

# ASSOCIATE OF APPLIED SCIENCE IN MEDICAL LABORATORY TECHNICIAN

## Medical Laboratory Programs

Laboratory analysis plays an important role in the detection, diagnosis, and treatment of many diseases. Laboratory professionals perform a myriad of such tests to aid the physician in the management 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 Joan O'Connell-Spalla at (330) 941-1761 or joconnellspalla@ysu.edu.

## 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. Included are the principles, methods, calculations, and interpretation of laboratory procedures, computer technology, and 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) work in a supportive role in a hospital laboratory, private laboratory, clinic, public health facility, or pharmaceutical laboratory. The MLT performs laboratory tests under the supervision or direction of pathologists and other physicians, and clinical laboratory scientists. Physicians and other health care professionals use these tests to determine the presence and extent of disease, the etiologic implications about the cause of disease, and to monitor the treatment of the disease.

The MLT collects samples from patients and develops data on the blood, tissues and body fluids by using a variety of precise methodologies and technologies. Medical laboratory technicians use modern instruments, with the ability to discriminate between similar items and correct errors using preset strategies. The MLT has knowledge of specific techniques and instrumentation and is able to recognize factors that affect laboratory procedures. The MLT also monitors quality assurance procedures.

Graduates are eligible to take the certification examinations for MLT/CLT 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. Students in Pre-MLT are not considered to be enrolled in the MLT program. Students must first complete the following courses with a minimal grade of C:

COURSE	TITLE	S.H.
MLT 1501	Introduction to the Medical Laboratory Profession	2
MLT 1501L	Introduction to the Medical Laboratory Profession Laboratory	1
BIOL 2601	General Biology 1: Molecules and Cells	4
BIOL 2601L	General Biology I: Molecules and Cells Laboratory	0
<b>Total Semester Hours</b>		<b>7</b>

Program admission is based on the applicant's overall GPA and performance in Chemistry, MLT, and Biology courses. All MLT, BIOL, & CHEM courses must be completed with a minimum grade of a "C". Students must maintain an overall program GPA of at least 2.75. Students receiving a total of 6 hours or more

grades of "D"/ "F" in MLT, BIOL, or CHEM will be dismissed from the program. All developmental courses such as the following do not count toward degree requirements.

COURSE	TITLE	S.H.
ENGL 1539	Fundamentals of College Writing	4
ENGL 1540		3
RSS 1510A	Advanced College Success Skills	3
RSS 1510B	Basic College Success Skills	3
MATH 1501		
MATH 1505	Intermediate Algebra with Applications	5
MATH 1507	Intermediate Algebra	3

There will be no course substitutions for MLT, BIOL, or CHEM courses. Students are permitted a total of two course repetitions for recalculation of GPA. Readmission to the program is based on GPA and availability of class space. Students must maintain a minimum of 2.75 GPA for placement into clinical practicum. Courses must be taken in proper sequence; students may invalidate clinical placement when failing to do so. Students are required to complete a physical exam, background check, and immunizations 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>

### Program outcomes for students graduating between 2020 and 2021 include:

- Graduation rate 100%
- Certification exam pass rate 100%
- Job placement rate 100%

COURSE	TITLE	S.H.
<b>FIRST YEAR REQUIREMENT -STUDENT SUCCESS</b>		
YSU 1500	Success Seminar	1-2
or SS 1500	Strong Start 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
STAT 2625	Statistical Literacy and Critical Reasoning	4
Natural Science Requirements		
BIOL 2601 & 2601L	General Biology 1: Molecules and Cells and General Biology I: Molecules and Cells Laboratory	4
BIOL 2602 & 2602L	General Biology 2: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory	4
Select 1 course from either Social Science or A&H domains:		3
<b>Major Requirements</b>		

CHEM 1510	Chemistry for the Allied Health Sciences	4
CHEM 1510L	Chemistry for the Allied Health Sciences Laboratory	0
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 3706	Medical Laboratory Seminar	3
MLT 3716	Clinical Internship	6
MLT 3717	Clinical Microbiology Interpretation	1
MLT 3787	Diagnostic Microbiology	3
MLT 3787L	Diagnostic Microbiology Laboratory	2
<b>Total Semester Hours</b>		<b>71-73</b>

**Year 1**

<b>Fall</b>	<b>S.H.</b>	
YSU 1500	Success Seminar	1
MLT 1501	Introduction to the Medical Laboratory Profession	2
MLT 1501L	Introduction to the Medical Laboratory Profession Laboratory	1
BIOL 2601 & 2601L	General Biology 1: Molecules and Cells and General Biology I: Molecules and Cells Laboratory	4
CHEM 1510	Chemistry for the Allied Health Sciences	4
CHEM 1510L	Chemistry for the Allied Health Sciences Laboratory	0
ENGL 1550	Writing 1	3
General Education Requirement <sup>1</sup>		3
<b>Semester Hours</b>		<b>18</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
BIOL 2602 & 2602L	General Biology 2: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory	4
BIOL 2602L	General Biology: Organisms and Ecology Laboratory	0
ENGL 1551	Writing 2	3
<b>Semester Hours</b>		<b>17</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****Fall**

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	Statistical Literacy and Critical Reasoning	4
MLT 2603	Immunohematology Laboratory 2 (Immunohematology Laboratory 2 )	1
<b>Semester Hours</b>		<b>17</b>

**Spring**

MLT 3706	Medical Laboratory Seminar	3
MLT 3716	Clinical Internship	6
MLT 2605	Molecular Diagnostics	2
MLT 3717	Clinical Microbiology Interpretation	1
<b>Semester Hours</b>		<b>12</b>
<b>Total Semester Hours</b>		<b>71</b>

<sup>1</sup> General education courses must fulfill their requirements for the baccalaureate degree. Students must take two courses from Arts & Humanities, two courses from Social Science, and two courses from Social and Personal Awareness.

Only those students who complete 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 will be considered for admission into the MLT Program.

## 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.