Medical Laboratory Technician (MLT)

And

Medical Laboratory Scientist (MLS)

Student Handbook 2025-26

Marshall University

Clinical Laboratory Sciences Department

College of Health Professions

Table of Contents

PART I: INTRODUCTION AND GENERAL INFORMATION

This guide is for students seeking admission, or who are already admitted to the Associate of Applied Science (AAS) in Medical Laboratory Technology (MLT) and online Bachelor of Science in Medical Laboratory Science (MLS) bridge program. For information on admissions, check the current MU Undergraduate Catalog.

The academic calendar can be found by visiting this link:
http://www.marshall.edu/calendar/academic/

Tuition and Fees vary from one year to the next and are different for courses taught online. For a comprehensive description of current course tuition and fees, and the refund policies, visit this link: http://www.marshall.edu/tuition/

Clinical Laboratory Sciences Department Faculty

Dr. Jennifer Perry, Ed.D., Medical Laboratory Scientist, MLS (ASCP) joined the MU faculty in August of 2005 and is currently the chair and program director for CLS programs. She received her Bachelor of Science in Medical Technology from Marshall University in 1994 and her Master of Science in Health Care Administration also from Marshall University in 1999. She obtained a doctorate in Education Leadership from Marshall University in 2014. Dr. Perry spent twelve years in the clinical laboratory field where she supervised operations in the Chemistry and Hematology sections, as well as educated CLS students at the clinical site. She currently holds the rank of Full Professor and teaches CLS 200, Clinical Biochemistry, CLS 460, Laboratory Management and Education, CLS 464, Laboratory Instrumentation, CLS 320, Advanced Topics in Clinical Laboratory Science, CLS 400, Advanced Clinical Chemistry, CLS 420, Advanced Clinical Microbiology, CLS 468, Research in Clinical Laboratory Science (capstone, WI), and coordinates the MLS clinical experiences (CLS 472 and 473).

Dr. Pamela D. Meadows, Ed.D., Medical Laboratory Scientist, MLS (ASCP). joined the MU faculty in August 2012. She earned her Bachelor of Science degree in Medical Technology, her Master of Science in Health Care Administration, and her doctorate in Education Leadership from Marshall University. Professor Meadows has over twenty years of experience in the clinical laboratory, and still works part time as a scientist at CAMC. She currently holds the rank of Professor and teaches CLS 105, Medical Laboratory Terminology (CT, critical thinking), CLS 230, Clinical Hematology, CLS 410, Advanced Immunohematology, CLS 430, Advanced Hematology, CLS 210 Clinical Immunohematology, CLS 255 Clinical Laboratory Problems, CLS 466, Diagnostic Physiology (WI), CLS 499, Seminar in Laboratory Medicine, and coordinator for MLT clinical experiences (CLS 270, 271, 272, and 273).

Accreditation

The MLT and MLS programs at Marshall University underwent the comprehensive reaccreditation process in 2017 through the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Both programs were granted full 10-year accreditation through April of 2028. The contact information for NAACLS is as follows:

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

5600 N. River Road Suite 720

Rosemont, IL 60018-5119

847-939-3597

773-714-8880

773-714-8886

Web Address: http://www.naacls.org

AAS in Medical Laboratory Technology Program and online BS in Medical Laboratory Science Bridge Program Descriptions and Curricula

The AAS in MLT program is the entry level degree for practicing in the medical laboratory field. At the completion of this degree program, students are eligible to take certification examinations, as well as begin working in the clinical laboratory. Most MLT graduates find employment within hospital medical laboratories, performing testing on blood and body fluids.

Students who successfully complete the MU MLT program are eligible to continue into the MLS program. For program officials to know your intentions and to schedule clinical MLS practicum experiences, admission to the MLS program requires that you submit a letter of intent to the MLS Program Director in the spring of the academic year you intend to begin the preclinical MLS course sequence.

Graduates of other NAACLS-accredited MLT programs are also eligible for direct admission to the MLS program. Graduates of a military based MLT program are also eligible for the MU MLS program.

The General Education Core Curriculum does not apply to associate degrees. However, CLS students who want to complete the bachelor's degree program in Medical Laboratory Science should plan with their academic advisor to include as many Core Curriculum requirements as possible while completing the MLT program curriculum. A

listing of Core Curriculum courses offered in the current semester may be found in the schedule of classes and on the General Education website.

Pre-med Option

Clinical Laboratory Sciences programs are excellent pre-medical curricula, when supplemented with additional general studies courses. Students planning to seek admission to post-graduate professional schools should plan their academic program with a CLS faculty advisor.

Academic and Professional Advisement

CLS programs are under the administration of the College of Health Professions. The office of the Dean, College of Health Professions (COHP) is located in the COHP Advising Center on the 3rd floor of Corbly Hall.

MLT and MLS students should be assigned to faculty members in the Clinical Laboratory Sciences Department for academic and professional advisement. Advisement holds must be removed from students' records before they can officially register for classes. The COHP Office of Student Services can remove academic holds.

Description of the Profession

The following descriptions and entry-level competence statements are extracted from the NAACLS (National Accrediting Agency for Clinical Laboratory Sciences) Essentials for medical laboratory technicians and scientists.

Program Goals and Competencies for the MLT and MLS student

Goals upon graduation from the Medical Laboratory Technology or Medical Laboratory Science program are:

- Prepare graduates with attitudes, knowledge, and skills that prepare them for entry into the clinical laboratory workforce as Medical Laboratory Technicians (MLT) or Medical Laboratory Scientists (MLS).
- Prepare graduates to continue learning advanced knowledge about human health and disease.
- Prepare graduates with the knowledge and experience necessary for national certification as a Medical Laboratory Technician (MLT) or Medical Laboratory Scientist (MLS).
- Students show demonstration of minimum levels or proficient performance and knowledge of each clinical specialty studied in the pre-clinical portions of the program, including advanced clinical hematology, clinical chemistry, clinical immunohematology, and clinical microbiology as well as laboratory instrumentation and laboratory supervision.

Medical Laboratory Technician:

The clinical laboratory technician/medical laboratory technician is an allied health professional who is qualified by academic and practical training to provide service in clinical laboratory science. The clinical laboratory technician/medical laboratory technician must also be responsible for his/her own actions, as defined by the profession.

Behavioral Objectives for the MLT

The following Behavioral Objectives are expected of all students throughout the duration of the program, which includes all didactic and clinical rotation courses:

- Demonstrate the ability to interact with co-workers and health care professionals effectively.
- Demonstrate calm and reasonable judgment in clinical laboratory practices.
- Demonstration of commitment to the patient
- Demonstrate ethical and moral attitudes and principles which are essential for gaining and maintaining the trust of professional associates.
- Demonstrate an attitude of respect for the patient and confidentiality of the patient's record and/or diagnoses.

Competency for the MLT

Clinical laboratory technicians/ medical laboratory technicians are competent in:

a. Collecting, processing, and analyzing biological specimens and other substances.

b. Performing analytical tests of body fluids, cells, and other substances.

c. Recognizing factors that affect procedures and results and taking appropriate actions within predetermined limits when corrections are indicated.

d. Performing and monitoring quality control within predetermined limits.

e. Performing preventive and corrective maintenance of equipment and instruments or referring to appropriate sources for repairs.

f. Applying principles of safety.

g. Demonstrating professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and with the public.

h. Recognizing the responsibilities of other laboratory and health care personnel and interacting with them with respect for their jobs and patient care.

i. Applying basic scientific principles in learning new techniques and procedures.

j. Relating laboratory findings to common disease processes, and k. establishing and maintaining continuing education as a function of growth and maintenance of professional competence.

Upon graduation and initial employment, the clinical laboratory technician/medical laboratory technician should be able to demonstrate entry-level knowledge and skills in the above areas of professional practice.

Medical Laboratory Scientist (MLS)

The medical laboratory scientist is an allied health professional who is qualified by academic and practical training to provide service in clinical laboratory science. The medical laboratory scientist must also be responsible for his/her own actions, as defined by the profession.

Behavioral Objectives for the MLS

The following Behavioral Objectives are expected of all students throughout the duration of the program, which includes all didactic and clinical rotation courses:

- Demonstrate the ability to interact with co-workers and health care professionals effectively
- Demonstrate calm and reasonable judgment in clinical laboratory practices
- Demonstration of commitment to the patient
- Demonstrate ethical and moral attitudes and principles which are essential for gaining and maintaining the trust of professional associates
- Demonstrate an attitude of respect for the patient and confidentiality of the patient's record and/or diagnoses

Competency for the MLS

Medical Laboratory scientists are competent in:

a. Developing and establishing procedures for collecting, processing, and analyzing biological specimens and other substances.

b. Performing analytical tests of body fluids, cells, and other substances.

c. Integrating and relating data generated by the various clinical laboratory departments while making decisions regarding possible discrepancies.

d. Confirming abnormal results, verifying quality control procedures, executing quality control procedures, and developing solutions to problems concerning the generation of laboratory data.

e. Making decisions concerning the results of quality control and quality assurance measures and instituting proper procedures to maintain accuracy and precision.

f. Establishing and performing preventive and corrective maintenance of equipment and instruments as well as identifying appropriate sources for repairs.

g. Developing, evaluating, and selecting new techniques, instruments, and methods in terms of their usefulness and practicality within the context of a given laboratory's personnel, equipment, space, and budgetary resources.

h. Demonstrating professional conduct and interpersonal skills with patients, laboratory personnel, other health care professionals, and the public.

i. Establishing and maintaining continuing education as a function of growth and maintenance of professional competence.

j. Providing leadership in educating other health personnel and the community.

k. Exercising principles of management, safety, and supervision.

l. Applying principles of educational methodology.

m. Applying principles of current information systems.

Upon graduation and initial employment, the Medical Laboratory Scientist should be able to demonstrate entry-level competencies in the above areas of professional practice.

Medical Laboratory Technology (MLT) Program Outcome Measures

MU MLT Program Graduation Rates*				
NAACLS Annual Report Data for Year:	2022 Graduates between 7/1/20 – 6/30/21	2023 Graduates between 7/1/21 – 6/30/22	2024 Graduates between 7/1/22- 6/30/23	**3-year average**
Students entering final half of the program year and graduated/# who began the final half and are not still enrolled in the program	5/6	4/4	5/7	**14/17**
Yearly Attrition Rate (students who began final half of program but left (voluntarily or involuntarily)/# who began the final half	1/6=16.6%	0/4=0%	2/7=28.6%	**3/17=17.6%**
NAACLS Graduation Rate Threshold for a 3-year period	---	---	---	**70%**
MU Graduation Rate	83.4%	100%	71.4%	**82.4%** **Above NAACLS Threshold**

*To meet NAACLS accreditation standards, graduation rates are calculated based upon the number of students entering the final half of the MLT program. MU has determined the entry point of the final half to be the second semester of the second year of the program.

MU MLT Graduate Placement Rates**				
NAACLS Annual Report Data for Year:	2022 Graduates between 7/1/20-6/30/21	2023 Graduates between 7/1/21-6/30/22	2024 Graduates between 7/1/22-6/30/23	**3-year average**
NAACLS Threshold for a 3-year period				**70%**
MU Placement Rates	100%	100%	100%	**100%** **Above NAACLS Threshold**

**Employment in field of study or a closely related field (for those who seek employment) or continuation of education within one year of graduation

MU MLT Program Graduate Certification Pass Rates***				
NAACLS Annual Report Data for Year:	2022 Graduates between 7/1/20-6/30/21	2023 Graduates between 7/1/21-6/30/22	2024 Graduates between 7/1/22-6/30/23	**3-year average**
NAACLS Threshold for a 3-year period	---	---	---	**75%**
MU Certification Rates # Of students taking the exam and passing within the first year after graduation/# of students who sat for the exam within the first year of graduation	6/6=100%	6/6=100%	4/5=80%	**16/17=94.1%** **Above NAACLS Threshold**

***Certification rates of those taking the exams and passing within the first year of graduation

Medical Laboratory Science (MLS) Program Outcome Measures

MU MLS Program Graduation Rates*				
NAACLS Annual Report Data for Year:	2022 Graduates between 7/1/20-6/30/21	2023 Graduates between 7/1/21 – 6/30/22	2024 Graduates between 7/1/22 – 6/30/23	**3-year average**
Students entering final half of the program year and graduated/# who began the final half and are not still enrolled in the program	23/23	11/13	13/15	**47/51=92.2%**
Yearly Attrition Rate (students who began final half of program but left (voluntarily or involuntarily)/# who began the final half	0/23=0%	2/13=15.4%	2/15=13.3%	**4/51=7.8%**
NAACLS Graduation Rate Threshold for a 3-year period	---	---	---	**70%**
MU Graduation Rate	100%	100%	100%	**92.2%** **Above NAACLS Threshold**

*To meet NAACLS accreditation standards, graduation rates are calculated based upon the number of students entering the final half of the MLS program. MU has determined the entry point of the final half to be the second semester of the final year of the program.

MU MLS Graduate Placement Rates**				
NAACLS Annual Report Data for Year:	2022 Graduates between 7/1/20-6/30/21	2023 Graduates between 7/1/21 – 6/30/22	2024 Graduates between 7/1/22 – 6/30/23	**3-year average**
NAACLS Threshold for a 3-year period				**70%**
MU Placement Rates	100%	100%	100%	**100% Above NAACLS Threshold**

**Employment in field of study or a closely related field (for those who seek employment) or continuation of education within one year of graduation

MU MLS Program Graduate Certification Pass Rates***				
NAACLS Annual Report Data for Year:	2022 Graduates between 7/1/20-6/30/21	2023 Graduates between 7/1/21-6/30/22	2024 Graduates between 7/1/22-6/30/23	**3-year average**
NAACLS Threshold for a 3-year period	---	---	---	**75%**
MU Certification Rates*** # Of students taking the exam and passing within the first year after graduation/# of students who sat for the exam within the first year of graduation	13/16=81.3%	7/10=70%	6/8=75%	**26/34=76.5%** **Above NAACLS Threshold**

***Certification rates of those taking the exams within the first year of graduation and passing.

MLT and MLS Program Entry Expectations

Students entering training for a laboratory career should expect to develop the capability to perform the duties required. The following list of entry expectations that are intended to reflect the major responsibilities and duties of CLS jobs.

Interprets and acts upon written and verbal instructions for obtaining specimens.

Collects, labels, transports, and processes specimens for laboratory analysis.

Follows detailed written instructions for performing laboratory testing.

Performs clinical laboratory tests and procedures to provide accurate diagnostic data.

Performs quality control procedures to ensure the accuracy of the laboratory data.

Performs preventative and corrective maintenance on equipment to ensure the quality of work.

Communicates results verbally by telephone, by written report, and by computer information system.

Accurately transcribes and records information in laboratory documents.

Maintains work environment to enhance safety and quality of laboratory procedures.

Provides teaching and education to laboratory students and other personnel.

Contributes to the efficient operation of the laboratory.

Demonstrates commitment to the values involved in delivery of quality medical care.

Contributes to the effective operations of the hospital by demonstrating dependability in job performance.

Outcomes Desired by Typical CLS Students

Graduation from a Medical Laboratory Technician (MLT) or Medical Laboratory Science (MLS) educational program

Certification eligibility: ability to qualify for and attain professional certification through ASCP-BOC.

License Eligible: qualified to apply for a license in the state government of West Virginia to practice as a Medical Laboratory Technician or Medical Laboratory Scientist.

Attain Entry Level Skills: Ability to perform all laboratory procedures, ability to cope with the stress of emergency situations, and ability perform work in an experienced manner after orientation to the workplace.

Attain Professional Status: Attain the respect of practicing professional colleagues and their recommendations for employment.

Essential Functions for CLS Students

The following requirements include essential functions that MLT/MLS students must possess so that they will be capable of achieving the objectives of the program and the profession, and so they will not be endangered, nor will they endanger others in the course of their regular work. A student in MLT or MT programs must possess the following essential functions:

Manual Dexterity: must possess the ability to use hand(s) or prosthetic devices with coordination. Tasks that could be required are, but are not limited to 1) performing simple manipulative skills such as washing, writing, streaking plates, etc. 2) performing moderately difficult manipulative skills such as positioning patients for phlebotomy procedures, using computer keyboards, etc. 3) performing difficult manipulative skills such as invasive procedures, calibration of equipment, pulling, pushing, and lifting objects greater than 20 lbs. etc.

Fine Motor Skills: must possess the ability to perform all laboratory procedures safely and accurately, manipulate tools, instruments, small objects, and other equipment in the laboratory with fingertips or adaptive devices.

Mobility: Ability to maneuver around instruments and objects in the classroom and laboratory, as well as in the health care setting/clinical laboratory.

Visual Discrimination: the student should be able to read charts and graphs, read instrument scales, discriminate colors, read microscopic materials, distinguish cloudy from clear and record results. During the program, the CLS student may be required to:

Hearing: must possess the ability to adapt with assistive devices.

Reading: must possess the ability to read, comprehend and follow directions in printed English.

Speech: must possess the ability to verbally communicate effectively in English.

Writing: must possess the ability to communicate in written form in English

Emotional Stability: must possess the ability to work accurately and safely under stress, adapt to changing environments and prioritize tasks.

Travel Requirements: must possess the ability to travel to required education/training destinations, such as the classroom, or clinical facility.

OSHA Category for Blood borne Pathogens Exposure

During the program, the CLS student will routinely encounter exposure to blood borne pathogens. The student will be required to master safety procedures and knowledge about safety policies, materials, and procedures.

Responsibility for Non-Discrimination

The Marshall University, its clinical laboratory programs, and affiliated hospitals are committed to compliance with Title VI of the Civil Rights Act of 1964 and Section 504 of the Rehabilitation Act of 1973. During the program, CLS student will be expected to perform medical laboratory services without regard to race, sex, religion, age, sexual orientation, gender identification, handicap, or national origin of patient, physician, nurse, visitor, another student, etc.

Responsibility for Professional Confidentiality

CLS students will be expected to respect the privacy of individuals receiving medical care. Each student will refrain from discussing any patient information with individuals not directly involved with medical treatment of that patient.

Responsibility for Professional Ethics

As a student in the CLS department and extending on to being a professional in the field, there is an expectation to maintain professional ethics for the patient, profession, and society. How you conduct yourself professionally, both inside and outside of the classroom, is essential. You are a representative of the CLS department at Marshall University, and of the profession of Clinical Laboratory Science, therefore, an expectation of respect and professionalism is a standard for all students during their time in the department.

Students are expected to exhibit respect in all modes of communication, which includes written, verbal, and online. ***Unprofessional, slanderous communication or behavior***

regarding the department of CLS at Marshall University, or the clinical laboratory profession will not be tolerated. Public communication of this nature, such as online posts on social media platforms, public written communication of any kind, or public verbalization will result in dismissal from the CLS programs at Marshall University.

Please review the attached links regarding professional ethics in both Health Professions and specifically in the Clinical Laboratory:

Code of Ethics – American Society for Clinical Laboratory Science (ASCLS)

National Commission for Health Education Credentialing Code of Ethics

Academic Standards

Students must earn a grade of C or better in each CLS course to remain in the program. Feedback on student performance on examinations and practical exercises is available the next class or laboratory period. The instructor provides periodic summaries of grades students are earning during each course.

Students must achieve a minimum of a "C" in ALL required courses in the AAS in MLT and the BS in MLS major to be eligible for graduation. Any courses in which a grade below a "C" is achieved, the student must retake and achieve a "C" or greater to be eligible for graduation. If the course is a CLS course, then this would result in a dismissal from the program, and the student would have to participate in a directed independent study of CLS courses passed, and retake those in which below a "C" was obtained.

Academic Dishonesty

In addition to the University Policies, awareness of all forms of plagiarism is entirely the student's responsibility, and consequences can be very severe for any type of plagiarism. In addition, guidelines for writing, and acceptable sources to be utilized in formal papers, are also entirely the student's responsibility to become familiar. Further, use of generative AI is also prohibited; any practice considered academic dishonesty can result in actions ranging from point deduction or zero on an assignment, expulsion from the CLS programs, or expulsion from the university.

Use of Generative Artificial Intelligence (AI)

Students are prohibited from using generative AI in any way, on any assignment in all CLS courses. The use of generative AI in this course will be considered a violation of both Marshall's Academic Dishonesty Policy and the Student Code of Conduct.

Below are links to relevant resources in these areas that all students will be required to view/review and sign an acknowledgement statement by the second week of courses each semester:

How To Recognize and Avoid Plagiarism (YouTube)

Marshall University Writing Center

Course Evaluation by Students

Suggestions for improving instruction may be submitted at any time. These may be done anonymously if the student so desires. Email or other written comments may be sent to the instructor at any time.

Students will be invited to evaluate instruction in each course and clinical practicum. The purpose of this evaluation is to help faculty make their instruction more effective. These evaluations are done anonymously. All evaluations for courses are online through your MyMU account and are administered at the end of each semester. Students are highly encouraged to complete these evaluations, and to include both positive and negative comments regarding their instruction.

MU Student Services

A variety of services are available free to all MU students. These services include academic advisement, academic skills assistance, a psychology clinic, a speech and hearing center, resident hall advisors, the services of the office for student development, the African American student office, and various outreach programs of churches and synagogues, including the Campus Christian Center. A student ombudsman is also available. MU Libraries and Computer Services provide numerous services. Many services available to students are listed on the Intercultural and Student Affairs Webpage.

Readmission/Reinstatement

Students previously in a CLS program may seek readmission/reinstatement and apply by letter to the program director during the regular admissions period, using the regular admissions procedure. Cover letters should clearly indicate that the student is seeking readmission. Decisions regarding readmitting students to pre-clinical CLS courses will be made by the admissions committee.

No student is guaranteed readmission. Readmitted students may be required to repeat one or more CLS courses or to undertake directed independent study. Students who are re-entering the program in the consecutive year will be required to take directed independent study courses for all CLS courses they achieved a “C” or greater and retake all courses with a D or F grade, withdrawn course, or incomplete course. Additionally, if more than one academic year has lapsed since the student was last in

the MLT program, regardless of previous grades in CLS courses, the student will be required to retake all CLS didactic coursework (CLS 200, 210, 220, 230, 255) before progressing to clinical rotation courses.

Students may not be re-admitted to the MLT program more than twice.

In the online MLS program, students who have lapsed more than one year from taking courses will be removed from the actively enrolled student roster. It will then be the responsibility of the inactive student to notify the program director if he/she wants to become an active student in the MLS program again, and resume taking coursework.

Appeals and Grievances

The process for appeals and grievances is found in the MU Undergraduate Catalog under the title, Academic Rights and Responsibilities of Students. It is also found in the MU Student Handbook. Both can be found on the Marshall University Academic Affairs website by visiting this link: http://www.marshall.edu/academic-affairs/?page_id=802

Content of CLS Courses and Student Assessment

CLS Courses have three content components: a *knowledge* component (lecture/discussion), a laboratory *performance* (practical experience) component, and an *affective* (attitudinal) component. Course content is arranged in ways the instructors consider appropriate for student knowledge of the content and for professional socialization. CLS class meetings may include both lecture and laboratory content, at the instructor's discretion.

Academic credit for course components is defined based on the structure of the learning environment. The lecture/discussion classes are highly structured and have a ratio of one hour of class for each credit hour. The on-campus student laboratory is not as highly structured and lasts 3 hours for each one credit hour. Clinical practicum experiences are highly variable regarding instructor – student interactions, so the CLS Department estimates that 40 - 50 hours of clinical practicum is equivalent to one academic credit hour.

The instructor develops each course from written objectives that include knowledge, psychomotor performance, and affective objectives. The syllabus for each course should make clear to students the expectations for each course and the way knowledge and performance will be assessed.

Performance of Laboratory Service Work by Students

Service work is defined as procedures performed by staff members as part of the primary patient care mission of the laboratory. While in clinical training, students perform service work only as a necessary part of their training and only under

supervision. Students may not be substituted for regular staff during their student experiences.

Students will not be expected to perform service work beyond the requirements of their instructional objectives. This includes performance of phlebotomy services or other large volume, routine work during times the student should be achieving instructional objectives.

Technology Requirements

All MLT and MLS students need to obtain a username and password from MU Computing Services for access to the Marshall University computer system. Most courses are either entirely online (MLS), or have several online resources utilized through Blackboard. Downloading Respondus lockdown browser will be required for some CLS courses.

PART II. MLT Associate in Applied Science Degree Program

MLT Pre-Clinical CLS Course Descriptions

The pre-clinical technical course sequence includes on-campus courses in clinical specialties and a clinical problems course. Final student evaluation for each course is based on the demonstrated level each student's demonstrated preparation for hospital clinical practicum training.

CLS 230, (4 credit hours) Clinical Hematology prepares students with general medical laboratory vocabulary, knowledge and skills in safety, blood sample collection, use of the clinical microscope and photometer, and ability to manually perform tests done in the complete blood count and coagulation profile. Knowledge and skills learned in this course are utilized in subsequent CLS courses.

CLS 200, (4 credit hours) Clinical Biochemistry prepares students with general medical laboratory vocabulary, knowledge, and skills needed for performance of routine testing of blood serum or plasma and other body fluids in the clinical chemistry section of a hospital laboratory. Emphasis is on the methods of testing blood and other body fluids, including routine urinalysis. It includes the physiologic connections between blood chemistry test results and disorders they can detect.

CLS 210, (4 credit hours) Clinical Immunology is designed to prepare students to perform grouping, safety, and compatibility testing on blood samples prior to transfusion testing, to process and store donor blood and test materials, and to perform serological or immunologic testing.

CLS 220, (4 credit hours) Clinical Microbiology. Students learn to prepare sterile materials, to grow bacteria in pure culture, to identify their genus and species, and to test organisms for susceptibility to antibiotic drugs.

CLS 255, (3 credit hours) Clinical Laboratory Problems, is designed to integrate laboratory knowledge gained in CLS and related courses with respect to patient care and current professional medical laboratory practice. Certain skills are practiced for proficiency prior to entry to clinical practicum. During this course, students are introduced to the hospital setting, rotations are assigned, and the plan for individual clinical experiences is determined.

Eligibility for MLT Clinical Practicum Courses

Students must complete all MLT CLS pre-clinical coursework, as well as non-CLS MLT curriculum coursework to be eligible for the clinical practicum sequence courses. Clinical rotations are only offered for the MLT program in the summer and fall immediately following completion of CLS and non-CLS coursework for the MLT program. If there is a delay, and the student cannot complete the final fall CLS clinical rotation coursework, after completing pre-clinical CLS coursework in the immediate preceding spring (CLS 255, 210, and 220), then the student will be *REQUIRED* to take a directed independent study course in the following fall and spring semesters and achieve a C or greater on review content of all pre-clinical courses, in preparation for the immediate next summer clinical rotation. If the student still does not take the next immediate summer rotation, which would be greater than one year from the completion of pre-clinical coursework, and chooses to remain in the program, the student must *RETAKE ALL* pre-clinical coursework prior to attending clinical rotations (CLS 200, 230, 210, 220, and 255) and achieve a C or greater in all courses before becoming eligible for any subsequent clinical rotations. Depending on the application pool of new students for the program, a student in this circumstance may be required to re-apply to the MLT program to retake pre-clinical CLS courses.

MLT Student Service Requirements

Part of ethical practice is to give back to the profession, and to be an advocate. Students in the face-to-face MLT program are required to participate in ***FOUR*** service activities over the course of the academic year in the program. Two service activities must be completed by the end of the fall semester, and two must be completed by the end of the spring semester. Completion of each service requirement is necessary to progress to the next semester coursework. Examples of service activities are, but are not limited to, the following:

- MU Green and White Days
- Career fairs (on campus, community, high schools)
- Educational fairs
- Red Cross Blood Drives
- On-campus recruitment events (department, college, university levels)
- Student testimonials for website, promotional videos, etc. (limited to the final spring semester in the program)
- ASCLS student ambassador

There may be other events/activities that can be used – students would submit other ideas ahead of time to the Department Chairperson for approval on a case-by-case basis. Documentation/proof of participation is required to be submitted to the Department Chair of CLS for each event/activity to be counted.

MLT Clinical Practicum Course Sequence

MLT Clinical Practicum is a 15-week sequence of hospital-based experiences in the clinical laboratory areas studied in the preclinical program. Students must be determined eligible before entry, and must provide documentary evidence of the following:

1. Hepatitis Vaccination: Hepatitis Panel within the last 6 months: includes Hepatitis A Antibody, Hepatitis B Surface Antibody, Hepatitis B Surface Antigen as well as Hepatitis C Antibody titers
2. MMR (documentation of two vaccinations; positive titer documentation may also be acceptable)
3. TDaP (within last 10 years)
4. Varicella IgG or proof of 2 chickenpox vaccinations
5. 2-step PPD (to be completed within 30 days of starting clinicals)
6. History and Physical Exam
7. HCV testing (if required by specific clinical site)
8. CPR (if required by specific clinical site)
9. Flu vaccine
10. Covid vaccine – full vaccination
11. Copy of negative 10-panel Urine Drug Screen (current)
12. Current Driver's license or alternative ID. If you currently hold a West Virginia healthcare related license, please include license number and expiration date
13. Successful criminal background check
14. Proof of medical insurance during duration of clinical rotation period

All cost associated with the above requirements will be the responsibility of the student. Please secure funds in advance.

Some of the above requirements are subject to change, given specific contract agreements with clinical sites that are updated periodically. Due dates for submission of the above vaccination and other documentation will be communicated during the first semester in the program.

Students are also expected to sign off on the FERPA release form pertaining to records clinical sites will need at the beginning of their admission into the MLT program.

Students are also expected to sign a COVID-19 statement of understanding, acknowledging the risks associated with the virus and clinical rotation attendance.

Clinical Site Placement: Students are given an opportunity to apply skills and knowledge learned on campus to actual testing situations in a patient care setting under the instruction and supervision of clinical faculty. Students are selected for available clinical practicum rotations by the CLS faculty; rotation slots are available in Summer and Fall semesters. Tentative assignments are usually made early in the Spring semester prior to summer rotations. Student preferences and academic achievement will be considered in rotation placement decisions; however, overall student GPA is the prevalent decision-making factor. Students are given rotation preference and ranking forms early in the CLS 255 course in the Spring semester prior to clinical rotations. Once placements are determined by the CLS program director, students have an opportunity to trade rotation assignments within two weeks of the original assignment. All changes in rotation assignments must be mutually agreed upon by all students involved and submitted in writing to the CLS program director. The CLS program director reserves the right to make final rotation placement decisions. If a student cannot attend clinical rotations during the term that they are placed, they must forfeit their placement slot and site and take the next available placement during the next available clinical rotation term.

There may be circumstances in which a clinical site becomes unavailable after assignment has been made; this could be due to unforeseen issues that come up in the site, making them unable to take on a previously agreed upon student or students. If an assigned clinical site becomes unavailable after a student has been placed, either before the start of the rotation or during, the student affected will be placed in another clinical site to complete the rotation, or the remainder of the rotation. In this circumstance, the student may not be placed in their next favorable selection of rotation due to availability of clinical sites at the time, however, an approved clinical affiliate will be chosen based on availability, and the student will be placed. There may be a delay in placement, or graduation, depending on the timing of finding another replacement site, however, the student will be placed, and will be able to finish the clinical rotation requirements for the MLT program.

Depending on their rotation schedule, students register for the following sequence for either summer session or for the fall term:

CLS 270, Practicum in Clinical Hematology (3 CH).

CLS 271, Practicum in Clinical Biochemistry (3 CH).

CLS 272, Practicum in Blood Banking (Immunohematology) (3 CH).

CLS 273, Practicum in Clinical Microbiology (3 CH).

Clinical Site Attendance and Punctuality: Hospital practicum hours are normally 7:00 a.m. to 3:00 p.m. Monday through Friday during the rotation period, except for specifically designated holidays. Work hours may vary by departmental rotation. The student bears the costs of uniforms, transportation, and housing. Students are

expected to attend clinical rotations on every day scheduled by the MLT Clinical Coordinator, and all absences and tardies must be communicated to the MLT Clinical Coordinator **BY THE STUDENT**. It is not acceptable to just notify the clinical site personnel of an absence or tardy; it is the responsibility of each individual student to notify the MLT Clinical Coordinator at the time of the occurrence, not after. **ONLY the MLT Clinical Coordinator can adjust clinical hours** – even if the clinical site suggests extending or shortening, this may not happen unless fully approved by the MLT Clinical Coordinator. Students are also expected to be on time and present during the entire clinical rotation day. Only absences granted as excused by university excuse are permitted; most others will not be permitted. Failure to abide by the above attendance and punctuality policies will result in an infraction of insubordination as outlined in the MLT Clinical Rotation Handbook.

Students will be expected to download the Trajecsys app on their mobile device and log daily attendance in the app. This system works by GPS and tracks student location during "Clock in and clock out" times. The student will be expected to download the 6 months subscription and bear the cost of $75 for the duration of the clinical rotation. Students will access the Trajecsys website to subscribe and make payment: https://www.trajecsys.com/Default.aspx

Orientation to Clinical Sites: Orientation to clinical sites is arranged by the MLT clinical coordinator, clinical site, and student prior to beginning rotations. Online testing and other procedures may be required by some clinical sites prior to students starting rotation.

The **MLT Clinical Practicum Handbook** includes specific details about the clinical practicum rotations. A copy of the most recent edition of this publication is made available to students prior to beginning their clinical rotation sequence. Copies of the most recent practicum handbooks are also made available to each clinical affiliate prior to clinical rotation sequences.

Hospital affiliates of the MLT program:

Hospital affiliates of the MLT program:

The number of student rotation slots at each affiliated clinical site varies each year, based on the needs of individual hospitals. The affiliates are:

St. Mary's Medical Center (Huntington, WV)

Thomas Memorial Hospital (S. Charleston, WV)

Charleston Area Medical Center (Charleston, WV)

Holzer Medical Center (Gallipolis, OH)

Cabell Huntington Hospital (Huntington, WV)

Pleasant Valley Hospital (Point Pleasant, WV)

Huntington VA Medical Center (Huntington, WV)

Kings Daughters Medical Center (Ashland, KY)

PART III. Bachelor of Science Degree in Medical Laboratory Science (MLS)

General Academic Requirements

Students should plan to be degree eligible upon completion of clinical practicum. The policies stated in the student's catalog of record must be followed. The CLS Department Chairperson must approve any course substitutions in writing.

Transfer students with thirty or more college credits are exempt from FYS and one CT course, but must complete one CT course, all of Core II and the additional University requirements. Transfer students with sixty or more college credits are exempt from all of Core I (FYS and both CT courses) but must complete all of Core II and the additional University requirements. Core II may be fulfilled through a combination of transfer and Marshall credit hours.

The General Education Core Curriculum requirements (see the MU catalog) apply to the MLS bachelor's degree program. These include the following:

Core I: 9 hours

- 3 hours: First Year Seminar (100-level)
- 6 hours of discipline-specific courses with an emphasis on critical thinking and active learning (100- or 200-level). Specific courses that fulfill the requirement are designated CT and listed below.

Core II: 25 hours (100- or 200-level). Specific courses that fulfill Core II may be found under the Core II Course List link on the sidebar.

- 6 hours: Composition
- 3 hours: Communication
- 3 hours: Math
- 4 hours: Physical or Natural Science
- 3 hours: Social Science
- 3 hours: Humanities
- 3 hours: Fine Arts

Additional University Requirements

- 6 hours of Writing Intensive credit (CLS 466 and 468 meet this requirement)
- 3 hours of Multicultural or International coursework in any discipline at any level
- Capstone project in the major (CLS 468 meets this requirement)

Employment and Personal Commitments vs. Study

The CLS Department will make reasonable accommodation for employment or other obligations outside of school when such accommodations are fair to all students and faculty and do not interfere with academic performance. Many MLS students have worked at least part time in a medical laboratory as paid medical laboratory technicians or phlebotomists, while others have worked in local businesses.

Paid duties should not conflict with student status. Work hours must be exclusive of educational hours whenever a student works in the same laboratory where they have clinical practicum rotations.

MLS Program Course Descriptions

The following courses are MLS-specific courses required for graduation. The student must meet prerequisites for these courses, including successful completion of a NAACLS accredited MLT program.

CLS 400, 410, 420 and 430 must all be taken together, and cannot be split apart and taken in different semesters and must all be taken in the very final fall semester only of the senior year of graduation.

CLS 464, 468, 472 and 473 must all be taken together, and cannot be split apart and taken in different semesters and must be taken in the very final spring semester of graduation from the MLS program. Students must have completed all other CLS and non-CLS coursework successfully with a “C” or greater before they are eligible for the final spring course sequence. The only course exceptions that can be taken concurrently with these final courses are CLS 310 and 466, and only with instructor approval; it is highly recommended that students complete 310 and 466 in a previous spring term and not take them concurrently with the final graduation sequence courses.

Each student will be evaluated on an individual basis as to eligibility for when these course sequences will be taken and advised by the program director.

Courses that can be taken in the fall term only, either concurrent with final fall courses, or prior:

CLS 320, (3 credit hours), *Advanced Topics in Clinical Laboratory Science;* Study of advanced topics for MLS graduates; includes careers in CLS, public health,

epidemiology and bioterrorism as related to CLS, interprofessional collaboration, professional societies, licensure and regulation, and patient safety.

CLS 460, (3 credit hours): *Clinical Laboratory Management and Education*; laboratory personnel and resource management, cost control, cost analysis, lab marketing, accreditation and CLS education practices.

CLS 499 (2 credit hours): *Seminar in Laboratory Medicine*; students research peer-reviewed publications in the field of clinical laboratory science and present summaries and critiques, including a final extended presentation.

Courses that can be taken in the spring term only, either concurrent with final spring graduation courses, or prior:

CLS 310, **(3 credit hours)**: *Clinical Immunology and Molecular Diagnostics;* theory and practice of basic human immunology and genetics as applied to clinical laboratory diagnostic and treatment procedures. Emphasizes use of immunoglobulin and DNA as diagnostic tools.

CLS 466, (3 credit hours, writing intensive WI): *Diagnostic Physiology;* This advanced course assumes a comprehensive knowledge of medical laboratory testing, which is applied to case studies of diseases in complex diagnostic situations. Students learn to use critical thinking about laboratory test data to assist physicians in confirming and ruling out alternative diagnoses and in detecting pathologic alterations.

Final Year courses only:

Fall

CLS 400 (2 credit hours; second 8 weeks course): Advanced *Clinical Chemistry*; advanced theory, practice, problem solving, and critical thinking in the laboratory specialty of clinical chemistry.

CLS 410 (2 credit hours; second 8 weeks course): Advanced *Clinical Immunohematology;* Advanced theory and laboratory practice in blood banking. Students learn in-depth diagnostic work-up and problem-solving involving patients with anemia, leukemia, and bleeding disorders.

CLS 420, **(2 credit hours; first 8 weeks course)**: Advanced *Clinical Microbiology*; advanced theory, practice, problem solving, and critical thinking in the laboratory specialty of diagnostic microbiology.

CLS 430 (3 credit hours; full semester course): *Advanced Clinical Hematology*; Advanced theory in clinical hematology. Students learn in-depth diagnostic work-up problem solving and cell identification involving patients with anemia, leukemia, and bleeding disorders.

Spring

CLS 464, **(3 credit hours)**: *Laboratory Instrumentation;* students learn to identify technical malfunctions in laboratory instruments and to make effective purchase decisions about instruments. Advanced maintenance, operation and troubleshooting of analyzers will also be performed by students.

CLS 468 (3 credit hours, writing intensive WI, capstone): *Clinical Laboratory Research (capstone)*; The student identifies a research project of use to the hospital laboratory, prepares a written research proposal, gains approval of all authorities involved, completes the project, and prepares both written and oral presentation of results within one semester. Students meet periodically with their faculty research advisor and correspond via email on a consistent basis through the project The written report must be prepared in a professional manner that would be suitable for publication in a state or regional laboratory journal.

CLS 472 (3 credit hours): Advanced *CLS Clinical Practicum I*; Advanced theory, practice, problem solving, and critical thinking in the clinical laboratory, through the evaluation of case studies and bone marrow slides.

CLS 473 (3 credit hours); *Advanced CLS Clinical Practicum II*; Advanced theory, problem solving, and critical thinking in the clinical laboratory through examination preparation for practice.

MLS Clinical Experiences

There is not a full clinical rotation for the online BS in MLS program at Marshall University, rather, students complete required clinical tasks in courses taken in the final semester of the program. Most students in the program are working either full or part-time and can manage the required tasks while working. All students will complete requirements of the CLS 464, Laboratory Instrumentation, CLS 472, Advanced Clinical Practicum I, and CLS 468 Senior Research courses in the clinical practicum setting during the final semester of the BS in MLS program. The clinical tasks at the MLS level are as follows, but not limited to:

- Instrumentation Projects (maintenance, troubleshooting, operation)
- Research Project/Capstone
- Molecular Diagnostics Hands-On Experience
- Interprofessional Education Session (2 evenings during the final spring semester in CLS 472; these sessions are live and students will be informed well in advance so that they can modify work schedules to attend and participate)

Students are required to participate in a hands-on Molecular Diagnostics experience before graduation from the program. Students choose an on-site project and have instructor approval and signed documentation of permission from the clinical site.

Clinical Affiliation Agreements and Other Required Accreditation Paperwork

It is the sole responsibility of all admitted MLS students to secure their own clinical site placement for required clinical tasks and bear the costs and complete any necessary testing or specific requirements of the clinical site in the final semester of the program. Students will be required upon admission to the BS in MLS program to initiate the process of clinical site placement and/or the clinical affiliation process with a clinical laboratory in a hospital for advanced clinical experiences and obtain the necessary signed clinical affiliation documentation by the end of the fall semester preceding the students' anticipated advanced clinical practicum spring semester of graduation; signed clinical affiliations, and facility and faculty fact sheets are required by the National Accrediting Agency for Clinical Laboratory Science (NAACLS) program accreditation. Additionally, the Program Director must approve all clinical affiliations. Failure of the student to complete these requirements would make the student ineligible for clinical site placement and would delay, or prevent, graduation from the BS in MLS program.

Travel Techs: The clinical site placement and paperwork policy also applies to travel techs. Any student who travels and moves from clinical sites frequently should plan well in advance to secure a site that will be willing to provide all required clinical placement paperwork at the time required prior to the final semester of the program. Travelers should also avoid splitting clinical sites during the final semester in the program; doing so could hinder required clinical tasks and projects in the final semester and prevent graduation from the program. It is the sole responsibility of anyone traveling to secure a site and provide all required clinical paperwork by the end of the fall semester immediately preceding the spring semester of graduation.

No student is permitted to plan or execute any clinical tasks required in any course without all fully signed paperwork for all clinical sites utilized completed and on file in the Program Director's office.

MLS Clinical Experiences – Clinical Sites

Local Clinical Sites for the MLS Program are listed below. Sites for distance students vary year to year, based on geographical location of students. A complete record of all past and previous clinical agreements for the MLS program may be found in the CLS department.

Local Clinical Sites:

St. Mary's Medical Center (Huntington, WV)

Thomas Memorial Hospital (S. Charleston, WV)

Charleston Area Medical Center (Charleston, WV)

Holzer Medical Center (Gallipolis, OH)

Cabell Huntington Hospital (Huntington, WV)

Pleasant Valley Hospital (Point Pleasant, WV)

Huntington VA Medical Center (Huntington, WV)

Kings Daughters Medical Center (Ashland, KY)

Part IV. Graduation and Certification for MLT and MLS

Applying for Graduation

Students enrolled in the final courses of their curriculum and who anticipate successful completion of MLT or MLS sequence, related general studies, and General Education Core Curriculum requirements (for bachelor's degree candidates), apply for graduation during the semester in which those requirements will be completed. Students pay the graduation fee at the Office of the Bursar, and then complete the application for graduation. The link to instructions and forms for application for graduation can be found on the Registrar page: https://www.marshall.edu/registrar/forms/

It is the responsibility of each student who anticipates graduating from any CLS program to initiate and complete graduation application procedures by the deadline listed on the university academic calendar.

Applying For Professional Certification Examinations

Information regarding professional certification and licensure requirements is available on the ASCP website.

Successful completion of the CLS programs prepares students for non-governmental professional certification. The student applies to the professional certification agency, which is the ASCP Board of Registry . Students may apply for MLT and MLS certification examination online through ASCP's website. Once the student has applied for examination, a notification is sent to the program director for verification of completion of programs.

Examination fees are listed on the certifying agency web site and in their current application packet. The graduate is responsible for submitting a complete transcript to the agency upon completion of the program.

PART V. LABORATORY POLICIES AND SAFETY RULES

Each Laboratory Period:

Clean bench tops with 10% bleach solution after laboratory.

Everything has a place. Return each item to its place at the end of each laboratory period.

Microscopes are to be covered with plastic and replaced in their assigned cabinets.

You are expected to buy and use your own rolls of paper toweling at your work area as well as a laboratory coat to be worn during all laboratory sessions.

Universal precautions are to be followed regarding blood borne pathogens. That is, all human body fluids and their simulations are to be treated as if they contain a highly infectious agent. Universal precautions require that protective barriers be employed appropriately for the kinds of hazards associated with handling body fluid specimens. These include use of latex gloves, face shields, eye protection, and gowns.

Microorganisms used in the clinical microbiology course are potentially deadly pathogens and should be handled as little as necessary and only using proper, aseptic technique. Use the biological safety cabinet for inoculation of sputum specimens.

We share duties. You may be required to assist in laboratory cleanup, care, quality control, and maintenance on a rotating basis.

Waste Management

Discard wastepaper, put reagents in their boxes and return them to their proper storage place; put sera or cells in refrigerator if they are to be reused.

Biohazard medical waste includes material that has been contaminated with human body fluids and has a reasonable possibility of transmitting infectious disease to someone who might pick through the trash. Waste sharp objects or glass must be placed into a safe, labeled container. Do not put ordinary trash into the biohazard waste container. We pay for disposal of each ounce of medical waste.

Security

Your personal materials, as well as laboratory educational equipment and reagents would take a long time and considerable expense to replace. Be careful that doors are

locked, and that portable equipment is out of sight upon leaving the laboratory. Ask any CLS instructor to let you in when you need to get into the locked laboratory.

Safety Procedures

Learn the locations and types of fire extinguishers in the laboratory. Learn how to use them and what kinds of fires each type may be used. Be familiar with the fire alert system, the fire escape plan, and how to report a fire. When fire alarms sound, evacuate the building immediately.

Learn the location and proper use of fire blankets, eyewash station, and shower.

Clothing should not be too tight to inhibit movement or so floppy that it could become entangled in equipment or catch on furniture. Long hair should be secured away from the face, and beards should be neatly trimmed. Long hair can become contaminated with chemicals and biological fluids and may also contaminate work areas, reagents, and specimens, and may be a fire hazard.

Develop the habit of keeping your hands away from the mouth, nose, and eyes to prevent self-inoculation with infectious agents. Develop the habit of frequently washing your hands, particularly between patient contacts. Always wash your hands before leaving the laboratory area. Never eat, chew, smoke, or drink in the laboratory. Do not store food or beverages in laboratory refrigerators used for specimen or reagent storage.

Pens and pencils used when wearing protective gloves should be cleaned with bleach and left in the laboratory. Cell phones or laptops used during lab sessions should be wiped with clean with a slightly damp 10% bleach solution before taking out of the classroom.

Specimen Handling

Prevent aerosols and the possible spread of infectious reagents by 1) never opening the lids of centrifuges until the centrifuge has come to a complete stop and 2) only opening specimen tubes using safety devices or by gently twisting the stoppers and lifting them out.

Always use protective gloves to handle body fluid specimens: they may carry the risk of hepatitis or other infection.

Protective Clothing

Lab coats, either disposable or cloth, are to be worn whenever you handle specimens or reagents. Remove your lab coat or change to a different lab coat when going to non-

laboratory areas. When in the laboratory work area, keep the lab coat buttoned. Use safety glasses and face shields as directed. Wear protective gloves whenever working with reagents or samples.

Only closed-toe, nonskid-sole shoes should be worn to prevent injuries from falls, objects accidentally dropped, or broken glassware during lab sessions.

Use safety glasses and face shields when manipulating potentially hazardous material.

Laboratory Accidents, First Aid

Always make a written record after any lab-related injury, particularly needle sticks of any kind. Forms for these reports are available from the instructor. Both student and instructor should complete such forms and submit copies to the CLS Department chairperson.

If an accident or other health emergency occurs in the student laboratory, be sure first aid assistance is provided, and immediately notify campus ambulance Service, campus extension 4357 (HELP).

Please use the following steps following exposure to blood and body fluids and needle sticks:

1. Wash needle sticks and cuts with soap and water
2. Flush splashes to the nose, mouth, or skin with water
3. Irrigate eyes with clean water, saline, or sterile irrigates
4. Immediately notify faculty member or preceptor of exposure
5. Seek medical attention within two hours
6. Follow CDC Guidelines for Blood borne infectious diseases

Handling, Hazards, and Proper Disposal of Chemicals

Learn the hazards associated with each chemical you use. Store chemical reagents properly and learn the procedure for cleaning up after accidental spills of chemicals or biological fluids, and at the end of each laboratory period. Use care when transferring chemicals between containers; add strong acid to water slowly. Learn and follow the procedure for proper disposal of infectious and biologic specimens, needles, and broken glassware. Read all labels and instructions carefully.

Student Lab Stations

This laboratory is for use of CLS faculty and students admitted to the CLS programs. The lab should be locked when not in use. Guests are permitted only with the permission of a CLS department instructor. Each student is assigned to one station and is responsible for the equipment at that station. One small drawer at each station is for personal effects, and the other two are for materials unique to specific laboratory courses. Microscopes and other equipment are to be kept in working order and stored properly when not in use. Each student is responsible for the cleanliness and good order of his or her own bench area (including instruments on bench tops) and drawer space.

Equipment

Students should not operate new or unfamiliar equipment until they have received instructions and authorization. This includes audio-visual and computer equipment. If an item of equipment does not function properly, return it to its proper place, but leave a note with the laboratory instructor identifying the instrument, its location, and its problem. Borrowing equipment from other stations must be approved by the instructor. Borrowed equipment is to be returned to its proper place at the end of the laboratory period in which it was borrowed**.**

Job Placement

In the MLT program, students prepare a cover letter and resume and practice interview skills during the course CLS 255 and are given tips on seeking laboratory positions after graduation. In the online MLS program, approximately 95% of students are already working MLTs in their profession.

Students and graduates are urged to use the MU placement services office to locate potential employers and to develop a self-presentation packet.

The Clinical Laboratory Sciences Department does not guarantee employment of graduates, and graduates are on his or her own for locating employment. Laboratory managers inform department faculty of job openings, so graduates seeking employment should check periodically with the CLS Department.

Professional Organizations

CLS students have at various times, formed a student society at MU, but there is currently no active CLS student organization. Students are encouraged to form such an organization and to become student members of the WV Chapter of the American Society for Clinical Laboratory Science (WVSCLS) and to attend annual meetings. MLT and MLS Students are expected to compete in interscholastic competitions at state meetings whenever possible.

For more information regarding the American Society for Clinical Laboratory Science, please visit this link: http://www.ascls.org/

Professional Scholarships and Financial Aid

The staff of Student Financial Assistance at Marshall University assists students in furthering their education using scholarships, grants, low interest loans, and employment. The Student Financial Assistance staff, 122 Old Main, administers all forms of financial assistance, including scholarships.

The WV Society for Clinical Laboratory Science (WVSCLS) offers a student scholarship each year for one MLT student and one MLS student in the state. The scholarships are $1000 each, and there is an application process. Information will be given at the beginning of the semester to all students.

The Mary W. George Medical Technology Scholarship is awarded to an actively enrolled senior MLS student based on professional dedication, academic achievement, and financial need and is worth $500-1000. Senior MLS students may apply for this scholarship in the fall semester. Information is available at the CLS Department office and is also sent to eligible students through online courses during the fall semester.

The Linda Brown Scholarship is awarded to an actively enrolled CLS student – details on this scholarship and all above mentioned scholarships can be found on the CLS department website.

Additional scholarships are also available to both MLT and MLS students through national professional organizations, including the American Society of Clinical Pathologists and the American Society for Clinical Laboratory Science. Additional information is available in the CLS Department. Marshall students have won such scholarships in past year.

Marshall University Clinical Laboratory Sciences Student Handbook Statements of Understanding 2025-26

I have access to a copy of the Medical Laboratory Technician (MLT) & Medical Laboratory Scientist (MLS) current Student Handbook in the CLS Department and/or on the CLS Department website.

I have read and fully understand the physical and mental requirements (essential functions) for progression in Marshall University CLS programs, and this field.

I have read and understand the goals and objectives of the CLS programs.

I have read and understand the policies regarding academic dishonesty, including plagiarism and the prohibited use of generative artificial intelligence in CLS program courses.

I have been assigned an academic advisor and understand my responsibilities in the process of advising.

I have read and understand the policies for professional ethical standards for the CLS program.

I have read and understand the policy for MLT student service requirements for the CLS program.

I understand the academic and policy requirements for progression in my CLS program.

I understand the procedure used for assigning/and/or seeking clinical practicum rotation site, dependent on MLT or MLS program, as well as attendance expectations, including use of the Trajecsys system.

I have reviewed the clinical training sites and rotation periods.

I understand that there are academic requirements, health tests, medical insurance, and immunization requirements for entry to clinical practicum, and agree to sign the FERPA form to release the above pertinent information to clinical sites.

Any questions I asked regarding the contents of the student guide were answered to my satisfaction.

_____

Student Name (printed)

_____

Student Signature Date