

MEDICAL LABORATORY TECHNOLOGY, A.S.

Begin Campus: Hazleton, Schuylkill

End Campus: Hazleton

Program Description

This two-calendar-year Medical Laboratory Technology major (four semesters, two summer sessions) is designed to provide the necessary general and technical training for hospital personnel between the level of the medical laboratory technician (certificate program) and the medical technologist (baccalaureate program). The course of study includes one year of intensive clinical experience at an affiliated hospital and the theoretical background necessary for the clinical procedures performed by the certified medical laboratory technician (associate degree program). Upon completion of program requirements, the student receives the associate degree and is eligible to sit for examinations leading to certification and registry as a medical laboratory technician.

The Medical Laboratory Technology Program at Penn State Hazleton is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences

NAACLS,
5600 N. River Rd, Suite 720,
Rosemont, IL 60018-5119,
Phone 773-714-8880
Website: <http://www.naacls.org>

Graduates of this accredited MLT program are eligible to take national certification examinations such as the American Society of Clinical Pathology (ASCP) Board of Certification exam, to become certified as an MLT (ASCP).

What is Medical Laboratory Technology?

A Medical Laboratory Technician (MLT) works with a team of pathologists, technologists, and technicians to analyze patient samples to provide information to the patient's physician to detect illness, enable treatment, and ensure that the treatment will benefit the patient. The MLT works in all areas of the medical laboratory such as microbiology, chemistry, hematology, and transfusion services. MLTs are qualified to perform routine tests as well as more complex procedures including analyzing blood for chemical components, typing blood to ensure safe transfusion, and identifying bacteria and other microorganisms. MLTs also prepare specimens for examination, count cells, and look for abnormal cells in blood and body fluids. They use microscopes, cell counters, and automated equipment and computerized instruments to test specimens. After testing and verifying the results, they relay the results to physicians.

MORE INFORMATION ABOUT MEDICAL LABORATORY TECHNOLOGY (<http://hazleton.psu.edu/associate-science-medical-laboratory-technology>)

You Might Like This Program If...

You might like this major if you are interested in science and enjoy working in a laboratory setting. MLTs are problem solvers and are accurate and reliable. They want to help patients in a medical setting but prefer not to have direct patient contact. They enjoy working with

their hands and using technical instruments. Their work is interesting, challenging, and requires a love of life-long learning.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY MEDICAL LABORATORY TECHNOLOGY (<https://www.ascp.org/content/careers>)

Entrance to Major

Students must request a Dean's review to change to this Associate degree after admission to the University.

Additional Information

Before beginning the clinical experience rotations at hospitals, students must meet the requirements listed at: <http://hazleton.psu.edu/program-clinical-prerequisites>.

Degree Requirements

For the Associate in Science degree in Medical Laboratory Technology, a minimum of 72 credits is required:

Requirement	Credits
General Education	21
Requirements for the Major	63-65

12 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GWS courses; 6 credits of GN courses; 3 credits of GQ courses.

Scheduling of courses in summer session depends on campus location.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (<http://bulletins.psu.edu/undergraduate/general-education/associate-degree-general-education-program>) section of the Bulletin and consult your academic adviser.

Foundations (grade of C or better is required.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Foundations or Knowledge Domains

- **A General Education course selected from GWS, GQ, GN, GA, GH, or GS, and may include Integrative Studies (Inter-domain or Linked) courses:** 3 credits

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

University Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 202	Fundamentals of Organic Chemistry I	3
ENGL 15	Rhetoric and Composition	3
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
<i>Prescribed Courses: Require a grade of C or better</i>		
MICRB 150	Introductory Medical Laboratory Technology	4
MICRB 151A	Clinical Chemistry for Medical Laboratory Technicians	5
MICRB 151B	Hematology for Medical Laboratory Technicians	5
MICRB 151C	Immunohematology and Serology for Medical Laboratory Technicians	4
MICRB 151D	Clinical Chemistry Practicum	2
MICRB 151E	Hematology Practicum	2
MICRB 151F	Immunohematology Practicum	2
MICRB 151G	Clinical Microbiology and Body Fluids Practicum	2

MICRB 151W	Clinical Microbiology and Body Fluid Analysis for Medical Laboratory Technicians	5
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Additional Courses

CMPSC 100 or MIS 103	Computer Fundamentals and Applications Microcomputer Applications in Business	3
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Select 8 credits from: 8

BIOL 110 & BIOL 240W	Biology: Basic Concepts and Biodiversity and Biology: Function and Development of Organisms	
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BIOL 161 & BIOL 162 & BIOL 163 & BIOL 164	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory and Human Anatomy and Physiology II - Lecture and Human Anatomy and Physiology II - Laboratory	
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Select 3-5 credits from: 3-5

MATH 21	College Algebra I	
MATH 22	College Algebra II and Analytic Geometry	
MATH 26	Plane Trigonometry	
MATH 40	Algebra, Trigonometry, and Analytic Geometry	
MATH 81	Technical Mathematics I	
MATH 110	Techniques of Calculus I	
MATH 140	Calculus With Analytic Geometry I	
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy>)

Hazleton

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2019-20 academic year. To access previous years' suggested academic plans, please visit the archive (<http://bulletins.psu.edu/undergraduate/archive>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested*

academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).

Hazleton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
ENGL 15 or 30 ^{††}	3 MICRB 201	3 CHEM 202 ³	3
CHEM 110 [†]	3 MICRB 202	2 CAS 100 ^{3 ‡}	3
BIOL 161 ¹	3 BIOL 163 ¹	3 MICRB 150 ^{2,3}	4
BIOL 162 ¹	1 BIOL 164 ¹	1	
CHEM 108 (optional)	1 CHEM 111	1	
General Education Course (GQ) ^{††}	3-4 MIS 103	3	
PSU 8	1 General Education Course	3	
	15-16	16	10

Second Year

Fall	Credits Spring	Credits Summer	Credits
MICRB 151A ^{2*}	5 MICRB 151C ^{2*}	4 General Education Course ⁴	3
MICRB 151B ^{2*}	5 MICRB 151F ^{2*}	2 General Education Course ⁴	3
MICRB 151D ^{2*}	2 MICRB 151G ^{2*}	2	
MICRB 151E ^{2*}	2 MICRB 151W ^{2*}	5	
	14	13	6

Total Credits 74-75

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

¹ BIOL 110 and BIOL 240 may be taken in place of BIOL 161, BIOL 162, BIOL 163, BIOL 164.
² MICRB 150, MICRB 151 courses include clinical experience at affiliated sites. Must earn C or better for graduation.
³ These courses should be taken in summer session 1.
⁴ These courses should be taken in summer session 2.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GN, GA, GH, and GS). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

A minimum of 72 credits is required for graduation.

Math (Quantification): If Placement Profile indicates MATH 4 – schedule before first Fall semester (during Summer). Then take MATH 21.

Other qualifying math courses: MATH 22, 26, 40, 81, 110, 111, 140, STAT 200, 250.

CHEM 108 (Problem Solving in Chemistry) is optional, but recommended.

PSU 8 required of all first-year students in the first semester

Lehigh Valley Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits Summer	Credits
ENGL 15 ^{††}	3 MICRB 201	3 CHEM 202	3
BIOL 161 ^{††}	3 MICRB 202	2 MICRB 150 ^{*3}	4
BIOL 162 ^{††}	1 BIOL 163 ^{††}	3 General Education Selection (GA or GS)	3
CHEM 110	3 BIOL 164 ^{††}	1 CAS 100	3
CHEM 111	1 MIS 103 or 204	3	
General Education Quantification ^{††‡}	3 General Education Selection (GA or GH)	3	
HDFS 287Y [†]	3		
	17	15	13

Second Year

Fall	Credits Spring	Credits
MICRB 151A ^{*3}	5 MICRB 151C ^{*3}	4
MICRB 151B ^{*3}	5 MICRB 151W ^{*3}	5
MICRB 151D ^{*3}	2 MICRB 151F ^{*3}	2
MICRB 151E ^{*3}	2 MICRB 151G ^{*3}	2
	14	13

Total Credits 72

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education

- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement
- ¹ BIOL 110 and BIOL 240 may be taken in place of BIOL 161, BIOL 162, BIOL 163, BIOL 164.
- ² Students can select from MATH 21, MATH 22, MATH 26, MATH 40, MATH 81, MATH 110, MATH 140, STAT 200, STAT 250.
- ³ MICRB 150 and MICRB 151 courses include clinical experience at affiliated sites.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GN, GA, GH, and GS). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Career Paths

The two-year MLT program includes a two-semester clinical practicum experience in affiliated hospital laboratories. The MLT learns the most current laboratory techniques in a real laboratory setting.

Careers

You can find a career in a hospital laboratory, food processing industry, veterinary lab, state police or federal forensics lab, public health lab, cancer clinic, chemical company, pharmaceutical company, and more. You can choose to work in a medical lab or non-medical setting.

MORE INFORMATION ABOUT CAREERS (<https://www.ascp.org/content/careers/learn-about-careers>)

Opportunities for Graduate Studies

If an MLT graduate chooses to continue his/her education, the first year's courses will transfer to a major in Microbiology, Medical Laboratory Science, Biology or related disciplines. Once an MLT graduate passes a national certification exam and is certified as MLT, earns a BS or BA in any major, and works in a hospital laboratory for at least two years, they can qualify to take a Medical Laboratory Scientist (MLS) certification exam. Bachelor's degrees earned prior to MLT certification count toward the MLS qualification. This opens the door to careers as an educator, laboratory manager and specialist positions.

Professional Resources

- American Society for Clinical Laboratory Science (<http://www.ascls.org>)
- American Society for Clinical Pathology (<https://www.ascp.org/content>)
- American Association of Clinical Chemistry (<https://www.aacc.org/global-health-outreach/lab-tests-online>)
- American Society of Hematology (<http://www.hematology.org>)
- American Association of Blood Banks (<http://www.aabb.org>)
- National Accrediting Agency for Clinical Laboratory Sciences (<http://www.naacls.org>)

- American Society for Microbiology (<https://asm.org>)
- Centers for Disease Control and Prevention (<https://www.cdc.gov>)

Accreditation

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Penn State Hazleton program outcome measures are available at <http://hazleton.psu.edu/program-outcome-measures>

MORE INFORMATION ABOUT THE NATIONAL ACCREDITING AGENCY FOR CLINICAL LABORATORY SCIENCES (<http://www.naacls.org>)

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<http://hazleton.psu.edu/associate-science-medical-laboratory-technology>