Medical Laboratory Science, BS

Program Description
Utah Tech University offers a course of study leading to a Bachelor of Science in Medical Laboratory Science degree. During the first two years or pre-professional phase of study a student completes a minimum of 58 semester hours of coursework. The coursework includes but is not limited to: a) general education courses, including a statistic course; b) biology requisites that must include a course in microbiology and courses in human anatomy and physiology; and c) cognates in chemistry. After completion of the pre-professional phase of study and, through a competitive application process, a student may be selected to enter the final two years of study or the MLS professional program to which one cohort of 12-15 students is admitted per year. Admitted students spend three semesters completing MLS-specific courses on the Utah Tech campus. Upon successful completion of these courses, students are then assigned to one or more program-affiliated medical laboratories to complete a semester-long clinical internship. Program graduates are eligible to take the Medical Laboratory Scientist (MLS) national board certification examination offered by the American Society for Clinical Pathology (ASCP).

Certification
Graduates are eligible to take the Medical Laboratory Scientist (MLS) national certification examination offered by the American Society for Clinical Pathology (ASCP).

Professional Licensure/Certification (PLC) Requirements
The curriculum for programs at Utah Tech University customarily leading to licensure have been designed to meet the educational licensure/certification requirements in Utah as well as to prepare students to apply for licensure exams in the State of Utah. The licensure boards in each state are responsible for establishing the requirements for licensure/certification for their state. Requirement may vary state to state and may change at any time. Students who intend to use their Utah Tech degree to secure licensure in any state other than Utah will need to review the professional licensure disclosures in that state pertaining to their program and consult with the state professional licensing board. For more information, visit the State Authorization and Professional Licensure (https://academics.utahtech.edu/state-authorization/) web page and select your program, or speak to the director of your program.

Accreditation
The Medical Laboratory Science program is accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS). NAACLS can be contacted at:

NAACLS
5600 North River Road, Suite 720
Rosemont, IL 60018
Phone: 773-714-8880
www.naacls.org (http://www.naacls.org/)

Admission Requirements
For admission requirements into the Medical Laboratory Science program, visit the website (https://health.dixie.edu/mls/program-admissions/) (following this link will take you out of the University Catalog).

Program Curriculum
120-122 credits

Utah Tech General Education Requirements
All Utah Tech General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to Utah Tech's minimum General Education standards in American Institutions, English, and Mathematics.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Education Core Requirements (catalog.dixie.edu/programs/generaleducation/#gerequirementstext)</td>
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<td>English</td>
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Mathematics 3-5
American Institutions 3-6
Life Sciences 3-10
Physical Sciences 3-5
Laboratory Science 0-1
Fine Arts 3
Literature/Humanities 3
Social & Behavioral Sciences 3
Exploration 3-5

Code  Title  Hours
MLS Prerequisite Courses
BIOL 1610 & BIOL 1615 Principles of Biology I (LS) and Principles of Biology I Lab (LAB) 5
BIOL 2060 & BIOL 2065 Principles of Microbiology and Principles of Microbiology Lab 4
BIOL 2320 & BIOL 2325 Human Anatomy and Human Anatomy Lab 5
BIOL 2420 & BIOL 2425 Human Physiology and Human Physiology Lab 4

Chemistry Requirement: 10-15
10 Credits of Chemistry: 5 credits in Elementary General Chemistry with lab and 5 credits in Elementary Organic/Biochemistry with lab

OR
CHEM 1110 & CHEM 1115 & CHEM 1120 & CHEM 1125 Elementary General/Organic Chemistry (PS) and Elem General/Organic Chemistry Lab (LAB) and Elem Organic / Bio Chemistry and Elem Organic/Bio Chemistry Lab

OR
CHEM 1210 & CHEM 1215 & CHEM 1220 & CHEM 1225 & CHEM 2310 & CHEM 2315 Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB) and Principles of Chemistry II and Principles of Chemistry II Lab and Organic Chemistry I and Organic Chemistry I Lab

COMM 1020 or COMM 2110 Public Speaking and Interpersonal Communication (SS, GC) 3
MATH 1040 or STAT 2040 Introduction to Statistics (MA) and Business Statistics 3
MATH 1050 College Algebra / Pre-Calculus (MA) 4

Highly Recommended:
BIOL 3470 Introduction to Immunology (Not Required, Prerequisites: BIOL 3010 and BIOL 3040 and CHEM 3510)

Please see the department website (https://health.dixie.edu/mls-program-admissions/) for information on admission to the Medical Laboratory Science program.

Code  Title  Hours
MLS Core Requirements
MLS 3310 Immunohematology I 5
MLS 3312 Clinical Immunology 4
MLS 3314 Diagnostic Microbiology I 5
MLS 3330 Clinical Chemistry 5
MLS 3555 Research Seminar 2
MLS 3850 Urinalysis and Body Fluids 2
MLS 4110 Laboratory Management/Edu 2
MLS 4200 Clinical Chemistry and Molecular Diagnostics 4
MLS 4300  Clinical Hematology  5
MLS 4320  Hemostasis  4
MLS 4330  Clinical Chemistry Practice (ALPP)  4
MLS 4400  Immunohematology II  4
MLS 4410  Blood Banking Practice (ALPP)  4
MLS 4414  Clinical Microbiology Practice (ALPP)  4
MLS 4423  Clinical Hematology Practice  4
MLS 4600  Diagnostic Microbiology II  4

Graduation Requirements
1. Complete a minimum of 120 college-level credits (1000 and above)
2. Complete at least 40 upper-division credits (3000 and above)
3. Complete at least 30 upper-division credits at Utah Tech for institutional residency.
4. Cumulative GPA 2.0 or higher.
5. Complete MLS professional program requirements
   a. Meet Essential Requirements (https://health.dixie.edu/mls/program-admissions/)
   b. 80% or higher for all MLS courses
   c. Cumulative GPA 3.0 or higher in MLS core courses.
   d. Complete clinical training

Graduation Plan

1st Year

<table>
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<tr>
<th>Fall Semester</th>
<th>Hours</th>
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<tr>
<td>First Year Recommended Elective</td>
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<tr>
<td>BIOL 1610</td>
<td>Principles of Biology I (LS)</td>
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<td>&amp; BIOL 1615</td>
<td>and Principles of Biology I Lab (LAB)</td>
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<tr>
<td>ENGL 1010</td>
<td>Introduction to Writing (EN)</td>
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<td>MATH 1040</td>
<td>Introduction to Statistics (MA)</td>
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<td>General Elective</td>
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<tr>
<td>Spring Semester</td>
<td>Hours</td>
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<tr>
<td>BIOL 2320</td>
<td>Human Anatomy</td>
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<td>&amp; BIOL 2325</td>
<td>and Human Anatomy Lab</td>
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<tr>
<td>ENGL 2010</td>
<td>Interim Writing Selected Topics: (EN)</td>
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<td>COMM 2110</td>
<td>Interpersonal Communication (SS, GC)</td>
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<td>or COMM 1020</td>
<td>or Public Speaking</td>
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2nd Year

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<tr>
<th>Fall Semester</th>
<th>Hours</th>
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<tr>
<td>BIOL 2420</td>
<td>Human Physiology</td>
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<tr>
<td>&amp; BIOL 2425</td>
<td>and Human Physiology Lab</td>
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<tr>
<td>CHEM 1110</td>
<td>Elementary General/Organic Chemistry (PS)</td>
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<tr>
<td>&amp; CHEM 1115</td>
<td>and Elem General/Organic Chemistry Lab (LAB)</td>
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<tr>
<td>General Elective</td>
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<tr>
<td>General Education (Fine Arts) (catalog.dixie.edu/programs/generaleducation/#gerequirements)</td>
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<tr>
<td>Spring Semester</td>
<td>Hours</td>
</tr>
<tr>
<td>BIOL 2060</td>
<td>Principles of Microbiology</td>
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<tr>
<td>&amp; BIOL 2065</td>
<td>and Principles of Microbiology Lab</td>
</tr>
<tr>
<td>CHEM 1120</td>
<td>Elem Organic / Bio Chemistry</td>
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<tr>
<td>&amp; CHEM 1125</td>
<td>and Elem Organic/Bio Chemistry Lab</td>
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### 3rd Year

#### Fall Semester
- **MLS 3312** Clinical Immunology (4)
- **MLS 3314** Diagnostic Microbiology I (5)
- **MLS 3850** Urinalysis and Body Fluids (2)
- **MLS 4320** Hemostasis (4)

#### Hours
16

#### Spring Semester
- **MLS 3310** Immunohematology I (5)
- **MLS 3330** Clinical Chemistry (5)
- **MLS 3555** Research Seminar (2)
- **MLS 4300** Clinical Hematology (5)

#### Hours
15

### 4th Year

#### Fall Semester
- **MLS 4110** Laboratory Management/Edu (2)
- **MLS 4200** Clinical Chemistry and Molecular Diagnostics (4)
- **MLS 4400** Immunohematology II (4)
- **MLS 4600** Diagnostic Microbiology II (4)

#### Hours
17

#### Spring Semester
- **MLS 4330** Clinical Chemistry Practice (ALPP) (4)
- **MLS 4410** Blood Banking Practice (ALPP) (4)
- **MLS 4414** Clinical Microbiology Practice (ALPP) (4)
- **MLS 4423** Clinical Hematology Practice (4)

#### Hours
16

#### Total Hours
120

### Medical Laboratory Science Program Learning Outcomes

At the successful conclusion of this program, students will be able to:

1. Perform a full range of testing encompassing the pre-analytical, analytical, and post-analytical components of contemporary laboratory services in areas that include clinical chemistry, hematology/hemostasis, immunology, immunohematology/transfusion medicine, microbiology, urine and body fluid analysis, and emerging diagnostics.
2. Apply management concepts and leadership skills, taking responsibility for analysis and decision-making, and the effective communication of valid test information wherever laboratory testing is researched, developed or performed.
3. Participate in the development, implementation, and evaluation of test systems and interpretive algorithms.
4. Employ relevant experience in research design and practice.
5. Demonstrate ethical and moral attitudes, principles of lawful conduct, and commitment to continuing professional development necessary for gaining and maintaining the confidence of patients, professional associates, and the community.
6. Adhere to safety, governmental regulations and standards as applied to medical laboratory practice.
7. Project an image of professionalism, respect the feelings and needs of others, protect the confidence of patient information, and never allow personal concerns and biases to interfere with the welfare of patients nor the work of colleagues and members of the healthcare team caring for patients.