MEDICAL LABORATORY SCIENCE, B.S.

Saint Louis University’s Bachelor of Science in Medical Laboratory Science (MLS) degree prepares graduates to take a national certification exam to become a certified laboratory professional for a career as a health care professional in laboratory medicine. Medical laboratory science professionals save lives by performing and assuring the reliability of tests that provide objective information used in the early detection, diagnosis, monitoring and effective treatment of disease.

Up to 80% of all clinical decisions are impacted by clinical laboratory testing. The knowledge and skills required of medical laboratory professionals are diverse, involving both scientific detective work and managerial competence. Each day offers a challenge, and the opportunities to learn are endless.

Additional program highlights include:

- SLU’s MLS program was one of the first in the country; it has over 85 years of continuous accreditation.
- SLU’s MLS program has guaranteed placement in clinical practicum training sites.
- SLU’s MLS program boasts both a low student-faculty ratio and state-of-the-art medical laboratory science labs — both of which help to substantially enhance the experience of students.
- SLU’s MLS graduates’ exam pass rates are consistently at or near 100%, as is the graduate career placement rate.
- Students in SLU’s medical laboratory science program have numerous opportunities for personal and professional growth through faculty, professional and peer interactions. They have the opportunity to join professional organizations such as the American Society for Clinical Laboratory Science (ASCLS) and the American Society of Clinical Pathology (ASCP).

Curriculum Overview

Following two years of core courses in basic sciences and the liberal arts, and one year of pre-clinical laboratory-related coursework, students will enter the practicum phase of the curriculum in a clinical setting under supervision.

Seniors spend 16 weeks in practicum during the spring semester at a variety of hospital laboratories in the St. Louis and surrounding areas.

Clinical and Research Opportunities

Clinical practicum experiences in clinical practice settings (e.g. hospitals, reference labs, etc.) are a required component of the medical laboratory science curriculum and are guaranteed upon admission.

Students will have the opportunity to conduct research and produce projects and papers for publication and presentation at professional conferences.

Careers

Medical laboratory scientists are vital members of health care teams. As highly skilled bio-analysts, graduates contribute data critical to disease diagnosis and to patient treatment. In a typical laboratory setting, the medical laboratory scientist performs a full range of laboratory tests from blood smears for the detection of anemia to highly complex procedures used to diagnose and monitor the status of patients suffering from various forms of cancer.

SLU’s medical laboratory science program facilitates the attendance of its students at state professional meetings. In addition, clinical affiliates in the St. Louis area frequently request that students seek part-time employment to garner clinical experience and are often retained as full-time employees upon graduation.

The benefits of SLU’s medical laboratory science program include several career opportunities. Medical laboratory scientists are qualified to work in five major areas of the laboratory: blood bank, chemistry, hematology, immunology and microbiology.

Throughout the course of a typical workday, graduates from this program might examine specimens under the microscope, operate complex computerized instrumentation, use immunologic methods to prepare units of blood for transfusion and/or identify disease-causing microorganisms.

While most medical laboratory science graduates work in a clinical laboratory in the areas of diagnostic testing and laboratory management, some choose positions in research, forensic science/crime laboratories, laboratory equipment companies or pharmaceutical/biotechnology industries. Many graduates choose to go directly to graduate, medical or professional schools. According to the most recent American Society for Clinical Pathology (ASCP) wage survey, across the nation, staff-level MLS/MT/CLSs are paid an average salary of $68,240.

Admission Requirements

Freshmen Applicants

Solid academic performance in college preparatory coursework is primary consideration when we review your freshman application.

Admission criteria include:

- Minimum high school GPA of 3.00 on a 4.00 scale.
- Four years of high school math (with algebra) and English, with some physics recommended.
- Saint Louis University has moved to a test-optional admission process for all undergraduate programs. Applicants may submit standardized test scores, but those who choose not to will not be disadvantaged in any way in the admission process.

Transfer Applicants

Transfer applicants must possess a 2.5 cumulative GPA. Interested applicants who do not meet all the admission requirements should still apply for individual consideration.

The number of transfer students admitted into the Medical Laboratory Science B.S. program is based on the availability of clinical placement sites for practicum experiences. No student will be admitted into the program until clinical placement for practicum experiences has been secured.

In the event of a limited number of available placement spots, a competitive entry process based on GPA, previous coursework, and letters of recommendation will be used to admit students.
Background Check
Regulations require all students in this program to complete a criminal background check and a drug test at least once during the Program, either or both may be repeated as agency requirements demand. Positive results from the criminal background check or drug tests may result in ineligibility to graduate from the program. A felony conviction will affect a graduate’s eligibility for professional certification and professional practice.

Scholarships and Financial Aid
There are two principal ways to help finance a Saint Louis University education:

- **Scholarships**: Awarded based on academic achievement, service, leadership and financial need. In addition to University scholarships, the Doisy College of Health Sciences offers a scholarship to sophomores, juniors and seniors.
- **Financial Aid**: Provided in the form of grants and loans, some of which require repayment.

For priority consideration for merit-based scholarships, applicants should apply for admission by Dec. 1 and complete a Free Application for Federal Student Aid (FAFSA) by March 1.

For more information, visit the student financial services office online at http://fsaid.slu.edu.

Accreditation
**National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)**
5600 N. River Rd., Suite 720
Rosemont, IL 60018-5119
773-714-8880
http://naacls.org

For more information about the medical laboratory science program’s professional performance standards, certification and licensure information and program outcomes, please see Additional Accreditation Information (https://www.slu.edu/doisy/degrees/program-pdfs/mls-accreditation-1017.pdf).

View Additional Accreditation Information (https://www.slu.edu/doisy/degrees/program-pdfs/mls-accreditation-1017.pdf)

Learning Outcomes
1. Graduates will demonstrate respect for human life with regard to all aspects of laboratory testing.
2. Graduates will communicate accurate laboratory information to members of the healthcare team.
3. Graduates will apply critical reasoning to solve laboratory-based case studies.
4. Graduates will demonstrate the application of laboratory principles.
5. Graduates will adhere to the principles found in the American Society for Clinical Laboratory Science (ASCLS) Professional Code of Ethics.

Requirements
Students in Saint Louis University’s medical laboratory science major take the following courses.

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**Total Credits:** 120

### Pre-Physician Assistant and PA Scholar Track

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**Total Credits:** 142
## Continuation Standards

Students must maintain a minimum 2.50 grade point average (GPA).

## Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

## Standard Track

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## Year Two

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2XXX/3XXX Philosophy or Theology Elective 3
Credits 14

Year Three

Fall
BLS 4110 Medical Biochemistry I 3
BLS 4411 Fundamentals of Immunology 2
BLS 4510 Medical Microbiology 4
MSL 4150 Analytical Chemistry 2
ENG 2XXX/3XXX Literature Elective 3
Credits 14

Spring
BLS 4120 Medical Biochemistry II 2
BLS 4220 Hemostasis and Thrombosis 2
BLS 4310 Immunohematology 3
BLS 4420 Medical Immunology 2
MLS 3400 Laboratory Operations 1
MLS 4350 Immunohematology Lab 1
MLS 4520 Medical Bacteriology 2
MLS 4550 Medical Bacteriology Laboratory 2
Credits 15

Year Four

Fall
BLS 4210 Hematology 4
MLS 4250 Hematology Laboratory 1
MLS 3210 Clinical Education & Laboratory Management 2
MLS 4541 Medical Mycology and Parasitology 2
MLS 4571 XXX 1
XXX Fine Arts Elective 3
XXX Social Science Elective 3
Credits 16

Spring
MLS 4701 Clinical Chemistry Practicum 3
MLS 4710 Clinical Chemistry 1
MLS 4740 Clinical Hematology Practicum 2
MLS 4750 Clinical Hematology 1
MLS 4770 Clinical Phlebotomy Practicum 1
MLS 4780 Clinical Immunohematology Practicum 2
MLS 4790 Clinical Immunohematology 1
MLS 4800 Clinical Microbiology Practicum 3
MLS 4811 Clinical Microbiology 1
MLS 4820 Clinical Urinalysis Practicum 1
Credits 16

Total Credits 120

Program Notes

Suggested Elective Options:

- Literature: Any 2XXX or 3XXX course which is designated as "Literature" requirement for English.
- Fine Arts: any course in: ART, ARTH, DANC, FPA, MUS, THR
- Social Science: PSY 1010 General Psychology (3 cr) (recommended for all majors, required for students taking the MCAT), SOC 1100

Introduction to Sociology (3 cr) (required for students taking the MCAT), any course in: ANTH, PSYCH, SOC

- Philosophy/Theology: Any 2XXX level or above Philosophy (PHIL) or Theology (THEO) course.

Pre-Medicine Track

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Spring

<p>| BIOC 3040 | Cell Structure &amp; Function 3 |
| BLS 3110 | Urinalysis &amp; Body Fluids 2 |
| MSL 3150 | Urinalysis and Immunology Laboratory 1 |
| BLS 4130 | Principles &amp; Techniques in Molecular Biology 2 |
| BLS 4610 | Research Design, Critique &amp; Presentation 3 |</p>
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**Year Three**

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**Year Four**

**Fall**

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<td>Clinical Microbiology</td>
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<tr>
<td>MLS 4820</td>
<td>Clinical Urinalysis</td>
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**Program Notes**

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**Pre-Physician Assistant Track**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fall</td>
<td>Title</td>
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<tr>
<td>BIOS 1240 &amp; BIOS 1245</td>
<td>General Biology: Information Flow and Principles of Biology I Laboratory</td>
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<td>BIOS 1100 &amp; BIOS 1150</td>
<td>Foundations of Medical Laboratory Science Lab</td>
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<td>CHEM 1110 &amp; CHEM 1115</td>
<td>General Chemistry 1 and General Chemistry 1 Laboratory</td>
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<td>ENGL 1900</td>
<td>Advanced Strategies of Rhetoric and Research</td>
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<td>MATH 1400</td>
<td>Pre-Calculus</td>
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**Year Two**

**Fall**

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<tr>
<td>BIOS 3020</td>
<td>Biochemistry and Molecular Biology</td>
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<td>CHEM 2410 &amp; CHEM 2415</td>
<td>Organic Chemistry 1 and Organic Chemistry 1 Laboratory</td>
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<td>PHIL 1050</td>
<td>Introduction to Philosophy: Self and Reality</td>
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<td>PPHY 2540</td>
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**Pre-Physician Assistant Track**

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<tbody>
<tr>
<td>BIOS 1260 &amp; BIOS 1265</td>
<td>General Biology: Transformations of Energy and Matter and Principles of Biology II Laboratory</td>
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<td>General Chemistry 2 and General Chemistry 2 Laboratory</td>
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<td>Theological Foundations</td>
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**Summer**

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<tr>
<td>HSCI 2200</td>
<td>Medical Terminology</td>
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**Total Credits**: 142
## Spring

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<td>Basic Human Anatomy</td>
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<td>BIOL 3030</td>
<td>Principles of Genetics</td>
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<td>BLS 3110</td>
<td>Urinalysis &amp; Body Fluids</td>
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<td>MLS 3150</td>
<td>Urinalysis and Immunology Laboratory</td>
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<td>BLS 4130</td>
<td>Principles &amp; Techniques in Molecular Biology</td>
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<td>BLS 4610</td>
<td>Research Design, Critique &amp; Presentation</td>
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<td>! CHEM 2420 &amp; CHEM 2425</td>
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### Year Three

#### Fall

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<td>Analytical Chemistry</td>
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<td>Fundamentals of Immunology</td>
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**Credits:** 18

#### Spring

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<td>MLS 3400</td>
<td>Laboratory Operations</td>
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<td>Hemostasis and Thrombosis</td>
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<td>BLS 4310</td>
<td>Immunohematology</td>
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<td>MLS 4350</td>
<td>Immunohematology Lab</td>
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**Credits:** 14

#### Summer

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**Credits:** 6

### Year Four

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<td>HCE 2010</td>
<td>Foundations in Clinical Health Care Ethics</td>
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<td>MLS 3210</td>
<td>Clinical Education &amp; Laboratory Management</td>
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<td>MLS 4541</td>
<td>Medical Mycology and Parasitology</td>
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**Credits:** 16

#### Spring

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<td>MLS 4740</td>
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<td>MLS 4750</td>
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<td>MLS 4770</td>
<td>Clinical Phlebotomy Practicum</td>
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<td>MLS 4800</td>
<td>Clinical Microbiology Practicum</td>
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**Credits:** 14

### Summer

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**Credits:** 6

### Year Two

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PPY 2540 Human Physiology 4
ENGL Literature Elective 3

Credits 17

Spring
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BIOL 3030 Principles of Genetics 3
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MLS 3150 Urinalysis and Immunology Laboratory 1
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BLS 4610 Research Design, Critique & Presentation 3
! CHEM 2420 Organic Chemistry 2 4

Credits 18

Year Three

Fall
BLS 4110 Medical Biochemistry I 3
MLS 4150 Analytical Chemistry 2
BLS 4411 Fundamentals of Immunology 2
BLS 4510 Medical Microbiology 4
XXXX Fine Arts Elective 3

Credits 14

Spring
BLS 4120 Medical Biochemistry II 2
MLS 3400 Laboratory Operations 1
BLS 4220 Hemostasis and Thrombosis 2
BLS 4310 Immunohematology 3
MLS 4350 Immunohematology Lab 1
BLS 4420 Medical Immunology 2
MLS 4520 Medical Bacteriology 2
MLS 4550 Medical Bacteriology Laboratory 2

Credits 15

Year Four

Fall
BLS 4210 Hematology 4
MLS 4250 Hematology Laboratory 1
MLS 4541 Medical Mycology and Parasitology 2
MLS 4571 1
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2XXX/3XXX Philosophy or Theology Elective 3

Credits 16

Spring
MLS 4701 Clinical Chemistry Practicum 3
MLS 4710 Clinical Chemistry 1
MLS 4740 Clinical Hematology Practicum 2
MLS 4750 Clinical Hematology 1
MLS 4770 Clinical Phlebotomy Practicum 1
MLS 4780 Clinical Immunohematology Practicum 2
MLS 4790 Clinical Immunohematology 1

MLS 4800 Clinical Microbiology Practicum 3
MLS 4811 Clinical Microbiology 1
! MLS 4820 Clinical Urinalysis Practicum 1

Credits 16

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Contact Us
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For additional admission questions please contact:
Julie Miller
Recruitment Specialist
314-977-2570
dchs@health.slu.edu