



Medical laboratory scientists and medical laboratory technicians collect samples and perform the tests to analyze body fluids, tissue, and other substances. Medical laboratory technologists and medical laboratory technicians have different job responsibilities: technologists perform more complex tests and procedures than do technicians, and they typically supervise technicians. Medical laboratory scientists and medical laboratory technologists typically do the following:

- Analyze body fluids such as blood, urine, and tissue samples to determine normal or abnormal findings
- Collect and study blood samples for use in transfusions by identifying the number of cells, the cell morphology or the blood group, blood type, and compatibility with other blood types
- Operate sophisticated laboratory equipment such as microscopes and cell counters
- Use automated equipment and computerized instruments capable of performing a number of tests at the same time
- Log data from medical tests and enter results into a patient's medical record
- Discuss results and findings of laboratory tests and procedures with physicians
- Supervise or train medical laboratory technicians
- Evaluate laboratory test protocols and equipment

Medical laboratory scientists perform tests and procedures that physicians or other healthcare personnel order. However, technologists perform more complex tests and laboratory procedures than technicians do. For example, technicians may prepare specimens and operate automated analyzers or perform manual tests that are based on detailed instructions.

Technologists in small laboratories perform many types of tests; in large laboratories, they generally specialize. The following are examples of types of specialized medical laboratory technologists:

- **Blood bank technologists**, or **immunohematology technologists**, collect blood, classify it by type, and prepare blood and its components for transfusions.
- **Medical chemistry technologists** prepare specimens and analyze the chemical and hormonal contents of body fluids.
- **Hematology technologists** examine and analyze blood and bone marrow specimens.
- **Microbiology technologists** examine and identify bacteria and other microorganisms.
- **Molecular biology technologists** perform complex protein and nucleic acid tests on cell samples.

*(Occupational Outlook Handbook)*

The following three year pre-professional program is based on the requirements for admission to the Medical Laboratory Science Program in the College of Allied Health Professions at the University of Nebraska Medical Center. A minimum 77 semester hours of pre-medical laboratory science courses must be completed at UNK. The Medical Laboratory Science Program at UNMC is an 11 month program. Students will receive a Bachelor's Degree from UNMC upon completion of the medical laboratory science training.

While other medical laboratory science programs may be similar, the student is urged to contact the specific school of his or her choice to determine any suggested variations of this pre-professional schedule. Students must apply for positions in medical laboratory science programs and the competition is intense. Therefore admission is never guaranteed.

**A. Biological Sciences (16 semester hours required) including:**

**Take all of the following:**

BIOL 211GS	Human Microbiology	4 hours
BIOL 401	Principles of Immunology	4 hours

**Choose one of the following:**

BIOL 360	Genetics	4 hours
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**OR**

BIOL 450	Molecular Biology	4 hours
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**B. Chemistry (14 semester hours required) including:**

**Take all of the following:**

CHEM 160GS	General Chemistry	4 hours
CHEM 161GS	General Chemistry	4 hours

**Choose one of the following options:**

CHEM 250	Elementary Organic Chemistry	5 hours
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**OR**

CHEM 360	Organic Chemistry	5 hours
CHEM 361	Organic Chemistry	5 hours

**Take the following:**

CHEM 351	Biochemistry	4 hours
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**C. Written Communication (3 credit hours required)**

**Take one of the following:**

ENG 101	Introduction to Academic Writing	3 hours
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**OR**

ENG 102GS	Academic Writing and Research	3 hours
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**D. Mathematics (3 credit hours required)**

**Take one of the following:**

MATH 102GS	College Algebra	3 hours
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**OR**

STAT 241GS	Elementary Statistics (preferred)	3 hours
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**E. Suggested Electives**

HSCI 125B	Orientation to Medical Lab Sciences	2 hours
HSCI 225	Introduction to Hematology	2 hours

**Academic Guidelines**

While a 2.5 minimum cumulative GPA is required for most programs in medical laboratory science, students who are successful in gaining admission typically have at least a 3.0 cumulative GPA. Each required course must be passed with a grade of "C" or better. A grade of "C-" will not be accepted. Students searching for electives outside their major requirements should consider courses from the following areas: biology, chemistry, mathematics, sociology, psychology, business administration, healthcare management, and healthcare economics. See your advisor for suggestions. Students should be aware of prerequisites on all courses and plan their coursework accordingly.

**Non-Academic Guidelines**

There is no magic formula for acceptance in to professional school. Admission is based on GPA, shadowing and medical experiences, community involvement and volunteerism, leadership qualities, the interview, the essay, and letters of recommendation. Shadowing and medical experiences are of utmost importance. Students should plan to shadow a minimum of 40 hours in their selected profession. Health Sciences offers opportunities to meet these non-academic guidelines through the Shadowing Program, the Health Science Club, and volunteer

experiences. Research experience is not required, but will be looked upon favorably. Students should plan to be involved in these types of activities and experiences throughout their undergraduate career. Other important non-academic factors include good moral character, excellent interpersonal skills, a deep commitment to healthcare, evidence of leadership potential and service to others.

### **The Application Process**

The applications to the medical training programs are available directly from each program. Most can be accessed through the program's website or can be obtained by calling the program director. The applications should be completed during the fall semester of the student's last year of coursework at UNK.

### **Letters of Evaluation/Recommendation**

Letters of evaluation will be required of applicants. Letters from a faculty member, health care practitioner, academic advisor, or employer would be appropriate. Information about the non-academic character of a student would be most useful as academic information is already in the application.

### **Interviews**

Most schools screen applicants with some form of personal interview. The format of the interview may vary depending on the schools to which students are applying.

### **Criminal Background Checks**

Prerequisite for enrollment into any health science professional program or medical training is consent for an external background check. This check includes, but is not limited to, past criminal offenses and registry information. If there is evidence of arrest for a crime(s), conviction for a crime(s), presence on an abuse registry, or other information which reasonably suggests that patient safety might be compromised, the student will be asked to provide additional information

### **Citizenship/International Students**

Professional schools in the health sciences vary as to whether they accept non-U.S. citizens. Some schools that do accept non-citizens require a substantial financial commitment up front. Since not all schools accept non-citizens and since the financial commitment of those that do may be substantial, students should thoroughly research and carefully consider such a decision and discuss it with their pre-health advisors early in their undergraduate years.

### **Websites**

UNMC Medical Laboratory Science  
UNK Health Sciences

<http://www.unmc.edu/alliedhealth/education/mls/index.html>  
[www.unk.edu/healthsciences](http://www.unk.edu/healthsciences)

## Suggested Sequence of Key Courses

	Fall	Spring
<b>Year 1</b>	CHEM 160GS MATH 102GS HSCI 125B ENG 101/ENG 102GS	CHEM 161GS STAT 241GS BIOL 106GS
<b>Year 2</b>	CHEM 250 or CHEM 360 BIOL 325	CHEM 351 or CHEM 361 BIOL 211GS
<b>Year 3</b>	BIOL 401	BIOL 360 HSCI 225
<b>Year 4</b>	Medical Training	Medical Training

- Students should be aware of prerequisites for upper level courses and plan accordingly.
- A minimum MATH ACT score of 22 or prior completion of College Algebra (MATH 102) or higher is a pre-requisite for CHEM 160.
- It is not recommended to take any of the above science courses during a summer session.
- Completion of one semester of chemistry is a pre-requisite for BIOL 225.