical complications, and complex traumas, amongst many other pathologies.

ANES Applied Physiology in Anesthesia II: This advanced course will take a more in-depth exploration of human systemic functions and pathology. This course will take a more in-depth exploration of the human body's systemic functions and will focus on how derangements in these systems affect the evaluation of and ASA classification of patients, specifically how knowledge of patient physiological derangements affects their overall anesthetic risk for morbidity and mortality. The major organ systems (cardiac, neurological, renal, gastrointestinal, liver, and hematologic systems) will be covered.

ANES Patient Monitoring and Instrumentation II: This is an advanced course focusing on how to provide anesthetic care for complex patients. The emphasis is on advanced patient monitoring techniques, equipment and modalities.

ANES Clinical Anesthesia Experience II: Students will continue to develop the skills and foundations of clinical practice needed to safely execute an anesthetic plan. Students will actively participate in clinical cases, honing their intubation, extubation, and peripheral intravenous access placement skills. Students will also engage in active discussion with the faculty members to review the core principles of anesthesiology and discuss the relevant clinical pearls of each case they participate in. This course has a 150 hour- minimum in-hospital time for successful completion.

ANES Case-Based Simulation II: This course is a continuation of ANES 115. In the setting of an anesthesia simulation lab, students will engage in active learning and critical thinking by participating in clinical case-based scenarios structured to cover advanced anesthesia monitoring, instrumentation, and crisis management. The cases will develop students' understanding of applied physiology, pharmacology, and advanced monitoring skills to detect and remedy simulated patient anesthetic complications and hemodynamic perturbations.

SEMESTER IV

ANES Ethics and Professionalism: This course will explore the professionalism expectations and obligations of healthcare personnel with a focus on peri-operative specific concerns such as respect for patient privacy (HIPPA laws), resolving conflicts, conflict of interest, abuse of authority, sexual harassment, accountability, integrity, wellness/burnout prevention, substance abuse and mandatory reporting. The second half of this course will utilize case-based scenarios to explore common ethical issues that arise in anesthesia. Students will learn the four main principles of bioethics (beneficence, non-maleficence, respect for patient autonomy, and justice), explore frameworks used to guide ethical analysis and be educated on which resources are available to assist with resolving ethical dilemmas.

ANES Anesthesia Principles & Practice III: This course will explore the issues that commonly arise in the post-anesthesia recovery unit (PACU). This is an excellent opportunity for students to observe the issues that can arise following anesthesia administration and/or post-surgical complications. Emphasis will be placed on airway management (airway obstruction, hypoventilation, vomiting, aspiration risk, hypercarbia, hypoxia) concerns, and post-operative hemodynamic monitoring.

ANES Applied Physiology III: This course will take a more in-depth exploration of the human body systemic functions and will focus on how derangements in these systems affect the evaluation of and ASA (American Society of Anesthesiology) classification of patients, specifically how knowledge of patient physiological derangements affects their overall anesthetic risk for morbidity and mortality. The major organ systems (cardiac, neurological, renal, gastrointestinal, liver, and hematologic systems) will be covered.

ANES Current Trends in Anesthesiology: This course provides an overview of the most up-to-date literature, emerging technologies, novel treatment modalities, new medications, and current research trends/findings.

ANES Clinical Anesthesia Experience III: In this course, students will begin to rotate on the advanced anesthesia clinical services such as Pediatric Anesthesia, Cardiovascular Anesthesia, Obstetrical Anesthesia, Trauma, Neurosurgical Anesthesia, Pediatric Cardiovascular Anesthesiology, and Advanced Orthopedic Surgical Anesthesia with an Acute Pain Management Focus. Students will receive supervised instruction in the operating room. This course has a 150 hour- minimum in-hospital time for successful completion.

ANES Crisis Management Simulation: Students will learn peri-operative crisis management techniques and skills through in a simulation lab.

SEMESTER V

ANES Anesthesia Practice Review I: This course is designed to prepare students for transition into the clinical workforce. Content will include reviewing hospital policies, practices, licensure, advocacy, Title IX requirements, and professionalism guidelines. There will be lectures, required readings and discussions with faculty and visiting speakers.

ANES Anesthesia Clinical Experience IV: This course provides dedicated clinical time for senior anesthesia assistant students to hone their clinical, technical, and deductive reasoning skills in the operating room. Students will work one-on-one with anesthesia faculty and anesthesiologists to perform pre-operative evaluations of patients, obtain anesthesia consent for surgery, execute an anesthetic plan, appropriately monitor patients, manage the airway and place any invasive lines needed for the procedure. Monthly required readings will be assigned.

ANES Subspecialty Case Based Simulation: Students will explore the management of complex subspecialty (Pediatrics, Cardiac, OB, Neuro) cases in a simulated environment.

SEMESTER VI

ANES Board Preparation: This course will review the key content covered in the National Certifying Exam for the Certification of Anesthesia Assistants.

ANES Anesthesia Practice Review II: This course is designed to prepare students for transition into the clinical workforce. Content will include reviewing hospital policies, practices, licensure, advocacy, Title IX requirements, and professionalism guidelines. There will be lectures, required readings and discussions with faculty and visiting speakers.

ANES Clinical Anesthesia Experience V: This course entails clinical instruction in operating rooms, the labor and delivery suite and in ambulatory surgery centers. Students will work with anesthesia faculty to perform pre-operative evaluations of patients, obtain anesthesia consent for surgery, execute an anesthetic plan, appropriately monitor patients, manage the airway and place any invasive lines needed for the procedure. Monthly required readings will be assigned.

ANES Subspecialty Case-Based Simulation II: Students will explore the management of complex subspecialty (Pediatrics, Cardiac, OB, Neuro) cases in a simulated environment.

SEMESTER VII

ANES Anesthesia Practice Review III: This course is designed to prepare students for transition into the clinical workforce. Content will include reviewing hospital policies, practices, licensure, advocacy, Title IX requirements, and professionalism guidelines. There will be lectures, required readings and discussions with faculty and visiting speakers.

ANES Anesthesia Clinical Experience VI: This is an advanced clinical course that is considered an acting internship. The focus will be to strengthen technical skills, clinical judgment, and inter-disciplinary team communication skills.

ANES Subspecialty Case-Based Simulation III: Students will explore the management of complex subspecialty (Pediatrics, Cardiac, OB, Neuro) cases in a simulated environment.

ANES Sub-specialty Elective: In this course, the student will complete 80 clinical hours in a sub-specialty area of interest. This can include Pediatric anesthesia, Obstetrical anesthesia, Trauma, Regional anesthesia, Cardiovascular anesthesia, Neurosurgical anesthesia, and Non-operative Anesthesia. The student will devise a project proposal in collaboration with a faculty member of their choosing that summarizes the clinical pearls of the subspecialty. The student will present the content to their student colleagues during WAC.

ACADEMIC EXPECTATIONS

The MSA Program is overseen by the McGovern Medical School. All students enrolled at UTHealth Houston must adhere to UTHealth Houston Handbook of Operating Procedures (HOOP) as well as follow school policies. Faculty of the MSA program will evaluate students and promote and graduate only those who have achieved a passing score in all curriculum components. If a student does not meet the requirements of courses as outlined in the syllabus, they must remediate the course. Students will be assessed on clinical performance, technical skill progression, professionalism, scholarship, research and effective communication skills.

Student performance is assessed based on observed performance in inpatient and outpatient facilities, ambulatory surgery centers, pre-operative anesthesia clinic, the obstetrical suite, the operating arena and in the classroom.

GRADING SYSTEM

Didactics Courses

Didactics courses will follow a traditional letter grade (A, B+, B, C+, C, D, and F) and are calculated into the GPA.

The corresponding grading scale is as follows:

Letter Grade	Numeric Range
A	90-100
B+	85-89
B	80-84
C+	75-79
C	70-74
D	67-69
F	<67

The grade point average (GPA) is the sum of earned grade points divided by the sum of credit hours passed and failed. Students receive exam grades following each exam and course grades at the end of each semester. Students must pass all courses each semester to progress to the next semester.

Clinical Performance:

Clinical rotations will be graded as Pass or Fail.

Clinical performance is assessed based on knowledge of practice, patient care, communication skills, professionalism, interdisciplinary/inter-professional communication, attendance, case-log documentation, scholarship (specifically evaluations from journal club and case presentations), and demonstration of ethical practice.

Case Logs:

All students are required to keep an accurate daily log of clinical activities in the case log system. Students must enter case information on the same day they participated in the care of the patient. Students will meet with their faculty advisor each semester to review the cases entered for the semester. A determination will be made whether the student is on track to meet the minimum case number for graduation.

The Commission on Accreditation of Allied Health Educational Programs (CAAHEP) who accredits all anesthesia assistant education programs, requires students to have 600 total anesthesia cases and 2000 total clinical hours for graduation.

Satisfactory academic standing for the MSA program requires that students maintain a minimum grade point average of 3.0 on a 4-point scale. If a student's GPA falls below 3.0 at the end of any semester, the student will not be allowed to continue in the program. To continue in the program, students must petition the Program Director, who will convene a MSA Progress & Promotions Committee (P&P Committee) hearing to decide the student's status in the program. The P&P Committee evaluates the performance of students with academic difficulty and determines whether remediation or separation is warranted. The committee will review the student's cumulative record, faculty evaluations, and reported clinical performance to determine if the student should progress to promotion, continue remediation or be dismissed from the program.

The P&P Committee will notify students in writing of any action taken pursuant to this HOOP Policy 220 Student Complaints located at <https://www.uth.edu/hoop/policy.htm?id=2553c1c1-c490-4ad0-a570-e263e12e0dff>

For information regarding the grade grievance procedures at the McGovern Medical School please see: <https://med.uth.edu/admissions/student-affairs/grade-grievance-procedure/>

GRADUATION REQUIREMENTS

In addition to other standards set out by this Catalog, graduation from the MSA Program requires that all of the following are met:

- a. Students must maintain a grade point average (GPA) of 2.8 or higher in the first two semesters.
- b. Students must finish the program of study in 4 years or less. This is inclusive of leaves of absence.
- c. Students must achieve a minimum GPA of 3.0 to demonstrate mastery of the program content.
- d. Students must be found suitable for clinical practice. Suitability for clinical practice is assessed through overall performance, including didactic course GPA (numerically graded with minimum passing score for each course determined by each course instructor) and clinical course performance (graded by evaluations from faculty, comprehensive exams and professionalism scoring). For more information, please refer to the MSA Student Handbook.
- e. Student must have completed degree requirements of 100 semester credit hours and 2000 clinical hours.

PROGRESS AND PROMOTIONS

UTHealth Houston MSA students will be able to view their didactic and clinical performance online through Canvas. Each MSA student will be assigned a faculty advisor. Students may request a meeting with their faculty advisor to discuss their progress in the program and any concerns that may arise. Faculty advisors will monitor each student's performance throughout the semester and will provide feedback regarding academic performance, clinical performance and professionalism.

Faculty advisors will schedule a progress and promotions meeting when the student is failing to meet the expected requirements. The MSA Progress and Promotions Committee is comprised of the Program Director, the Assistant Program Directors, the Medical Directors, the Program Manager and the core program didactic faculty. The committee reviews the student's performance each semester to determine if the student will be promoted to the next semester. The committee will determine whether students who are not eligible for promotion may require remedial coursework/performance plans and will subsequently be re-evaluated for promotion. Students who are required to remediate coursework will be informed in writing of the specific improvements needed and the expected timeframe during which they must complete the remediation plan. The committee may also recommend termination from the program.

At any time, students who self-determine they are unable to perform the expected duties, responsibilities and/or coursework required to maintain good standing in the UTHealth Houston MSA Program may voluntarily withdraw from the program.

The MSA Progress and Promotions Committee evaluates overall student performance and makes the final recommendation on student eligibility for graduation.

ATTENDANCE

To gain the knowledge and skills needed to master the objectives and competencies of the educational program for the MSA degree, students are expected to maintain consistent participation and attendance throughout the program. Each course, skills lab, and clinical practicum publishes its required/mandatory activities; please adhere to those as well as the general absence policy of McGovern Medical School (MMS). Policies for make-up work are based upon the missed content and are specific to each course. The McGovern Medical School Absence Policy can be found at <https://med.uth.edu/admissions/student-affairs/policy-excused-absence/>

GRIEVANCE POLICY

An academic concern that was not resolved through the informal academic grievance procedures described above may be addressed through the filing of a formal grievance. Following the unsatisfactory resolution of an informal grievance, the student may file a formal grievance within seven calendar days of the failed resolution. The formal grievance must be submitted in writing to the MSA Program Director. The Program Director will meet with the appropriate parties (students, MSA Course Directors, and MSA Medical Directors) to seek a resolution that is in the best interest of the individual student, student body, and the MSA Program as a whole. The Program Director may resolve the issue or invoke a MSA Progress & Promotions Committee hearing to assist in finding an appropriate resolution. The Program Director will respond, in writing, within 10 working days of receiving the written complaint. The student will be notified in writing of the resolution, as will any other pertinent parties. The student has the right to appeal the decision of the MSA Progress & Promotions Committee or the MSA Program Director, in writing, to the Dean of the McGovern Medical School within seven calendar days of the failed resolution should they feel that the resolution does not following university policy or was made with bias. In this case, the Dean will review the grievance and previous recommended resolutions and decide regarding final resolution of the matter. The Dean will respond, in writing, within 10 working days of receiving the appeal request. The

student will be notified, in writing, of the resolution, as will any other pertinent parties. The decision of the Dean is final.

Students are obligated to make every attempt to resolve grievances with the faculty member prior to filing a formal grievance request. If the student and the faculty cannot resolve the matter, the student should follow the grievance procedure as outlined above.

Add Student Accommodation Language

ADD as page 40 (prior to McGovern Medical School Departments and Faculty section)

Students with Disabilities and Attendance Requirements

UTHealth Houston students are expected to be present for all classes (whether in-person or online) or other forms of required class time to include labs, clinical rotations, or other school required meetings. Students are also responsible for taking quizzes and examinations in a timely manner according to the schedule for the courses and programs in which they are enrolled. It is the responsibility of each student to learn and comply with the standards set in each course's attendance policy, as explained in the course syllabus. Students should be aware that, when a course policy allows for a specific number of absences with no penalty, that number typically includes absences for any reason (including those with documented justification). In courses with such limits, absences beyond the allowed number create a presumption that the student has not fulfilled the essential educational requirements of the course, and therefore, will receive a grade reflecting the deficiency.

Attendance is important to the academic success of a student; however, UTHealth Houston understands that there may be disability-related reasons for missed classes. A student can request an exception to a faculty member's attendance policy through the process outlined in HOOP Policy #101 – Disability and Pregnancy Accommodation <https://www.uth.edu/hoop/policy.htm?id=1448050>. Determinations related to disability-related requests will be made on an individual basis based on a review of related medical documentation and in collaboration with the School's 504 Coordinator, the Office of University Relations & Equal Opportunity, the student, and the faculty member responsible for teaching each impacted course.

The school is not required to grant accommodations that constitute a fundamental alteration of the program or course. Specifically, the school does not have to modify a requirement, including attendance, that is essential to the educational purpose or objective of a program or class. Decisions regarding essential requirements of a course or program will be made by a group of people who are trained, knowledgeable, and experienced in the area through a careful, thoughtful, and rational review of the academic program and its requirements. Decision-makers will consider a series of alternatives for the essential requirements, as well as whether the essential requirement(s) in question can be modified for a specific student with a disability.

It is important for the student to discuss contingency plans with their faculty before absences occur to ensure the repercussion of absences are clear and/or to develop a contingency plan. This process is not intended to allow for unlimited absences and does not alleviate the student of their responsibility to complete all assignments, quizzes, and examinations, or participate in class or related activities (if applicable).

For additional information on the disability accommodation process please see HOOP Policy 101 – Disability and Pregnancy Accommodation <https://www.uth.edu/hoop/policy.htm?id=1448050>.

A list of UTHealth Houston 504 Coordinator's by school are found at <https://www.uth.edu/hoop/section-504-coordinators.htm>.

2023-2024 Catalog



Cover Page

This catalog is a general information publication only. It is not intended to nor does it contain all regulations that relate to students. Applicants, students, and faculty are referred to The University of Texas Health Science Center at Houston General Catalog. The provisions of this catalog and/or the General Catalog do not constitute a contract, express or implied, between any applicant, student or faculty member and McGovern Medical School or The University of Texas System. McGovern Medical School reserves the right to withdraw courses at any time, to change fees or tuition, calendar, curriculum, degree requirements, graduation procedures, and any other requirements affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled.

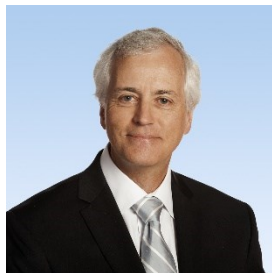
Accreditation



The University of Texas Health Science Center at Houston is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, doctoral, and professional degrees. Degree-granting institutions also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of The University of Texas Health Science Center at Houston may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

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 Houston 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 Executive 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 Houston) 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 the Memorial Hermann Hospital System, Lyndon B. Johnson Hospital, the UTHealth Houston Harris County Psychiatric Center, and the UT MD Anderson Cancer 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,

John Hancock, MA, MB, BChir, PhD, ScD

Executive Dean

H. Wayne Hightower Distinguished Professor

McGovern Medical School at UTHealth Houston

Administrative Officers

Deans

John Hancock, MB, MA, BChir, PhD, ScD

Executive Dean

Executive Director, The Brown Foundation Institute of Molecular Medicine for the Prevention of Human Diseases

LaTanya J. Love, MD

Dean of Education

Martin Citardi, MD

Vice Dean for Clinical Technology

Mark D. Hormann, MD

Vice Dean for Educational Programs

Margaret C. McNeese, MD

Vice Dean for Admissions and Student Affairs

Bela Patel, MD

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Jon E. Tyson, MD, MPH

Vice Dean for Clinical Research and Healthcare Quality

Nancy O. McNiel, PhD

Senior Associate Dean for Administrative Affairs

Kevin A. Morano, PhD

Senior Associate Dean for Faculty Affairs

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Wallace A. Gleason, Jr., MD

Associate Dean for Admissions and Student Affairs

Tien Ko, MD

Associate Dean for Harris County Programs

Sheela L. Lahoti, MD

Associate Dean for Admissions and Student Affairs

Dana M. McDowelle, PhD

Associate Dean for Admissions and Student Affairs

Charles C. Miller, PhD

Associate Dean for Hospital Quality Initiatives

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Associate Dean for Community Affairs and Health Policy

Philip R. Orlander, MD

Associate Dean for Educational Programs

Allison R. Ownby, PhD, MEd

Associate Dean for Educational Programs

Pamela Promecene-Cook, MD

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Eric J. Thomas, MD, MPH

Associate Dean for Healthcare Quality

Sean C. Blackwell, MD

Assistant Dean for Healthcare Quality, Women's & Perinatal

Peter Doyle, MD

Assistant Dean for Harris County Programs

J.Chase Findley, MD

Assistant Dean for Accreditation and Educational Quality Improvement

Johnson George, MBA

Assistant Dean of Administration and Faculty Affairs

Samuel D. Luber, MD

Assistant Dean for Graduate Medical Education

Bal Reddy, MD

Assistant Dean for Admissions and Student Affairs

John Riggs, MD

Assistant Dean for Professionalism

Eugene C. Toy, MD

Assistant Dean for Educational Programs

Directors**Darla Brown**

Director, Office of Communications

Nathan Carlin, PhD

Director, The John P. McGovern Center for Humanities and Ethics

Departments and Chairs

Anesthesiology, Critical Care and Pain Medicine

Holger K. Eltzschig, MD, PhD

Biochemistry and Molecular Biology

Rodney E. Kellems, PhD

Cardiothoracic and Vascular Surgery

Anthony Estrera, MD

Dermatology

Ronald P. Rapini, MD

Diagnostic and Interventional Imaging

Susan D. John, MD

Emergency Medicine

Bentley Bobrow, MD

Family and Community Medicine

Carlos A. Moreno, MD, MSPH

Integrative Biology and Pharmacology

Carmen Dessauer, PhD, *ad interim*

Internal Medicine

David D. McPherson, MD

Microbiology and Molecular Genetics

Michael Lorenz, PhD

Neurobiology and Anatomy

Pramod K. Dash, PhD

Neurology

Louise D. McCullough, MD, PhD

Neurosurgery

Nitin Tandon, MD, *ad interim*

Obstetrics, Gynecology and Reproductive Sciences

Sean C. Blackwell, MD

Ophthalmology and Visual Science

Timothy J. McCulley MD

Orthopedic Surgery

Walter R. Lowe, MD

Otorhinolaryngology- Head & Neck Surgery

Martin J. Citardi, MD

Pathology and Laboratory Medicine

Md Amer Wahed, MD

Pediatric Surgery

Kevin P. Lally, MD

Pediatrics

Mary E. Aitken, MD, MPH

Physical Medicine and Rehabilitation

Gerard Francisco, MD

Psychiatry and Behavioral Sciences

Jair C. Soares, MD, PhD

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 institution. 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 (LCME). 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 degree programs, was incorporated into The University of Texas Health Science Center at Houston (UTHealth Houston).

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 50 years after incorporation, McGovern Medical School at UTHealth Houston has achieved a position of excellence among the notable institutions in the Texas Medical Center. It has remained fully accredited throughout this time and was re-accredited in 2021.

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>

Accreditation

The McGovern Medical School is accredited by the Liaison Committee on Medical Education (LCME) located at: 655 K Street, NW, Suite 100, Washington, DC 20001. Telephone: 202.828.0596. <https://www.lcme.org>; lcme@aamc.org.

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.

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

Affiliated Hospitals and Outpatient Facilities

McGovern Medical School at UTHealth Houston (McGovern Medical School) is affiliated with several inpatient hospitals, including Memorial Hermann-Texas Medical Center (Memorial Hermann Hospital System), Children's Memorial Hermann Hospital, Lyndon B. Johnson Hospital (Harris Health System), The University of Texas MD Anderson Cancer Center, TIRR Memorial Hermann, John S. Dunn Behavioral Sciences Center at UTHealth Houston, and UTHealth Houston Harris County Psychiatric Center (HCPC), providing a broad range of clinical services. As such, the students are exposed to a large and diverse population, with an appropriate balance of common and rare disorders.

Please refer to <https://med.uth.edu/> for more information regarding our affiliated hospitals.

Ambulatory care and training are provided at the UT Physicians clinics, at eight community health centers operated by the Harris Health System, and at several other clinical outreach programs and WIC (Women, Infants and Children) clinics located throughout the greater Houston community. Please refer to <https://www.utphysicians.com/locations/> for further information regarding UT Physician clinic locations.

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 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 Houston 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 UTHealth Houston 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 Houston Handbook of Operating Procedures (HOOP) Policy 183, [Nondiscrimination, Anti-Harassment and Equal Opportunity](#). Students may access the HOOP online at <https://www.uth.edu/hoop/index.htm>.

Academic Prerequisites

Applicants must complete at least 90 undergraduate semester hours, including the 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. Any college English course earned at an accredited institution of higher education that fulfills a general education English requirement of a baccalaureate degree will be accepted. Remedial or developmental courses or "English as a Second Language" courses are not accepted.

Biological Sciences: 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. Biological science 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. Should include familiarity with analytic and volumetric techniques. Inorganic courses include general chemistry, physical chemistry and quantitative analysis.

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 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

Essential abilities and characteristics required for completion of the MD degree consist of certain minimum physical and cognitive abilities and sufficient mental and emotional stability to ensure that accepted students meet certain standards of capability (with or without reasonable accommodations) for matriculation, continued enrollment, and graduation with the MD degree. McGovern Medical School (MMS) intends for its graduates to become competent and compassionate physicians who are capable of entering residency training (graduate medical education) and meeting all requirements for medical licensure and who will serve the identified needs of the State of Texas. The following abilities and characteristics are defined as technical standards, which, in conjunction with academic standards established by the faculty, are requirements for admission, promotion, and graduation. Delineation of technical standards is required for the accreditation of U.S. medical schools by the Liaison Committee on Medical Education (LCME). Although these standards serve to delineate the necessary physical and mental abilities of all candidates, they are not intended to deter any candidate for whom reasonable accommodation will allow the fulfillment of the complete curriculum.

- **Observation:** Candidates must have the skills to be able to accurately obtain information from demonstrations and patient examinations in order to gather patient data (e.g., observe a patient's gait, appearance, posture, etc.). The skills necessitate the use of a sense of vision, hearing, and somatic sensation or a functional equivalent.
- **Communication:** Candidates must be able to communicate effectively with faculty, colleagues, staff, patients, their families, and members of the health care team. They must be able to obtain a medical history in a timely fashion, interpret non-verbal information, and establish therapeutic rapport with patients. Candidates must be able to read and record information accurately and clearly in a healthcare setting.
- **Motor Function:** Candidates must possess the capacity to perform physical examinations and diagnostic maneuvers. They must be able to respond to clinical situations in a timely and efficient manner while providing general and emergency care that are reasonably required of physicians. These activities require some physical mobility, coordination of both gross and fine motor neuromuscular functions, and balance and equilibrium. They must be able to adhere to universal precaution measures and meet safety standards applicable to inpatient and outpatient settings and other clinical activities.
- **Intellectual-Conceptual, Integrative and Quantitative Abilities:** Candidates must be able to assimilate detailed and complex information presented in both didactic and clinical coursework, and engage in problem solving. They must be able to learn through a variety of modalities including, but not limited to,

classroom instruction, small group and collaborative activities, problem-based learning groups, individual study, preparation and presentation of reports, simulations, and use of computer technology. Candidates are expected to measure, calculate, reason, analyze, synthesize, and transmit information across modalities. In addition, candidates must be able to comprehend three-dimensional relationships and to understand the spatial relationships of structures.

- **Behavioral and Social Attributes:** Candidates must demonstrate the maturity and emotional stability required for full use of their intellectual abilities. This includes, but is not limited to, accepting the responsibility of learning, exercising good judgment, and promptly completing all responsibilities associated with the diagnosis and care of patients. **Candidates are expected to exhibit integrity, honesty, professionalism, compassion, and display a spirit of cooperation and teamwork.** They must understand and abide by the legal and ethical aspects of the practice of medicine and function within both the law and ethical standards of the medical profession. Candidates must be able to work effectively, respectfully and professionally as a part of the healthcare team, and to interact with patients, their families, health care professionals, colleagues, faculty, and staff in a courteous, professional, and respectful manner. Candidates are expected to contribute to collaborative, constructive learning environments; accept constructive feedback from others; and take personal responsibility for making appropriate positive changes. They must be able to tolerate physically taxing workloads and long work hours, to function effectively under stress, and to display flexibility and adaptability to changing environments. They must be capable of regular, reliable and punctual attendance at classes and in regard to their clinical responsibilities.
- **Ethical Standards:** Candidates must meet the legal standards to be licensed to practice medicine. As such, candidates for admission must acknowledge and provide written explanation of any felony offense or disciplinary action taken against them prior to matriculation to McGovern Medical School. In addition, per HOOP 160, students are required notify the Vice Dean of Admissions and Student Affairs or designee of the following within 5 days: any arrests for and/or criminal charges of all misdemeanor or felony offenses (other than minor traffic violations), any misdemeanor or felony convictions and/or deferrals of adjudication, community supervision and/or other pre-trial diversion or disposition (other than minor traffic violations) and whether they are registered or will be required to register as a sex offender. Failure to disclose prior or new offenses can lead to disciplinary action by MMS that may include dismissal.

Equal Access to McGovern Medical School's Educational Program

McGovern Medical School is committed to providing all students with opportunities to take full advantage of its educational and academic programs. MMS and UTHealth Houston recognize that students with documented disabilities may require reasonable accommodations in order to achieve this objective and/or meet the technical standards/essential functions. Any accommodation must allow the student to complete the medical degree program within six years of matriculation. An accommodation request may not be considered reasonable if it poses a direct threat to the health or safety of self and/or others, if making it requires a substantial modification in an essential element of the curriculum, if it lowers academic standards, or if it poses an undue administrative or financial burden.

If a student, with or without reasonable accommodation, cannot satisfy the technical standards/essential functions or if it is determined that the disability would interfere with patient or peer safety or otherwise impede their ability to complete the program and advance to graduation, residency training or licensure, then the student may be separated, discontinued or dismissed from the program.

Process: Candidates with questions regarding disability accommodations are encouraged to contact the [McGovern Medical School Section 504 Coordinator](#) immediately to begin to address what types of accommodation may be considered. Admission to MMS is conditional on the candidate's having the ability to satisfy the technical standards, with or without reasonable accommodation, and results from a process that examines and values all of the skills, attitudes and attributes of each candidate on a case-by- case basis.

Additional Resources:

- HOOP 101 - Disability Accommodation <https://www.uth.edu/hoop/policy.htm?id=1448050>
- HOOP Policy 112 – Religious Accommodation <https://www.uth.edu/hoop/policy.htm?id=1448072>

Application Procedure

All applicants to McGovern Medical School must complete the following:

A **primary** application

- Applicants to the MD program must apply through the Texas Medical and Dental Schools Application Service (TMDSAS).
 - Applications for entry are typically accepted between May 1 and November 1 of the year preceding matriculation.
 - 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

- Those applying to the **MD/PhD** dual degree program must complete the [American Medical College Application Service \(AMCAS\) Application](https://students-residents.aamc.org/preparing-medical-school/preparing-medical-school). The application can be accessed at: <https://students-residents.aamc.org/preparing-medical-school/preparing-medical-school>

A **secondary** application

- A McGovern Medical School Secondary Application is required of all applicants.
- Candidates will receive an email invitation from our school containing the link and instructions to complete our secondary application after we have received their complete application from TMDSAS. Please allow for [processing time by TMDSAS](#).

A **CASPer Test** score

- All applicants applying to McGovern Medical School are required to complete an online assessment, Computer-Based Assessment for Sampling Personal Characteristics (CASPer), to assist in our selection process.
 - Applicants must go to takealtus.com to sign up for the Medicine test (CSP-10111 – U.S. Medicine), under your specific country (USA), and reserve a test using your TMDSAS ID and a piece of government-issued photo ID.

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 on Student Advancement and Appeals on the McGovern Medical School website at <https://med.uth.edu/oep/policies/>.

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 MMS 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 UTHealth Houston 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

Research Programs for Medical Students

Medical student research is an essential component of the overall mission of McGovern Medical School. The School's Medical Student Research Office (MSRO) offers students the necessary resources to successfully identify and pursue research opportunities. As part of its mission to promote student research, the MSRO administers a "Summer Research Program" that 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 the development of scientific reasoning and other research skills.

For the Summer Research Program 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 the first author. These abstracts are published and posted on the program's website. In addition, the students develop a research poster that 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 acknowledgment letter in their permanent academic file, also known as, their Blue Book. Students may continue their research until graduation with their mentor. Visit the Summer Research Program website for more information and application deadlines: <https://med.uth.edu/oep/msro/msro-programs/srp/>

Students also can participate in one of the fifteen current "Scholarly Concentration Programs." All concentrations are thematic, interdisciplinary, longitudinal, and experiential, with guided faculty mentoring and structured group seminars/courses/journal clubs, etc.. Students in concentrations are expected to conduct an independent scholarly project. Fourth-year medical students also have the option to pursue a research-intensive fourth-year curriculum, the Academic Career Focus Track (ACFT). Students who successfully complete the scholarly concentration requirements or the ACFT may participate in the Spring Research Day and The John P. and Katherine G. McGovern Medical Student Research Award Competition for graduating fourth-year students who conduct research through the Scholarly Concentration Program (SCP) or Academic Career Focus Track (ACT). The Spring Research Day typically takes place in early March (before Match Day). Entry to the competition is voluntary. Students completing the Scholarly Concentration Program receive a certificate of completion and recognition at graduation. Visit the Scholarly Concentration Programs website for more details: <https://med.uth.edu/oep/msro/msro-programs/scp/>

Applicants and MD program students interested in more extensive research training may apply to one of McGovern Medical School's dual degree programs. More information about the dual degree programs can be found in the "[Dual Programs](#)" section of the catalog.

Limited financial support is available for medical students pursuing research.

Contact the Medical Student Research Office for interest in research and scholarship: MSRO@uth.tmc.edu

MD Expenses

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 UTHHealth Houston Student Financial Services website (<https://www.uth.edu/sfs/cost-of-attendance.htm>) for the Cost of Attendance (COA). The COA is an estimated cost of a student's educational and living expenses for the period of enrollment. It includes tuition, fees, books/supplies, room and board, and other expenses.

The UTHHealth Houston Office of the Registrar website (<https://www.uth.edu/registrar/current-students/registration/tuition-fee-schedule.htm>) lists Tuition and Fee Schedules.

Tuition and Fees (2023-2024)

Resident Tuition	\$18,604.00
Non-Resident Tuition	\$26,125.00
School Specific Fees	
Laboratory	\$35.00
Foundations of Medical Science Course Fee (BSCI 1100; MS1 Year)	\$600.00
Malpractice Ins	\$25.00
Computer Resource	\$200.00
Technology Fee	\$1,511.00
Library Resource	\$125.00
Simulation and Skills Fee	\$1,300.00
UWorld Fee (MS3 Year)	\$539.00
National Assessment Exams Fee	\$230.00/MS1 Year \$455.00/MS2 Year \$534.00/MS3 Year
Student Orientation Fee	\$120.00/MS1 Year \$65.00/MS2 Year \$80.00/MS3 Year
Health Insurance ₁	\$3,190 ₂

All UTHealth Houston Schools-Required Fees (2023-2024)

Student Services Fee	\$591.75
Audit Fee (per course)	\$25.00
Information Technology Access	\$120.00
Student Record Fee (per semester, \$15/Annual)	\$5.00
Graduation ₃	\$100.00
Installment Use Fee	\$20.00
Late Payment fee	\$50.00
Late Registration fee	\$25.00
Return Check/E-Check Fee	\$25.00
Credit Card Use Fee	2.50%
Evacuation/Repatriation Insurance *Subject to Change (Assessed to international students who do not elect to carry the student Health Insurance Policy)	Fall - \$32.00 Spring- \$40.00 Summer - \$24.00
Reinstatement Fee - assessed to student who want to re-enroll after being dropped for nonpayment on the 12th day of class.	\$200.00

¹ Health insurance is required of all UTHealth Houston 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.

²The 4th year Class is charged \$3722 to cover 14 months of Health Insurance. The months of May and June are added to allow the time between the end of the 4th year and the beginning of their residency.

³ 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.

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 2023-2024 curriculum, the cost of required textbooks and supplies averages \$3,012.79 (excluding cost of computer) for the pre-clerkship curriculum and \$2,010.43 for the clerkships and required advanced clinical experiences. Information regarding specific textbook requirements and costs may be found here: <https://med.uth.edu/admissions/admissions/entering-class-checklist/>

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 the School and its faculty.

Because these principles are so important, 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 and 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

Dr. Arnold P. Gold, a faculty member at Columbia University College of Physicians and Surgeons, initially conceived the White Coat Ceremony. The White Coat Ceremony marks students' initial entry into the medical profession. A White Coat Ceremony is typically held between the fall and spring semesters of the first year. 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 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. The curriculum is organized into three phases: pre-clerkship, clerkship, and the career focus tracks. Variations and adjustments may be made as the Curriculum Committee deems necessary.

Pre-clerkship Phase

Year 1/Fall Semester/20 instructional weeks

Foundations of Medical Science *required* **BSCI 1100** (Pass/Fail; \$500 course fee – anatomy)

The purpose of this module is to provide students with the fundamentals necessary to study human disease at an advanced level. Students will learn the basic structure and function of major organs at the same time as they practice the related physical exam and clinical skills in Doctoring. In addition, students will learn the basic biochemical, cellular, and physiological mechanisms that underlie the major classes of disease.

Doctoring 1: History and Physical Exam *required* **BSCI 1101** (Pass/Fail)

This course introduces the student to the basic clinical skills of interviewing a patient and conducting a comprehensive medical history. Students learn to perform a normal physical examination on a healthy adult and document patient encounters (comprehensive history and physical examination) in an organized, accurate manner. The student integrates their own experiences during the course with longitudinal theme content to illustrate ways in which a physician communicates respect, compassion, and empathy. The student applies knowledge obtained from the longitudinal themes including the treatment of special patient populations (geriatric, pediatric etc.) and they will have specific training in the interview of the psychiatric patient.

Year 1/Spring Semester/18 instructional weeks

Hematology and Introduction to Pathology *required* **BSCI 1200**

The Hematology and Introduction to Pathology (HIP) module begins with an introduction to basic principles underlying disease: cell injury, adaptation, cell death and the effects that these processes have on tissues and organs. This is followed by an introduction to neoplasia. The second portion of the HIP module focuses on hematologic disorders, including anemias, coagulation disorders, and thrombotic disorders and how these conditions are treated. Reactive white blood cell disorders and hematologic malignancies will also be presented.

Cardiovascular System *required* **BSCI 1201**

The Cardiovascular Module focuses on expanding the concepts presented in Foundations and developing a knowledge base in pathology, pharmacology and clinical skills associated with the heart and vascular system. The emphasis is on management of cardiovascular disease including hypertension, myocardial infarction, congestive heart failure, arrhythmias, and both congenital and acquired cardiovascular defects. The concepts presented in this module are linked those presented during the subsequent pulmonary and renal modules to emphasize the tight integration of these organ systems.

Pulmonary System *required* **BSCI 1202**

This course begins with a review of pulmonary physiology from Foundations, followed by lung development and introduces radiologic imaging of lung structure. Students will study more in-depth lung physiology, and infectious and obstructive diseases of the lung in both adults and children. Students will be introduced to pathology, physiology, radiology and management of various acute critical conditions such as sepsis, acute respiratory distress syndrome and pulmonary embolism.

Renal System *required* **BSCI 1203**

The Renal System Module covers the physiology defining normal renal function, clinical characteristics and pathology / pathophysiology of diseases of the kidney, and clinical disorders that result from failure of the kidney to function correctly. Students will learn to evaluate changes in fluid and electrolyte balance, mineral metabolism and glomerular function and renal clearance. The clinical implications of renal dysregulation/dysfunction will be explored.

Doctoring 2: Longitudinal Clinical Experience required BSCI 1204

During Doctoring 2 students begin to use the skills acquired in Doctoring 1. Students will interview, perform comprehensive and focused histories, and perform comprehensive physical exams to evaluate patients with diseases and symptoms. Students will document patient encounters in an organized manner. Student will be able to integrate clinical and basic science knowledge in order to: analyze basic laboratory results; develop a differential diagnosis; determine a basic science pathology and pathophysiology. The student will be able to integrate their own experiences during the course with longitudinal theme content to describe in depth at least two key lessons learned by attending an interprofessional patient safety meeting.

Year 2/Fall Semester/20 instructional weeks

Doctoring 3: Longitudinal Clinical Experience required BSCI 2102

Doctoring 3 builds on skills gained from Doctoring 1 & 2 (interview, comprehensive/focused history, comprehensive/focused physical exam) to evaluate patients with diseases and symptoms, and document patient encounters in an organized, accurate manner. The student will be able to integrate clinical and basic science knowledge in order to: analyze basic laboratory results; develop a differential diagnosis; determine a basic science pathology and pathophysiology. The student will be able to integrate their own experiences during the course with longitudinal theme content to describe in depth at least two key lessons learned by attending an interprofessional patient safety meeting. Students are required to complete Basic Life Skills during Doctoring 3. This course spans the fall and spring semesters.

Gastrointestinal System required BSCI 2100

The Gastrointestinal Module builds on the concepts learned in Foundations and other systems modules further enhancing their knowledge base in anatomy, biochemistry, microbiology, pharmacology, pathology, and clinical expertise pertaining to the field of gastroenterology, hepatology, and nutrition. This module uses a variety of pedagogies, including didactic lectures, problem-based learning (PBL) cases and independent study. Doctoring 3 concepts are integrated into this module.

Nervous System and Behavior required BSCI 2101

The Nervous System and Behavior Module (NSB) is a team-taught course that provides an interdisciplinary approach to understanding the nervous system and behavior. The module consists of multi-modal learning approaches: lectures, clinical presentations with patients, laboratory sessions, clinical correlations, small group learning exercises, self-study exercises and problem based learning (PBL) cases. The ultimate objectives and goals of the NSB Module are to provide an understanding of the structure, function and dysfunction of the nervous system. Mental illness, behavioral dysfunction, and substance use issues are presented from a biopsychosocial perspective with both pharmacological and psychological interventions for treatment.

Endocrine System required BSCI 2103

This module focuses on hypothalamic-pituitary axis, and normal growth patterns and growth disorders. Students will learn about diagnostic strategies and therapeutic options for various diseases including pituitary, metabolic, adrenal and thyroid disorders. Students will also be introduced to the diagnosis and pharmacologic management of osteoporosis.

Year 2/Spring Semester/10 instructional weeks

Reproductive Systems required BSCI 2201

This module focuses on hormonal regulation of reproductive function, evaluation and management of infertility, and pregnancy, including preconception planning and the physiology of birth. Students will be introduced to the management of diabetes, hypertension, and infectious diseases during pregnancy. They will also learn about uterine, ovarian and breast pathology, as well as the genetics of breast and gynecologic malignancies. Students will also be introduced to breast imaging and the medical treatment of breast cancer, as well as management of sexually transmitted infections and male genitourinary pathology. Students will discuss sexual identity, sexual function, and the reproductive health of older adults.

Musculoskeletal System and Integumentary System *required* BSCI 2202

Students will learn about the morphology, pathophysiology, clinical presentations and management of common skin disorders. They will spend time in the dermatology clinic where they will have the opportunity to perform skin examinations, and learn about evaluating and diagnosing skin conditions. Students will also learn about various bone disorders and soft tissue malignancies, including pathophysiology, diagnosis, differential diagnosis, management and treatment. The approach to various forms of musculoskeletal pain, relevant physiology, and treatments will be explored.

Transition to Clerkships *required* BSCI 2304

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

Clerkship Phase

The Clerkship Phase occurs in Year 3 of the curriculum and consists of 48 instructional weeks. The required clerkships include family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery, as well as a three-week elective and a one week geriatrics rotation. The goal of the clerkship phase is to provide broad exposure to the major disciplines of medicine. Specific descriptions are below. Geriatrics and the elective are pass/fail.

Family Medicine *required, 4 weeks* FAMD 3001 The goal of this clerkship is to introduce students to the practice of Family Medicine by focusing on the clinical approach to the ambulatory primary care patient. Learning activities are planned to introduce the knowledge, attitudes, and skills that all physicians need when evaluating such a patient.

Geriatrics *required, 1 week* GERI 3030 (Pass/Fail)

The geriatric and palliative third year rotation is designed to enable medical students to practice effectively in a clinical setting. Students will actively participate in the ongoing, daily care of older and/or palliative patients. Students will be paired with a geriatric or palliative preceptor who will provide clinical teaching and feedback. Throughout the clerkship, students will work with a variety of geriatric and/or palliative focused health professionals as part of the interprofessional team approach.

Internal Medicine *required, 8 weeks* INTM 3001

The Internal Medicine Clerkship is an eight week rotation split into two four week blocks with the primary goal of introducing students to the evaluation and treatment of adults hospitalized with acute medical illness. Emphasis is placed on developing the skills to diagnose common clinical conditions and to recognize the clinical presentations of common diseases. Students will take patient histories, perform comprehensive physical exams, formulate problem lists with appropriate differential diagnoses, and document their findings in the electronic health record. Students will participate in the evaluation of a diversity of patients as part of a team of residents and students under the supervision of an internal medicine faculty member.

Neurology *required, 4 weeks* NEUR 3000 The Neurology clerkship is a four week rotation designed to educate students to take a relevant neurologic history, perform a comprehensive neurologic exam and based on their findings, effectively localize the lesion or determine the relevant neuroanatomical correlation. Students will have an opportunity to perform a neurologic exam on a standardized patient, encounter common neurologic emergencies in the simulation lab and repeatedly apply their knowledge in both inpatient and outpatient settings where they will encounter a broad range of neurologic diagnoses.

Ob/Gyn *required, 6 weeks* OBGY 3001

The Obstetrics and Gynecology clerkship covers pathophysiology of the female reproductive system. The basis for the diagnosis, management, and treatment of diseases specific to women are also covered. Students participate in patient encounters in the operating room, labor and delivery, emergency room, ambulatory clinics and on the hospital wards.

Pediatrics *required, 8 weeks* PED-3001

Pediatrics is an eight week rotation, with four weeks spent on the inpatient unit at Children's Memorial Hermann Hospital or Memorial Hermann Hospital Sugarland and four weeks spent at one of several outpatient pediatric clinics scattered around Houston. Students will be exposed to the care of newborn infants, children with acute and chronic medical conditions, and well children coming in for their regular checkups. A major focus of the clerkship is injury and

illness prevention. Students will become familiar with congenital and acquired conditions, as well as normal and abnormal patterns of development.

Psychiatry required, 6 weeks PSYC 3001 The Psychiatry clerkship is a six week rotation where students will participate in a multidisciplinary team to help provide care for patients with ongoing psychiatric illness. Students in this clerkship will build on their knowledge about behavioral sciences from their Doctoring, Nervous System and Behavior module, and Foundations of Medical Science experiences and will expand their interviewing, diagnostic and treatment skills for psychiatric disorders.

Surgery required, 8 weeks SURG 3001

The Surgery clerkship curriculum emphasizes the basic clinical skills required to solve common surgical problems. Students will be introduced to preoperative, postoperative, emergency, and ambulatory care of patients. By the completion of this clerkship, students will be expected to demonstrate an understanding of the pathophysiology of surgically treatable diseases and to 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 skills for the safe, effective, and efficient management of patients in the hospital and ambulatory setting.

Elective required, 3 weeks (Pass/Fail)

All students have the opportunity to explore a wide variety of specialties during their three week third year elective. During this time students may explore specific specialty interests, or they may work on a project associated with their Scholarly Concentration.

Students will have four weeks of vacation during the Clerkship Phase.

Career Focus Tracks Phase

The Career Focus Tracks Phase occurs in Year 4 of the curriculum and consists of 42 instructional weeks. The goal of the Career Focus tracks is to provide students with clinical experience related to their intended career path, and to provide career mentoring and guidance. There are four tracks: primary care, acute care, academic career, and applied anatomy. During the tracks, all students complete three required advanced clinical selectives: ambulatory care, advanced patient care, and critical care. Additionally, the career focus tracks require six (6) four-week electives tailored to the students' interests.

Students will take the required Comprehensive Clinical Competency Examination (CCCE) at the beginning of Year 4.

Career Focus Tracks CFT 4001

Students choose one of four fourth year tracks, corresponding to their career goals. These tracks have specialty-related educational activities throughout the year.

- The **Primary Care** track is designed for students interested in Pediatrics, Internal Medicine, Family Medicine, and Psychiatry. Students planning on practicing OB/Gyn in the community might also select this track.
- The **Acute Care** track is primarily designed for students planning to go into Emergency Medicine or Anesthesia.
- The **Applied Anatomy** track is designed for students interested in surgical specialties, pathology, and radiology.
- **Academic Career** is a track for students who have embarked on a significant research project during medical school. They are permitted to devote additional elective time to research in order to ready their project for publication.

Ambulatory Medicine required selective, 4 weeks INTM 4000/PED 4000/OBGY 4000/FAMD 4000/ EMER 4000

The required fourth year ambulatory rotation is an outpatient clinic based selective, allowing students to choose a particular area of focus consistent with their career trajectory. Students will care for patients coming in for preventative health checkups, as well as those with minor acute illnesses. Students also revisit the principles of evidence based medicine, and complete a critical review of the literature for a clinical question of their choosing.

Required Critical Care required, 4 weeks RCC- 4000

The required critical care rotation places fourth year students in an ICU setting, caring for the sickest patients in the hospital under the supervision of critical care fellows and faculty. Students are able to request from a list of ICUs, tailoring the experience to their intended career. There is a focus on procedures and ventilator management.

Advanced Patient Care *required, 4 weeks* APC 4000/4001

This rotation, commonly referred to as an “acting internship” or a “Sub-I” rotation, puts fourth year students on inpatient teams in the role of an intern, giving students primary responsibility for hospitalized patients under the direct supervision of a faculty member. Students will work on a call or shift system alongside the residents, taking admissions, practicing order entry, and working with case managers to ensure safe discharges. Students may choose a rotation that best fits their career plans from a wide variety of inpatient services.

Transition to Residency *required, 2 weeks* RTR- 4000

This course includes specialty-based workshops, panel discussions, plenary speakers, and clinical skills practice sessions designed to prepare students for residency.

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/>

Fourteen 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.

Competencies and Medical Education Program Objectives

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. **Health Systems Science** – 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/medical-education-2/core-competencies-and-educational-program-objectives-epos/>

Pre-Entry Program

The Pre-Entry Program is an intensive four-week program offered to a subset of students prior to matriculating 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 prepare students 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. Second year students serve as tutors for the program.

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

Philip Carpenter, PhD, Director, Pre-Entry Program
Erin Bodeker, Educational Programs Coordinator
Office of Educational Programs
McGovern Medical School
6431 Fannin, MSB G.420
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

The Learning Resource Center (LRC) manages study spaces, liaises with faculty and students, and provides innovative teaching and learning resources in support of the school's curricular offerings. Students have 24/7 access to 250+ seating spaces, including 170 study carrels, 11 group study rooms and 2 fully equipped "clinic" rooms to practice physical exam skills. Onsite IT support includes repair, maintenance, and configuration of students' computer devices. In addition to a primary facility in the medical school building, students have access to secondary facilities elsewhere in the building and at Lyndon B Johnson Hospital as well as student lounge facilities at these sites. In collaboration with librarians from the Texas Medical Center Library, the LRC staff assists medical students with online search strategies and information literacy skills.. <https://med.uth.edu/lrc/>.

Dual Degree Programs

Medical Scientist Training Program (MD/PhD) Program

The Medical Scientist Training Program (MSTP) is a dual degree MD/PhD program of McGovern Medical School and MD Anderson UTHealth Houston Graduate School of Biomedical Sciences. The program educates physician-scientists and draws from faculty expertise at UTHealth Houston and MD Anderson Cancer Center. This rich training environment—encompassing laboratories, hospitals, and clinics in the Texas Medical Center—ensures that our 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 MSTP. The program is restricted in size and provides stipend and tuition support for MD/PhD candidates. For information, visit the program's Web site at <https://gsbs.uth.edu/mdphd/>

Those interested in the MSTP should inquire through the MMS Office of Admissions and Student Affairs. Application for admission to the MSTP 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>. 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 application deadline is November 1st. For additional information you may also contact the MD/PhD administration at 713-500-6865 or by email at mstp@uth.tmc.edu.

MD/MPH Program

McGovern Medical School and the UTHealth Houston School of Public Health (UTSPH) offer a pathway 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 program can be found online at: <https://sph.uth.edu/degree-finder/?searchby=dp&did=7129b0c2-9aaa-46c1-a00c-7c2d666374e4&dept=ea81c064-92da-4551-8eda-2a65ca67e78c>

Students must meet the admission requirements of both schools to qualify for the MD/MPH program. Acceptance to UTSPH is accomplished by applying during the regular application cycles – deadlines are April 1 (for Summer/Fall admission) and October 1 (for Spring admission). To be considered for the four-year path, students must begin classes the summer prior to their first year of medical school and apply by April 1.

MD/MS in Biomedical Informatics

McGovern Medical School and the McWilliams School of Biomedical Informatics at UTHealth (SBMI) offer a pathway dual degree program leading to an MD degree and a Master of Science in Biomedical Informatics (MS). The requirements established for the program meet the general requirements of both degrees. The curricula are integrated along a four-year path to support student career objectives.

Dual degree students will explore the wide range of applications of health and biomedical informatics in the quest to improve patient care. The program examines both electronic health records systems and clinical decision support systems and methods for enhancing those tools. Students learn about data interpretation and knowledge management as they discover how to collect, process, and transform health and biomedical data into health information and knowledge. Dual degree students will understand core clinical informatics disciplines such as technology assessment, quality and outcome improvement, data analytics and precision medicine.

Information regarding the MD/MS program can be found online at: <https://sbmi.uth.edu/prospective-students/academics/dual-degree.htm>

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

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 pathway 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 MD/MBA program. Enrollment in the MBA program at UHCL is accomplished after acceptance to McGovern Medical School.

Any questions or requests for information or to begin the application process please contact Michael W. Bungo, MD, Director MD/MBA Program, at michael.w.bungo@uth.tmc.edu. Additional and more comprehensive information is available on the website at <https://med.uth.edu/dualdegreeprograms/mdmba/>. Sample schedules are detailed on that site and links are provided to obtain more updated information.

MD/MBE Program

McGovern Medical School and Rice University offer a dual degree pathway program leading to an MD degree and a Master of Bioengineering (MBE). The requirements established for the program meet the general requirements of both degrees. The curricula are integrated along a five-year path to support student career objectives.

Students must meet the admission requirements of both schools to qualify for the MD/MBE program. Applicants will submit applications to McGovern Medical School through the Texas Medical and Dental Schools Application Service (“TMDSAS”) and Rice University independently according to the admission criteria, schedules and policies of each school. Rice’s Application process and admission standards can be found in the General Announcements, at: <https://ga.rice.edu/graduate-students/academic-policies-procedures/admission/>

Information regarding the MD/MBE program can be found online at: <https://med.uth.edu/dualdegreeprograms/>

MD/Oral and Maxillofacial Surgery Certificate (OMS)

Both a four-year and six-year Advanced Education Program in Oral and Maxillofacial Surgery Residency are offered by UTHealth Houston. The six-year program is offered jointly through the UTHealth Houston 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 other OMS services; during the fifth year, the residents will do the general surgery rotation. 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>

Graduate Medical Education (GME)

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 UTHealth 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 fellowship 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, Oral and Maxillofacial Surgery, Otolaryngology, Orthopaedic Surgery, Pathology, Pediatrics, Plastic Surgery, Psychiatry, Child Psychiatry, Diagnostic Radiology, Interventional Radiology-Integrated, General Surgery, Colon and Rectal Surgery, Vascular Surgery Integrated, Urology, Internal Medicine/Pediatrics, Child Neurology, and Physical Medicine and Rehabilitation. In addition, there are over 50 accredited sub-specialty fellowships. 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 JLL 310

Houston, Texas 77030

Web site: <https://med.uth.edu/gme/>

Continuing Medical Education (CME)

McGovern Medical School 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 McGovern Medical School CME program is fully accredited by the Accreditation Council for Continuing Medical Education. For further information, call 713-500-5134, or visit <https://med.uth.edu/cme/>.

Office of Continuing Medical Education

McGovern Medical School

6431 Fannin, JLL 304

Houston, Texas 77030

Master of Science in Clinical Research Degree Program

The Master of Science in Clinical Research Degree Program (MSCR) has been offered since the fall of 2002. This MSCR 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/crebm/clinical-research-education/>

MSCR 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 UTHealth Houston 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 on official letterhead 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 providing the applicant with adequate "protected" time to complete the program.
- 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
Deborah "Deb" Garcia
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 MSCR 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
- Involvement in community activities.

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 Houston 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 following a set curriculum and pursuing a degree without an interruption of more than one year in enrollment.
- Non-degree Student: a student 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 apply the concepts of evidence-based medicine and health services research to clinical practice at the local, regional, and national levels using practice guidelines as instruments of evidence-based practice. 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 advisors).
- 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.)
- g) All degree requirements must be completed within five (5) years of admission to the program.

Clinical Research Curriculum Topics

Introduction to Epidemiology Research
 Clinical Trial Design
 Health Care Quality and Safety
 Social and Behavioral Aspects of Clinical Research

Biostatistics for Clinical Investigators
 Literature Appraisal
 Ethical Aspects of Clinical Research
 Introduction to Translational Research
 Clinical Research Design Workshop
 Translational Research Design Workshop

Additional Coursework for MSCR

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, 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

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 Houston 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 Houston.

Petitioning for Course Equivalency

A student wishing to receive credit for courses taken outside the MS in Clinical Research Program at UTHealth Houston may submit a Petition for Equivalency form, available by email from the Program Coordinator. This includes the Clinical Research Curriculum courses and 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 advisor. For courses taken outside McGovern Medical School, the student must supply the required documentation about course 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 their 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 meet with their Advisory Committee to review academic progress, course selection, and thesis development.

MSCR Tuition and Fees

The resident tuition is \$96 per semester credit hour. The non-resident tuition will be \$516 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)	\$40.00
Installment Use Fee	\$20.00
Late Payment Fee	\$50.00
Return Check/E-check fee	\$25.00
Credit Card Use Fee	2.5%
Health Insurance ₂ (annual)	\$3,190
Student Record Fee (per semester)	\$5.00
Reinstatement Fee ₃	\$200.00
Student Services Fee (Annual) ₄	\$591.75
Evacuation/Repatriation Insurances 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 Houston 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, subject to the 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 UTHealth Houston Office of the Registrar for specific details.

MSCR Grading, Conduct, and Satisfactory Progress Policies

Grades

Core courses in the MS in Clinical Research Program are 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 advisors). 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 Curriculum and Academics (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 with 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 MMS Office of Admissions and 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 every academic year after enrollment (course, practicum, or thesis component) will be considered to have withdrawn from the program. Once withdrawn, a student who wishes to resume participation in the program must apply to be readmitted. 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 open to all clinical researchers in the Texas Medical Center. Students in the MS in Clinical Research program receive 9-12 hours of formal credit for these courses using the Petition for Course Equivalency described above. Call 713-500-6708 or email Deborah.garcia@uth.tmc.edu 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: John Harvin, MD MS, Jon Tyson, MD MPH

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: Research on Social and Behavioral Aspects of Clinical Research

Instructor: Christopher Greeley, MD MS

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, John Hagan, PhD**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:** John Hagan, PhD , Shervin Assassi, MD MS**Course Description:** This workshop provides a hands-on venue to introduce the 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 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)**Courses for the MS in Clinical Research Program**

The following advanced courses are offered as part of the MS in Clinical Research 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;**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 a 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 (e.g., 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 the feasibility of clinical trials.**Prerequisite:** Introduction to Epidemiology Research, Clinical Trial Design, or consent 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)

McGovern Medical School Departments and Faculty

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

Anesthesiology, Critical Care and Pain Medicine	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/