

MASTER OF SCIENCE IN MEDICAL LABORATORY SCIENCES

Medical laboratory sciences, also known as clinical laboratory sciences, is the allied health profession that directly impacts quality patient care.

Using cutting-edge technologies, medical laboratory scientists (MLS) analyze blood and other body fluids to help identify, treat, and prevent hundreds of diseases and conditions - from thyroid problems to diabetes, from leukemia to hepatitis. Although most entry-level MLS practitioners are employed in hospital laboratories others obtain positions in areas such as: specialty clinics, reference laboratories, veterinary laboratories, biotechnology laboratories, public health laboratories, as well as in facilities that perform paternity testing or evaluation of compatibility for transplant patients. Their skill set, emphasis on accuracy and precision in performing testing and knowledge of method development and validation are readily transferable. This is one reason MLS graduates are also employed in the biomedical/biotechnology industry and research laboratories.

The Medical Laboratory Sciences programs including the Master of Science in Medical Laboratory Sciences (MS MLS) are accredited by The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119; (773) 714-8880; email info@naacsl.org. Web site: <http://www.naacsl.org>. Graduates of the MSMLS program are eligible to take the National Certification Examination for Medical Laboratory Scientist, MLS(ASCP) given by the Board of Certification (BOC) of the American Society for Clinical Pathology (ASCP), 33 West Monroe St., Suite 1600, Chicago, IL, 60603, 1-800-267-2727.

Admission Requirements

The application deadline is June 15th. All application materials, the application fee, official transcripts, and all supporting documents must be received by Allied Health Centralized Application System (AHCAS), or the Office of the University Registrar if Apply Texas is used, by the deadline. Applicants who are enrolled in college courses at the time of the application should submit an official transcript showing courses in progress. An official, updated transcript must be submitted upon completion of the courses.

Master of Science in MLS applicants must complete a bachelor's degree from a regionally accredited college or university and all math and science requirements listed below.

All applicants must complete the program prerequisites listed below and no grade less than "C" will be accepted; ALL science courses must be designated for science majors.

Program Prerequisite Requirement

- General Chemistry I with lab (4 semester credit hours)
- General Chemistry II with lab (4 semester credit hours)
- Organic Chemistry I with lab (4 semester credit hours)
- Biology I with lab (4 semester credit hours)
- Biology II (3 semester credit hours)
- Genetics (3 semester credit hours)
- General Physiology or Human Physiology (upper division) (3 semester credit hours)
- Microbiology with lab (for science majors) (4 semester credit hours)

- Precalculus (3 semester credit hours)
- Statistics (math, science, or psychology) (3 semester credit hours)

Additional Program Requirements

- Minimum science GPA of 2.75 (on a 4.0 scale)
- Minimum overall GPA of 2.5 (on a 4.0 scale)
- Completion of the online Allied Health Centralized Application System (AHCAS (<https://ahcas.liasoncas.com>)), <https://ahcas.liasoncas.com> or Apply Texas <https://www.applytexas.org/>
 - Payment of non-refundable \$95 application fee if using AHCAS or nonrefundable-fee of \$60 if using Apply Texas
 - Submission of the following documents to AHCAS or the Office of the University Registrar
- Official transcripts from each college and university currently or previously attended. Applicants who are enrolled in college courses at the time of application should submit an official transcript showing courses in progress. An updated transcript must be submitted upon completion of the courses. Note: Transfer credits indicated on another school's transcript are not accepted in lieu of submitting the original institution transcript for that coursework. Transcripts from institutions outside the United States must be submitted in the original language and must be accompanied by a NACES Members evaluation agency English translation (course by course).
- Two reference letters completed by former instructors (preferably science instructors) or employers
 - Interview with program faculty
 - **International Applicants only:** Submit Test of English as a Foreign Language (<http://www.ets.org/toefl>) (TOEFL) scores; minimum scores 560 (paper) or 80 (Internet)

Required Documents (if you are accepted) to the Master of Science in Medical Laboratory Sciences program:

If you are made an official offer for the UT Health Science Center at San Antonio Master of Science in Medical Laboratory Sciences (MSMLS) program, all of the following items are required prior to matriculation:

- Non-refundable SHP Tuition Deposit to secure each student's seat for the MSMLS class. Directions for this process will be sent to accepted students.
- Completion of a criminal background check. Directions for this process will be sent to accepted students.
- Student Immunization Record: Student Immunization record and immunization information can be found at the Health Science Center Student Health Center Web Page (http://shc.uthscsa.edu/immunization_info.asp) – see website for full detailed instructions
- Final updated transcripts must be submitted upon completion of courses from each college/university to the Office of University Registrar. All Foreign transcripts must be also sent to include the original transcript and the NACES evaluated official transcript (course by course).

Office of University Registrar Mailing Address:
Office of University Registrar - MC 7702
7703 Floyd Curl Drive
San Antonio, TX 78229-3900

- Evidence of current health insurance showing dates of coverage. Unless proof of proper insurance coverage is provided before the first

day of class, students will be charged for a health insurance policy through the university. The fee for this policy is non-removable once the payment due date passes and is non-refundable once paid.

Degree Requirements

The Master of Science in Medical Laboratory Sciences degree program is a 23-month program that consists of 74 semester credit hours. The curriculum consists of medical laboratory science courses and clinical practicums. The clinical practicums are completed at clinical affiliates in the San Antonio area and sites throughout South Texas. The courses listed below constitute the curriculum for the Master of Science in Medical Laboratory Sciences.

This is a professional degree program and will not require a thesis for graduation. It is expected that students will be full-time. However, in special circumstances a student may petition to attend part time. This request for part-time status will be reviewed and approved by the Student Progress Committee. Depending on the part-time status percentage, selection of this option could delay graduation by at least one year.

Sample Plan of Study

First Year

Fall		Credit Hours
MLSC 5000	Immunodiagnostics	3
MLSC 5001	Immunodiagnostics Laboratory	1
MLSC 5085	Organ System Biochemistry	3
MLSC 5002	Clinical Applications of Quality Assessment	1
MLSC 5003	Diagnostic Hematology	3
MLSC 5004	Diagnostic Hematology Laboratory	2
MLSC 5005	Diagnostic Immunohematology	2
MLSC 5006	Diagnostic Immunohematology Laboratory	2
Total Credit Hours:		17.0

First Year

Spring		Credit Hours
MLSC 5007	Diagnostic Chemistry	2
MLSC 5008	Diagnostic Chemistry Laboratory	2
MLSC 5009	Laboratory Analysis of Body Fluids	2
MLSC 5010	Diagnostic Microbiology	3
MLSC 5011	Diagnostic Microbiology Laboratory	2
MLSC 5012	Advanced Special Topics in Microbiology	3
Total Credit Hours:		14.0

First Year

Summer		Credit Hours
INTD 5064	Applied Statistics for Health Care Practitioners	3
MLSC 5013	Medical Toxicology/Therapeutic Drug Monitoring	3
Total Credit Hours:		6.0

Second Year

Fall		Credit Hours
MLSC 6000	Advanced Diagnostic Microbiology	2
MLSC 6001	Advanced Diagnostic Hematology	2
MLSC 6002	Principles of Laboratory Management	3
MLSC 6003	Evidence-based Medicine in Medical Laboratory Science	3
MLSC 6004	Diagnostic Hematology Practicum	5
Total Credit Hours:		15.0

Second Year

Spring		Credit Hours
MLSC 6005	Advanced Diagnostic Immunohematology	2
MLSC 6006	Advanced Diagnostic Chemistry	3
MLSC 6007	Seminar in Laboratory Medicine	3
MLSC 6008	Professional Issues in Healthcare	1
MLSC 6010	Diagnostic Microbiology Practicum	4
MLSC 6009	Diagnostic Immunohematology Practicum	4
Total Credit Hours:		17.0

Second Year

Summer		Credit Hours
MLSC 6013	Diagnostic Chemistry Practicum	5
Total Credit Hours:		5.0

Objectives/Program Outcomes

Students graduating from the Master of Science in Medical Laboratory Sciences will be able to:

- Communicate effectively with patients, colleagues, members of patient care team and the public on issues related to clinical laboratory practice.
- Perform laboratory tests using sophisticated instrumentation on body fluids, cells, and other specimens accurately and efficiently.
- Assess quality control data and apply quality control procedures to determine validity and reliability of laboratory test results. If results aren't reliable, suggest possible causes (e.g., systematic or random) and methods to resolve the inaccurate results.
- Evaluate laboratory test results, determine if results are reportable to patient's medical record, detect problem if one or more of the test results is not reportable and predict an action for resolution.
- Analyze laboratory test results to predict disease state (e.g., iron deficiency anemia) and select appropriate reflex laboratory test(s) necessary to confirm the diagnosis or identify the appropriate therapeutic intervention.
- Exhibit ethical and professional behavior appropriate for the delivery of patient care.
- Gather and apply evidence-based research in clinical decision-making to include evaluation and implementation of new laboratory test methods and instrumentation and outcome analyses.
- Apply fundamental principles of administration and supervision to clinical laboratory practice.

- Contribute to the profession through presentations and active involvement in American Society for Clinical Laboratory Science (ASCLS).

Program Policies

Advancement to the Second Year

A student must have no grade lower than a C in required science and medical laboratory science courses to begin the second year and clinical practicums. In addition a MLS student must file an *Intent to Enroll in Clinical Practicum* form, available from the program director at the end of the semester before practicums begin. Students who are ready for clinical practicums are placed based on availability of positions at the affiliate sites throughout South Texas. All students are expected to complete at least one clinical practicum at an affiliate located outside of San Antonio. In the unlikely event that there are not enough sites available for the number of students ready to enter clinical practicums, assignments will be made according to program policies. Students who must remediate a practicum will be assigned to an affiliate on a space-available basis.

Advisement and Schedule Planning

Applicants are encouraged to seek advisement from their college counselors or the School of Health Professions Office of Admissions and Special Programs at (866) 802-6288 (toll-free) or (210) 567-6220. Students who complete program requirement courses at another college or university are urged to seek advisement about coursework that will fulfill the program requirements well in advance of applying to the Health Science Center. Students must be advised each semester before permission is given to enroll in professional courses. For students in the MS in MLS program, sequencing and completion of specific courses are very important.

Certification

Students who successfully complete the MS in MLS program are eligible to take the National Certification Examination for Medical Laboratory Scientist, MLS(ASCP) given by the Board of Certification (BOC) of the American Society for Clinical Pathology (ASCP). Awarding of the degree is not contingent on passing an external certification or licensing examination.

Practicum Assignments

Clinical practicum assignments provide the student with the breadth of experiences that encompass all major content areas and exposure to laboratory technology. Assignment to clinical affiliates for practicum courses is a random process that is based on availability of positions at the affiliate sites. Practicum courses typically begin in the fall semester of the second year and are completed during the following summer semester.

All students are expected to complete at least one practicum at an affiliate located outside of San Antonio. If a student declines to go to an assigned affiliate, this will result in a loss of the students' practicum position and possible delay of graduation. Students who have special needs and request special considerations for practicum assignments must put the request in writing to the program director at least one semester before the practicum begins. The program director will take the request to the faculty who will approve or disapprove the request.

Program Costs

In addition to required tuition and fees, there are costs for textbooks, scrubs, and equipment. Detailed information about program costs can be found on the Master of Science in Medical Laboratory Sciences program website.

Transfer of Credits

Agreements for transferable coursework exist with some area colleges and universities. Students should contact the program director of the Health Science Center's Medical Laboratory Sciences Program or the biology advisor at their institution to determine if such an agreement exists with their school.

For additional information, see the policies and procedures in the School of Health Professions section of this *Catalog*.