

Pathway to Medical Laboratory Scientist Profession

What is a Medical Laboratory Scientist?

Medical Laboratory Scientists, also known as medical technologist or clinical laboratory scientists, are the 3rd largest group of healthcare professionals working within hospitals. In the clinical laboratory setting, the medical laboratory scientist performs a wide range of analytical tests to identify a variety of disease processes, including infection, cancer, blood disorders, and various other diseases. Certified medical laboratory scientists are skilled in various techniques for medical diagnosis, determination of therapeutic drug levels, and safe transfusion practices. The demand for Medical Laboratory Scientists is extraordinary, with more MLS jobs available than there are certified professionals to fill these positions. The salary range for a Medical Laboratory Scientist in the Denver Metro area is approximately \$46,000- \$56,000 and may be more depending on experience.



How do I become a Medical Laboratory Scientist?

There are various paths to becoming a medical laboratory scientist. Individuals may complete a four-year bachelor's degree in medical laboratory science, or they may pursue post-baccalaureate training in an accredited medical laboratory science program. Medical laboratory science programs provide students with essential theoretical and clinical laboratory experience that prepares them for the ASCP MLS certification exam. There are two post-baccalaureate medical laboratory science programs in the Denver Metro area.

- Colorado Center for Medical Laboratory Sciences Program requirements can be found: <https://www.msudenver.edu/medical-laboratory-science/admissions/>
- Denver Health's program requirements can be found: <https://www.denverhealth.org/professionals/office-of-education/health-professions-and-pre-health-programs/school-of-medical-laboratory-science/admission-requirements>.

Minimum application requirements include:

- Cumulative GPA of 2.70 or better
- BS or BA degree in biology or chemistry
- 16 semester hours of biology, including courses in microbiology and immunology (Pathogenic Microbiology is highly recommended)
- 16 semester hours of chemistry, including one 300-level or higher course in organic and/or biochemistry. A minimum of 3 chemistry courses with a laboratory (Analytical Chemistry and laboratory are highly recommended)
- One college-level math course

Biology Faculty Advisors who can guide you for this path are:

Dr. Sheryl Zajdowicz
Dr. Ford Lux

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REQUIREMENTS FOR A MAJOR IN BIOLOGY for 2020-2021 or future catalogs ONLY

A grade of "C-" or better is required for each BIO prefix course to count towards the major

Required Biology Courses for both the B.A. or the B.S. Degree

BIO 1080-3 General Biology I	3
BIO 1090-1 General Biology Lab I.....	1
BIO 1081-3 General Biology II	3
BIO 1091-1 General Biology Lab II.....	1
BIO 3520-3 General Ecology	3

Take ONE of these Genetics options:

- BIO 3600-4 General Genetics (no lab).....4
- OR
- BIO 3610-4 Genetics: Principles & Analysis (has lab)4

Pick ONE of these options:

- Option 1: BIO 2100-5 General Botany
- OR
- Option 2: BIO 2400-5 General Microbiology*****
- OR
- Option 3: Both BIO 2310-4 and BIO 2320-4 (Anatomy & Physiology I & II) (You must take both semesters to get credit for this option)
- OR
- Option 4: Either BIO 3200-4 Invertebrate Zoology or BIO 3260-4 Vertebrate Zoology (If you wish to take both zoology courses, the other will count as an upper division elective)

***** Students interested in MLS should take: Option 2: BIO 2400-5 General Microbiology

Students are required to take a Senior Experience course:

Fulfills Senior Experience Requirement	
<input type="checkbox"/> BIO 4050-3 Advanced Cell & Molecular Biology	<input type="checkbox"/> BIO 4510-4 Microbial Ecology
<input type="checkbox"/> BIO 4230-3 Issues in Conservation Biology	<input type="checkbox"/> BIO 4540-4 Plant Ecology
<input type="checkbox"/> BIO 4300-3 Neurobiology	<input type="checkbox"/> BIO 4550-4 Animal Ecology
<input type="checkbox"/> BIO 4820-4 Developmental Biology	
<input type="checkbox"/> BIO 4850-3 Evolution	

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Elective Biology courses: Biology courses from 2000, 3000, and 4000 must be completed to bring the total of biology courses approved for the major to 40 credits. *At least 21 of these Biology credits must be from the 3000 or 4000 courses of the Department of Biology.*

Recommended Elective Courses from which to Choose:

*****An advanced microbiology course with lab is required for most MLS programs**

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- BIO 3350 – Immunology Credits: 3^{***}
 - BIO 3050 - Cell Biology Credits: 4
 - BIO 3210 - Histology Credits: 4
 - BIO 3270 - Parasitology Credits: 4
 - BIO 3351 – Immunology Lab Credits: 1
 - BIO 3400 – Microbial Physiology Credits: 4
 - BIO 4200 – General Mycology Credits: 3
 - BIO 4440 – Virology Credits: 3
 - BIO 4450 – Pathogenic Microbiology Credits: 5

Total Credit Hours in Biology (minimum of 40) _____

Upper Division Biology Credit Hours (minimum of 21) _____

*****BIO 3350-Immunology is a requirement for most MLS programs**

B.S. Non-Bio Course Requirements: Please note that while students may choose to do a BA in Biology, most programs require 300-level or higher course in organic chemistry and/or biochemistry, which is not included in the BA in Biology path.

CHE 1800-4 Gen Chemistry I _____

CHE 1800-4 Gen Chemistry I _____

CHE 1801-1 Gen Chemistry I Lab _____

CHE 1810-4 Gen Chemistry II _____

CHE 1811-1 Gen Chemistry II Lab _____

CHE 3120-1 Organic Chemistry I Lab _____

CHOOSE YOUR PATH:

CHE 3100-4 Organic Chemistry I_

AND

CHE 3110- 3 Organic Chemistry II _____

OR

CHE 3090- 4 Survey of Organic Chem ^o __

AND

CHE 4310-4 Biochemistry ^o _____

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⚠ Note on CHE 3090 – Survey of Organic Chemistry - this class is no longer being offered

⚠ Note on CHE 4310 – Biochemistry – requires completion of both Organic Chemistry I and II

Math Requirement (2 semesters)

Two Semesters of Math:

Choose from the following math courses:

MTH 1108-1109 (Stretch College Algebra)*, MTH 1111 and MTH 1101 (College Algebra with lab), MTH 1110 (College Algebra), MTH 1112 (College Algebra through Modeling), MTH 1120 (Trigonometry), MTH 1210 (Intro to Statistics), MTH 1410 (Calculus I)**

MTH 1108-1109 is a Stretch Course and only counts as ONE of the required math courses for the BIO BS.

Students planning to take Calculus must take MTH 1108-1109, MTH 1110, or MTH 1111