

MASTER OF SCIENCE IN ANESTHESIA (MSA)

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 integrates didactic learning, simulation-based training, and clinical instruction to prepare students for a career as a Certified Anesthesiologist Assistant.

The MSA program will educate and train students to manage complex clinical cases as part of the Anesthesia Care Team (ACT). Students will learn standard anesthesia technical skills, how to use an anesthesia machine, how to communicate effectively with patients, 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. The goal of the MSA program is to prepare competent entry-level Anesthesiologist Assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

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 650 anesthetic cases and 2,500 hours of clinical training, gaining exposure to unique and complex surgical procedures by leading medical and procedural experts.

Overall, Certified 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.

Accreditation

The Master of Science in Anesthesia (MSA) Program at The University of Texas Health Science Center at Houston has completed a site visit for pursuing initial accreditation by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org). This step in the process is neither a status of accreditation nor a guarantee that accreditation will be granted.

CAAHEP is located at 9355 113st N. #7709, Seminole Florida, 33775, and can be reached at 727.210.2350 or at mail@caahep.org. The CAAHEP website is www.caahep.org. ARC-AA can be reached at 612.836.3311 or at arc-aa@arc-aa.org.

General Admission Requirements for the MSA Program

Citizenship

Must be a U.S. citizen or permanent resident

Degree

A bachelor's degree from an accredited institution of higher education

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.

The minimum grade for each prerequisite is 3.00. If a course is repeated (i.e. for a better grade), all grades will be incorporated in the computation. This method of calculation is adopted to give fair weight to applicants who attempted the course only once.

- Biology I (4 credits)
- Biology II (4 credits)
- Chemistry I (4 credits)
- Chemistry II (4 credits)
- Physics I (4 credits)
- Physics II (4 credits)
- Organic Chemistry I (4 credits)
- **Human Anatomy I or Human Anatomy & Physiology I (4 credits)
 - Beginning in the 2025 – 2026 application cycle, only Human Anatomy and Physiology I will be accepted. Human Anatomy I will not be accepted to fulfill this prerequisite in the 2025 – 2026 application cycle.
 - Human Anatomy II or Human Anatomy and Physiology II (4 credits) is not a requirement for the 2024 – 2025 application cycle. Beginning in the 2025 - 2026 application cycle, Human Anatomy and Physiology II will be a required prerequisite.

- **Biochemistry (3 credits)**
- Calculus I (4 credits)
 - Precalculus and survey courses will not fulfill this requirement
- English (3 credits)
 - This can also be fulfilled with other expository writing courses in the humanities.

**Human Anatomy/Human Anatomy & Physiology, and Biochemistry must be taken within 5 years of the application deadline. All other prerequisites must be taken within 7 years of the application deadline.

Grade Point Average (GPA)

Minimum cumulative GPA of 3.00

Standardized Test Scores

- Medical College Admission Test (MCAT) is the preferred standardized exam for admission.
 - Minimum acceptance score: 494.
 - MCAT score must be within 3 years of the date of application submission.
- 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 do not achieve the minimum standardized test score will be evaluated by the admissions team on an individual basis. 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.

Physical and Technical Requirements:

All applicants must have the general abilities required of anesthesia healthcare providers. This includes:

- 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.
- Communication skills – the ability to effectively communicate with patients, faculty, staff and peers both in written and oral form.
- 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).
- Sensory abilities – the ability to assess a patient utilizing the five senses, including sight, hearing and touch.

- 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.

Shadowing Experience

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. The UT MSA Program does not have a formal program for assistance with shadowing opportunities.

Personal Statement

A narrative explaining your motivation for applying to the Master of Science in Anesthesia Program.

Letters of Recommendation

Three (3) professional letters of recommendation from individuals who can attest an applicant's strengths and weaknesses. Evaluators will upload their letters onto the CASAA online evaluation portal (see application process). Evaluations should specifically be written to describe the applicant's potential contribution to the field of medicine as an anesthesiologist assistant.

Transfer of Credit

The MSA program does not accept transfer of credits from other MSA programs.

Application Procedure

Applications should be submitted online through the Centralized Application Service for Anesthesiologist Assistants (CASAA). CASAA is a service of the Association of Anesthesiologist Assistant Education Programs (AAAEP), the national organization of educational leaders collaborating to advance and support Anesthesiologist Assistant (AA) education.

The following are required:

1. A completed CASAA application with documents that include a Curriculum Vitae, shadowing/healthcare hours, and verification that the MCAT or GRE has been taken. Each applicant will be required to submit a personal statement that explains their interest in becoming an Anesthesiologist Assistant.
2. 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.
3. Official transcripts covering all periods of post-secondary enrollment in accredited institutions of higher education. Applicants should request the institution to send official (original) electronic transcripts directly through the CASAA portal. Copies of official transcripts sent

by the applicant are not considered. Transcripts must include both grades and credit hours.

- 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).

Applicants can contact the 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.

Tuition and Fees

Beginning Fall 2024, the MSA resident tuition will be \$1,080 per semester credit hour. The non-resident tuition will be \$1,910 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 Bursar Student Resources website (<https://www.uth.edu/bursars/student-resources/>) for the current Tuition and Fee Schedules. Additional student Information regarding tuition and fee exceptions and/or waivers, Veterans education benefits, and the Policy for Texas Resident Tuition can be found on the Registrar's website here (<https://www.uth.edu/registrar/current-students/>).

MSA Curriculum

The MSA program is 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. The prescribed course of study features 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.

MSA Course List

Semester 1 - Fall

- ANES 5202 Airway Management
- ANES 5401 Anatomy
- ANES 5350 Introduction to Physiological Simulation
- ANES 5301 Introduction to Physiology I
- ANES 5101 Medical Terminology
- ANES 6301 Orientation to Clinical Anesthesia
- ANES 5201 Pharmacology for the Anesthesiologist Assistant I

Semester 2 - Spring

- ANES 6201 Anesthesia Principles & Practice I
- ANES 5302 Applied Physiology in Anesthesia I
- ANES 5351 Case Based Simulation I
- ANES 6302 Clinical Anesthesia Experience I
- ANES 5102 Electrocardiophysiology (ECG)
- ANES 5204 Pharmacology for the Anesthesiologist Assistant II
- ANES 5203 Patient Monitoring and Instrumentation I
- ANES 5103 Principles of Life Support

Semester 3 - Summer

- ANES 6202 Anesthesia Principles & Practice II
- ANES 5303 Applied Physiology in Anesthesia II
- ANES 5250 Case Based Simulation II
- ANES 6303 Clinical Anesthesia Experience II
- ANES 5205 Patient Monitoring and Instrumentation II

Semester 4 - Fall

- ANES 5206 Anesthesia Principles & Practice III
- ANES 5207 Applied Physiology III
- ANES 6801 Clinical Anesthesia Experience III
- ANES 5150 Crisis Management Simulation
- ANES 5105 Current Trends in Anesthesia I
- ANES 5104 Ethics & Professionalism

Semester 5 - Spring

- ANES 6101 Clinical Anesthesia Experience IV
- ANES 5106 Anesthesia Practice Review I
- ANES 5151 Subspecialty Case Based Simulation

Semester 6 - Summer

- ANES 5108 Anesthesia Practice Review II

ANES 5107 Board Preparation

ANES 5152 Subspecialty Case Based Simulation II

ANES 6102 Clinical Anesthesia Experience V

Semester 7 - Fall

ANES 5109 Anesthesia Practice Review III

ANES 6103 Clinical Anesthesia Experience VI

ANES 5153 Subspecialty Case Based Simulation III

ANES 6104 Sub-Specialty Elective

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 within 48 hours of the encounter with 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 numbers and clinical hours required for graduation.

Students are required to complete the minimum clinical standards, as listed below, by the end of the third year to be recommended for graduation. Students who have not satisfactorily completed the minimum clinical standards will face delayed graduation and may be required to complete one or more semesters of clinical remediation to be recommended for graduation.

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 Grade Point Average (GPA). 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 year to progress to the next year.

The corresponding grading scale is as follows:

Grading Type	Grading Component
'A' Letter Grade = 4.00 Grade Points Earned	90 - 100 Numeric Average Range
'B+' Letter Grade = 3.33 Grade Points Earned	85 - 89.99 Numeric Average Range
'B' Letter Grade = 3.00 Grade Points Earned	80 - 84.99 Numeric Average Range
'C+' Letter Grade = 2.33 Grade Points Earned	75 - 79.99 Numeric Average Range
'D' Letter Grade = 1.00 Grade Points Earned	65 - 69.99 Numeric Average Range
'F' Letter Grade = 0.00 Grade Points Earned	< 65 Numeric Average Range

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 year to progress to the next year.

Clinical Performance:

Clinical performance is evaluated by preceptor evaluations of anesthesiologist assistant students on a scale from 1 to 5 (exceptional) that are averaged and calculated into the letter grade as seen below for the following courses: ANES 6102, 6303, 6803, 6101, 6102, and 6103 (Clinical Anesthesia Experience I – VI).

These courses will follow the letter grades (A, B+, B, C+, C, D, and F) as indicated below:

Grading Type	Grading Component
'A' Letter Grade = 4.00 Grade Points Earned	4.00 - 5.00 Clinical Evaluation Score
'B+' Letter Grade = 3.33 Grade Points Earned	3.50 - 3.99 Clinical Evaluation Score
'B' Letter Grade = 3.00 Grade Points Earned	3.00 - 3.49 Clinical Evaluation Score
'C+' Letter Grade = 2.33 Grade Points Earned	2.75 - 2.99 Clinical Evaluation Score
'D' Letter Grade = 1.00 Grade Points Earned	2.00 - 2.49 Clinical Evaluation Score
'F' Letter Grade = 0.00 Grade Points Earned	< 2.00 Clinical Evaluation Score

Clinical performance is assessed based on knowledge of practice, patient care, communication skills, professionalism, interdisciplinary/inter-professional communication, attendance, case-log documentation, and demonstration of ethical practice.

Criteria for Advancement Through the MSA Program

Successful completion of each MSA Program year (SAA1-SAA2) will require:

- Cumulative GPA greater than or equal to 3.00 for the given year
 - First-year students will repeat the first-year year curriculum (semesters 1, 2, & 3) if the cumulative GPA of semesters 1, 2, & 3 is below 3.0.
 - Second-year students will repeat the second-year curriculum (semesters 4, 5, & 6) if the cumulative GPA of semesters 4, 5, & 6 is below 3.0.
- Satisfactory clinical performance as determined by the Program and Clinical faculty
- Satisfactory professionalism standing as determined by the Program and Clinical faculty
- Good standing financial obligations to the University

Students who fail to meet any of the requirements listed above will not progress to the next Program Year.

MSA Graduation Requirements

The MSA Program requires that all the following criteria are met:

1. Students must achieve and maintain a cumulative grade point average (GPA) of 3.00 or above
2. Students must finish the program of study in 4 years or less. This is inclusive of leaves of absence.
3. 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.
4. Student must have completed degree requirements of 100 semester credit hours, a minimum of 650 anesthetic cases, and a minimum of 2,500 clinical hours.

MSA Student Grievance Policy

Concerns that cannot be resolved through informal grievance procedures may be addressed through the filing of a formal grievance. Following the unsatisfactory resolution of an informal grievance, the student may file a formal written grievance to the MSA Program Director within seven (7) calendar days of the failed resolution. The Program Director will meet with appropriate parties (students, Assistant Program Director(s), Didactic Director, Medical Director(s)) 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 P&P Committee hearing to assist in finding an appropriate resolution. The Program Director will respond, in writing, within ten (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 formally appeal the decision of the MSA P&P Committee or the Program Director, in writing, to the Chair of the Department of Anesthesiology, Critical Care and Pain Medicine within seven (7) calendar days of receiving the appealed decision. The Chair of the Department of Anesthesiology will make a final decision. If the student feels this resolution does not follow university policy or was made with bias, the student has seven (7) calendar days from the date of receiving the decision from the Chair of the Department of Anesthesiology to formally write to the Dean of the McGovern Medical School. In this case, the Dean will review the written grievance and previous recommended resolutions and decide on the final resolution of the matter. The Dean will respond, in writing, within ten (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.

For more information, please refer to HOOP Policy 220 Student Complaints (<https://www.uth.edu/hoop/policy.htm?id=2553c1c1-c490-4ad0-a570-e263e12e0dff>).