

# ASSOCIATE OF APPLIED SCIENCE IN MEDICAL LABORATORY TECHNICIAN

## Medical Laboratory Programs

Laboratory analysis plays a vital role in the detection, diagnosis, and treatment of disease. Laboratory professionals perform moderate to highly complex analysis and provide data to assist physicians and other healthcare practitioners in identification and treatment of disease.

For more information regarding program policies, procedures, and essential functions or to obtain a copy of the Medical Laboratory program handbook, please contact Dr. Farhana Mueez fmueez@ysu.edu 330-941-4681

## Medical Laboratory Technician (MLT-AAS) Curriculum

The medical laboratory technician program is a two-year program leading to the Associate of Applied Science degree. The curriculum focuses on the knowledge and basic skills necessary to understand and master the procedures performed in the medical laboratory. Coursework includes in-depth study of the principles, methods, calculations, and interpretation of laboratory procedures, analysis of quality control data, instrument calibration techniques, professional communication, and interpersonal skills. Technical instruction includes procedures in hematology, microbiology, immunohematology, clinical chemistry, and body fluids. This program requires five semesters of study including one summer semester.

Medical laboratory technicians (MLT) may work in hospital laboratories, private laboratories, clinics, public health facilities, or pharmaceutical laboratories. The MLT performs laboratory tests under the supervision or direction of the Pathologist or Medical laboratory scientist. Physicians and other health care professionals rely on accurate laboratory test data to assist in the determination of disease states and the effectiveness of prescribed treatments.

The Medical laboratory technician may collect samples from patients and performs testing on blood, tissues, and body fluids using a variety of methodologies. Medical laboratory technicians interpret data to discriminate between related items, correct errors using preset strategies, and recognize and correct factors that impact the accuracy of laboratory data. The MLT curriculum provides specific knowledge related to the correlation of disease processes and the impact on data.

Graduates are eligible to take the MLT certification examination offered through ASCP and become certified as an MLT (ASCP).

Students must have a minimal Math Placement of Level 3 or its equivalent to be considered for the MLT program.

Program admission is based on the applicant's overall GPA and performance in pre-requisite coursework including Math, Biology, and Chemistry. All MLT, BIOL, & CHEM courses must be completed with a minimum grade of a "C". Students in the MLT program must maintain an overall minimum GPA of 2.75. Developmental courses do not count toward degree requirements.

Course substitutions may be approved only by the program director. There will be no course substitutions for MLT coursework. Students are permitted a total of two course repetitions for recalculation of GPA. Courses must be taken in the proper sequence, failure to do so may invalidate clinical placement and delay graduation, students are required to meet with the MLT program director each semester for advisement. Students must complete a background check, and immunizations record as program requirements.

Medical laboratory technicians are expected to function with a maximum degree of effectiveness in professional attitude, patient relations, and integrity. The capacity for competent performance at all levels must be assured before the student will be assigned to a clinical internship. The student must be competent in the didactic (knowledge), psychomotor (laboratory skills), and affective realm (attitude and responsibility) prior to clinical placement.

## Program Accreditation

The MLT program is accredited through the National Accrediting Agency for Clinical Laboratory Sciences and meets the standards developed by the American Society of Clinical Pathologists (ASCP).

The National Accrediting Agency for Clinical Laboratory Sciences  
5600 N. River Rd., Suite 720  
Rosemont, IL 60018-5119  
phone (773) 714-8886  
<http://www.naacls.org>

COURSE	TITLE	S.H.
<b>FIRST YEAR REQUIREMENT -STUDENT SUCCESS</b>		
YSU 1500	Success Seminar	1-2
or YSU 1500S	Youngstown State University Success Seminar	
or HONR 1500	Intro to Honors	
<b>General Education</b>		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
<b>Gen Ed Math</b>		
STAT 2625	Statistical Literacy and Critical Reasoning	4-6
or STAT 2625C	Statistical Literacy and Critical Reasoning with Co-Requisite Support	
Social Science or A&H domains (Select 1 course)		3
<b>Natural Science Requirements</b>		
BIOL 2601	General Biology 1: Molecules and Cells	3
BIOL 2601L	General Biology I: Molecules and Cells Laboratory	1
CHEM 1510	Chemistry for the Allied Health Sciences	4
CHEM 1510L	Chemistry for the Allied Health Sciences Laboratory	0
BIOL 1545	Allied Health Anatomy and Physiology	5
BIOL 1545L	Allied Health Anatomy and Physiology Laboratory	0
<b>Major Requirements</b>		
MLT 1501	Introduction to the Medical Laboratory Profession	2
MLT 1501L	Introduction to the Medical Laboratory Profession Laboratory	1
MLT 1502	Urinalysis and Body Fluids	2
MLT 1502L	Urinalysis and Body Fluids Laboratory	1
MLT 1503	Immunohematology	3
MLT 1503L	Immunohematology Laboratory	1
MLT 2601	Clinical Chemistry 1	2
MLT 2601L	Clinical Chemistry 1 Laboratory	1
MLT 2603	Immunohematology Laboratory 2 (Immunohematology Laboratory 2 )	1
MLT 2605	Molecular Diagnostics	2
MLT/MLS 3700	Clinical Chemistry 2	4
MLT 3701	Clinical Hematology 1	2
MLT 3701L	Clinical Hematology 1 Laboratory	1
MLT 3702	Clinical Hematology 2	2
MLT 3702L	Clinical Hematology 2 Laboratory	1
MLT 3704	Clinical Immunology and Serology	3
MLT 3704L	Clinical Immunology/Serology Laboratory	1
MLT 3787	Diagnostic Microbiology	3

MLT 3787L	Diagnostic Microbiology Laboratory	2
MLT 3706	Medical Laboratory Seminar	3
MLT 3716	Clinical Internship	6
MLT 3717	Clinical Microbiology Interpretation	1
<b>Total Semester Hours</b>		<b>72-76</b>

**Year 1**

<b>Fall</b>		<b>S.H.</b>
YSU 1500 or YSU 1500S or HONR 1500	Success Seminar or Youngstown State University Success Seminar or Intro to Honors	1-2
MLT 1501	Introduction to the Medical Laboratory Profession	2
MLT 1501L	Introduction to the Medical Laboratory Profession Laboratory	1
CHEM 1510	Chemistry for the Allied Health Sciences	4
CHEM 1510L	Chemistry for the Allied Health Sciences Laboratory	0
ENGL 1550 or ENGL 1549	Writing 1 or Writing 1 with Support	3-4
BIOL 2601	General Biology 1: Molecules and Cells	3
BIOL 2601L	General Biology I: Molecules and Cells Laboratory	1
<b>Semester Hours</b>		<b>15-17</b>

**Spring**

MLT 1502	Urinalysis and Body Fluids	2
MLT 1502L	Urinalysis and Body Fluids Laboratory	1
MLT 1503	Immunohematology	3
MLT 1503L	Immunohematology Laboratory	1
MLT 2601	Clinical Chemistry 1	2
MLT 2601L	Clinical Chemistry 1 Laboratory	1
ENGL 1551	Writing 2	3
BIOL 1545	Allied Health Anatomy and Physiology	5
BIOL 1545L	Allied Health Anatomy and Physiology Laboratory	0
<b>Semester Hours</b>		<b>18</b>

**Summer**

MLT 3700	Clinical Chemistry 2	4
MLT 3701	Clinical Hematology 1	2
MLT 3701L	Clinical Hematology 1 Laboratory	1
<b>Semester Hours</b>		<b>7</b>

**Year 2**

<b>Fall</b>		
MLT 3702	Clinical Hematology 2	2
MLT 3702L	Clinical Hematology 2 Laboratory	1
MLT 3787	Diagnostic Microbiology	3
MLT 3787L	Diagnostic Microbiology Laboratory	2
MLT 3704	Clinical Immunology and Serology	3
MLT 3704L	Clinical Immunology/Serology Laboratory	1
STAT 2625 or STAT 2625C	Statistical Literacy and Critical Reasoning or Statistical Literacy and Critical Reasoning with Co-Requisite Support	4-6
MLT 2603	Immunohematology Laboratory 2 (Immunohematology Laboratory 2 )	1
<b>Semester Hours</b>		<b>17-19</b>

**Spring**

MLT 3706	Medical Laboratory Seminar	3
MLT 3716	Clinical Internship	6

MLT 2605	Molecular Diagnostics	2
MLT 3717	Clinical Microbiology Interpretation	1
AH or Social Science Elective course		3
<b>Semester Hours</b>		<b>15</b>
<b>Total Semester Hours</b>		<b>72-76</b>

Students are considered pre-MLT during the first semester. Following successful completion of MLT 1501 Introduction to the Medical Laboratory Profession / MLT 1501L Introduction to the Medical Laboratory Profession Laboratory and BIOL 2601 General Biology 1: Molecules and Cells / BIOL 2601L General Biology I: Molecules and Cells Laboratory with a grade of C or better students are officially admitted to the MLT program and begin the second semester in the sequence.

## Learning Outcomes

- Graduates will be prepared to function as entry-level health care professionals in the medical laboratory as medical laboratory technicians and medical laboratory scientists. At entry level, the medical laboratory graduate will be able to demonstrate the ability to comprehend, apply and evaluate information relative to the medical laboratory profession.
- These learning outcomes include comprehension of the theory and the ability to apply and evaluate the didactics of hematology, clinical chemistry, immunohematology, microbiology, immunology, coagulation, molecular diagnostics, and other emerging diagnostics.
- Graduates will be prepared to function as entry-level health care professionals in the medical laboratory as medical laboratory technicians and medical laboratory scientists. Upon completion of the program, graduates will demonstrate technical proficiency in laboratory applications.
- These psychomotor learning outcomes include the performance of laboratory procedures in hematology, clinical chemistry, immunohematology, microbiology, immunology, coagulation, molecular diagnostics, and other emerging diagnostics. The graduate will demonstrate proficiency in the functions of all phases of laboratory analysis (pre-analytical, analytical, and post-analytical processes).
- Graduates will demonstrate professional conduct and interpersonal communication skills consistent with the medical laboratory profession.
- Students will exhibit the ability to think critically across all 3700-level courses through the application of fundamental didactic and psychomotor skills to assess the medical relevance and significance of specific aspects of laboratory testing.