



COLORADO MESA
UNIVERSITY

Department of Health Sciences

*Medical Laboratory
Technology Program*

(Associate of Applied Science Degree)

Career entry description of a Medical Laboratory Technician:

At career entry, the medical laboratory technician will be able to perform routine clinical laboratory tests (such as hematology, clinical chemistry, immunohematology, microbiology, serology/immunology, coagulation, molecular, and other emerging diagnostics) as the primary analyst making specimen oriented decisions on predetermined criteria, including a working knowledge of critical values. Communications skills will extend to frequent interactions with members of the healthcare team, external relations, customer service and patient education. The level of analysis ranges from waived and point of care testing to complex testing encompassing all major areas of the clinical laboratory. The medical laboratory technician will have diverse functions in areas of pre-analytical, analytical, post-analytical processes. The medical laboratory technician will have responsibilities for information processing, training, and quality control monitoring wherever clinical laboratory testing is performed. (As adopted from NAACLS, 2001)

General Information About the Medical Laboratory Technology Program:

The Medical Laboratory Technology (MLT) Program at Colorado Mesa University is five semesters in length. Essential Learning and foundation courses are taken the first year. The second year consists of MLT program courses which are a combination of theory and lab courses delivered in a blended format. The majority of the course material is delivered online through *Desire to Learn* (D2L) and students are required to be on campus for exams and lab experiences on predetermined dates. Students start with introductory concepts in each module (8 week courses) which build a foundation for the next set of courses. Due to the sequential program design, all MLT program courses offered each semester must be taken concurrently and in sequence. A new cohort of students is accepted each Fall semester. Successful completion of the MLT program courses in each module is required for progression in the program; successful completion of a program course is considered a letter grade of "C" or better. After successful completion of all courses in the second year, students will perform an applied experience at an affiliated site in western Colorado for a full semester the following fall. Students are immersed in a hospital laboratory for 40 hours per week for the entire semester.

The student will receive an Associate of Applied Science degree upon successful completion of the program. The graduate is eligible to take the Medical Laboratory Technician Board of Certification (BOC) exam through the American Society for Clinical Pathology (ASCP). A passing score on the ASCP exam will allow the student to use the credentials of MLT (ASCP)^{CM} after their name.

Program Accreditation:

The Medical Laboratory Technology program is accredited through the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), which is an independent nonprofit accrediting agency that ensures the quality and integrity of educational programs that prepare professionals to work in the laboratory. For more information:

National Accrediting Agency for Clinical Laboratory Sciences

5600 N. River Rd.

Suite 70

Rosemont, IL 60018-5119

Phone: 773.714.8880

info@naacls.org

DEGREE REQUIREMENTS:

- 75 hours total (A minimum of 15 of the final 30 semester hours of credit at CMU)
- 2.00 cumulative GPA or higher in all CMU coursework
- A grade of "C" or higher must be achieved in coursework toward major content area.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Program sheets are for advising purposes only. Because a program may have requirements specific to the degree, check with your advisor for additional guidelines, including prerequisites, grade point averages, grades, exit examinations, and other expectations. It is the student's responsibility to be aware of, and follow, all guidelines for the degree being pursued. Any exceptions or substitutions must be approved by the faculty advisor and/or Department Head. Courses related to teacher licensure must also be approved by the Teacher Education Dept.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information.

ESSENTIAL LEARNING REQUIREMENTS (Minimum 15 semester hours) See the current catalog for a list of courses that fulfill the requirements below. If a course is on the Essential Learning list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the Essential Learning requirement. The Essential Learning capstone course and co-requisite Essential Speech course (required for bachelor's degrees) cannot be used as options for the below requirements.

Course No	Title	Sem.hrs	Grade	Term
Communication (6 semester hours)				
ENGL 111	English Composition	3	_____	_____
ENGL 112*	English Composition	3	_____	_____
Math (Minimum 3 semester hours)				
MATH 113*	College Algebra or Higher	4	_____	_____
Social Sciences, Natural Science, Fine Arts, or Humanities (Minimum 6 semester hours)				
_____	_____	3	_____	_____
_____	_____	3	_____	_____
WELLNESS REQUIREMENT (2 semester hours)				
KINE 100	Health and Wellness	1	_____	_____
KINA 1	_____	1	_____	_____

*Required by this program

The following applied courses must be completed with a grade of "B" or higher: MLTP 102, MLTP 180, MLTP 182, MLTP 250, and MLTP 252.

Course No Title Sem.hrs Grade Term

ASSOCIATE OF APPLIED SCIENCE IN MEDICAL LABORATORY TECHNICIAN: COURSE REQUIREMENTS
(57 semester hours)

Course No	Title	Sem.hrs	Grade	Term
Didactic Courses (41 semester hours)				
BIOL 209	Anatomy & Physiology	3	_____	_____
BIOL 209L	Anatomy & Physiology Lab	1	_____	_____
CHEM 121	Principles of Chemistry	4	_____	_____
CHEM 121L	Principles of Chemistry Lab	1	_____	_____
Or				
CHEM 131	General Chemistry	4	_____	_____
CHEM 131L	General Chemistry Lab	1	_____	_____
BIOL 210	Anatomy & Physiology II	3	_____	_____
BIOL 210L	Anatomy & Physiology II Lab	1	_____	_____
MLTP 101	Phlebotomy	3	_____	_____
MLTP 132	Clinical Hematology/ Coagulation	3	_____	_____
MLTP 132L	Clinical Hematology/ Coagulation Lab	1	_____	_____
MLTP 138	Clinical Immunology	2	_____	_____
MLTP 138L	Clinical Immunology Lab	1	_____	_____
MLTP 141	Clinical Immunohematology	2	_____	_____
MLTP 141L	Clinical Immunohematology Lab	1	_____	_____
MLTP 142	Clinical Microscopy	2	_____	_____
MLTP 142L	Clinical Microscopy Lab	1	_____	_____
MLTP 231	Clinical Microbiology I	3	_____	_____
MLTP 231L	Clinical Microbiology I Lab	1	_____	_____
MLTP 232	Clinical Microbiology II	3	_____	_____
MLTP 242	Clinical Chemistry	3	_____	_____
MLTP 242L	Clinical Chemistry Lab	1	_____	_____
MLTP 275	Capstone Seminar	1	_____	_____

Applied Courses (16 semester hours)
These courses may only be taken by Program Director Approval.

MLTP 102	Applied Phlebotomy	2	_____	_____
MLTP 180	Applied Immunohematology	3	_____	_____
MLTP 182	Applied Hematology and Body Fluids	4	_____	_____
MLTP 250	Applied Chemistry and Serology	2	_____	_____
MLTP 252	Applied Microbiology	4	_____	_____
MLTP 253	Certification Exam Review	1	_____	_____

SUGGESTED COURSE SEQUENCING FOR A MAJOR IN MEDICAL LABORATORY TECHNICIAN

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Colorado Mesa website for course availability.

FIRST YEAR

Fall Semester	Hours	Spring Semester	Hours
ENGL 111 English Composition	3	CHEM 121 Principles of Chemistry	
MATH 113 College Algebra or Higher	4	CHEM 121L Principles of Chemistry Lab	
KINE 100 Health and Wellness	1	OR CHEM 131 General Chemistry	4
KINA Activity Course	1	CHEM 131L General Chemistry Lab	1
BIOL 209 Anatomy and Physiology	3	BIOL 210 Anatomy and Physiology II	3
BIOL 209L Anatomy and Physiology	<u>1</u>	BIOL 210L Anatomy and Physiology II Lab	1
	13	MLTP 101 Phlebotomy	3
		MLTP 102 Applied Phlebotomy	<u>2</u>
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Summer Semester	Hours
ENGL 112 English Composition	3
Essential Learning	<u>3</u>
	6

SECOND YEAR

Fall Semester	Hours	Spring Semester	Hours
Essential Learning	3	MLTP 132 Clinical Hematology/Hemostasis	3
MLTP 138 Clinical Immunology	2	MLTP 132L Clinical Hematology/Hemostasis Lab	1
MLTP 138L Clinical Immunology Lab	1	MLTP 141 Clinical Immunohematology	2
MLTP 142 Clinical Microscopy	2	MLTP 141L Clinical Immunohematology Lab	1
MLTP 142L Clinical Microscopy Lab	1	MLTP 232 Clinical Microbiology II	3
MLTP 231 Clinical Microbiology I	3	MLTP 242 Clinical Chemistry	3
MLTP 231L Clinical Microbiology I Lab	<u>1</u>	MLTP 242L Clinical Chemistry Lab	1
	13	MLTP 275 Capstone Seminar	<u>1</u>
			15

THIRD YEAR

Fall Semester	Hours
MLTP 182 Applied Heme/Coag/UA	4
MLTP 250 Applied Chemistry/Serology	2
MLTP 180 Applied Immunohematology	3
MLTP 252 Applied Microbiology	4
MLTP 253 Certification Exam Review	<u>1</u>
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POLICIES:

1. Please see the catalog for a complete list of graduation requirements.
2. This program sheet must be submitted with your graduation planning sheet to your advisor during the **semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates.** You must turn in your "Intent to Graduate" form to the Registrar's Office **by September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.**
3. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature. Finally, the Department Head will submit the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
4. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
5. NOTE: The semester before graduation, you may be required to take a Major Field Achievement Test (exit exam).

Application Process:

Priority applications and application materials must be submitted by **March 1** from pre-MLT students in good standing with the University. All prerequisites require a minimum grade of “C” with an overall GPA of 2.0 for consideration. Secondary applications submitted by **July 1** are considered for available positions left in the program after the March 1st selection process. (*Phlebotomy courses (MLTP 101/102) are waived for the program if the student has current PBT (ASCP)^{CM} certification.*)

The number of students accepted each Fall varies according to the number of affiliate sites available to accommodate students completing the program. The following hospitals are affiliated with Colorado Mesa University.

Affiliated Clinical Sites:

<i>Community Hospital</i>	<i>Grand Junction</i>
<i>Delta County Memorial Hospital</i>	<i>Delta</i>
<i>Montrose Memorial Hospital</i>	<i>Montrose</i>
<i>St. Mary’s Hospital and Regional Medical Center</i>	<i>Grand Junction</i>
<i>Veterans Administration Medical Center</i>	<i>Grand Junction</i>
<i>Heart of the Rockies Regional Medical Center</i>	<i>Salida</i>
<i>Gunnison Valley Hospital</i>	<i>Gunnison</i>
<i>Aspen Valley Hospital</i>	<i>Aspen</i>
<i>Family Health West</i>	<i>Fruita</i>
<i>The Memorial Hospital</i>	<i>Craig</i>
<i>Vail Valley Hospital</i>	<i>Vail</i>
<i>Valley View Hospital</i>	<i>Glenwood Springs</i>

Contact Tracy Matthews, Medical Laboratory Technology Program Director, at tmatthews@coloradomesa.edu to schedule an advising appointment.

GENERAL INFORMATION

Department of Health Sciences
Phone (970) 248-1398
Fax (970) 248-1133

Frequently Asked Questions and Answers about the Medical Laboratory Technology Program:

Do I have to be accepted at CMU before I can apply for the Medical Laboratory Technology program?

Yes.

Does the Medical Laboratory Technology Program have an admission fee?

No, but the Admissions Department for the University does.

Should I apply before I ask for prior college transcripts to be sent?

You may turn in the application form before you ask other schools to send transcripts. As long as your file is complete before the deadline, we do not care in what order your information arrives. (It is your responsibility to make sure we receive everything needed for your file before the deadline.) Contact the Registrar's Office at 248-1555 to have transfer credits evaluated for possible acceptance at Colorado Mesa University.

Do all application materials have to be in to the Department of Health Sciences office before the application deadline?

Yes, copies of all college transcripts, a transcript evaluation (if you have taken courses from other colleges), and a program application must be received prior to the deadline. A copy of the TEAS V test results must be handed in to the Department of Health Sciences by the candidate by the application deadline of March 1.

What classes can I take to fulfill Essential Learning requirements?

You should refer to the Graduation Requirements for the AAS degree section in the Colorado Mesa University Catalog.

Should I speak with an advisor before I register for Essential Learning courses?

You do not have to speak to an advisor. However, you are strongly encouraged to speak with an advisor prior to registering for Essential Learning courses. Medical Laboratory Technology courses may only be taken after you are accepted into the Medical Laboratory Technology Program.

When does the MLT program start?

Medical Laboratory Technology courses begin in the Fall semester. The courses are taken concurrently and in sequence for each semester of the program.

Do I need to take the MLTP 101 and MLTP102 courses if I'm a certified phlebotomist?

Not necessarily, students requesting a waiver will be done on a case by case basis depending on your certifying agency, length of your program, experience, continuing education, etc. Generally speaking, if a student has their PBT(ASCP)^{CM}, the courses will be waived toward the MLT degree or if you have attended a structured phlebotomy program with 45 hours of classroom work, 100 hour clinical hours, and 100 successful unaided venipunctures at a CMS approved medical laboratory.

Can I take the phlebotomy courses before I'm accepted into the MLT program?

Yes, the courses are offered in the Spring and Fall. It is advisable to take the courses prior to applying to the MLT program. The courses are designed to introduce the student to the medical laboratory for a 100 hour applied clinical experience which students find difficult to manage while in the MLT program.

Why do I need the phlebotomy courses for a MLT degree?

The phlebotomy courses are designed to orient the student to the clinical laboratory and to introduce the student to medical laboratory testing.

Do I have to become a certified phlebotomist if I want to get my MLT degree?

No, becoming certified is optional. Some students may want to become certified for employment purposes prior to taking the first Fall MLT courses.

Can I be enrolled part time in the MLT Program?

No, coursework is completed only on a full-time basis.

Can I take some of the MLT courses each semester?

No, all MLT courses offered each semester need to be taken concurrently.

Do the pre-requisite courses have to be completed prior to *applying* to the program?

No. However, the courses must be successfully completed prior to entering the program. Most students have completed or are enrolled in courses prior to applying to the program. If you are accepted into the program and do not successfully complete the pre-requisite course at the end of the semester in which you apply to the program, you will be denied entry into the program.

How do you choose candidates?

We look at your grade point average from college courses you have taken, written essay, TEAS V scores, and how many of the required Essential Learning and foundation courses you have completed. The applicants with the highest scores are selected for interviews. Candidates are chosen based on the interview.

Do you use a waiting list?

No, we do not. If an applicant is not accepted one year and wishes to be considered for the next year, they must reapply.

How many students are accepted into the program each year?

We accept approximately 12 qualified students once a year, this number will vary each year depending upon our clinical affiliate agreements.

Can I work while taking the MLT courses?

Although a student can work during the program, it is not recommended for most students due to the rigorous design of the program.

Are the courses in eight week modules or semester long courses in the program?

The program utilizes both module and semester length courses in the program. Many of the MLT program courses are rigorous science courses which are difficult for students to learn all at the same time during a semester. All of those courses and the corresponding labs have been placed into modules so a student is only learning two disciplines at a time.

Do I have labs every weekend?

No, labs are predetermined for the semester at least a month before the semester begins and on selected days. Each lab course during a module has five lab sessions that are five hours in length, generally held on a Friday or

Saturday. Lab sessions will be scheduled for two consecutive days (Friday and Saturday) if two lab courses take place in the same module. Some labs are split between two days to accommodate contemporary lab methods. Generally, there are ten lab Friday/Saturday experiences per semester.

Do I need my own computer and printer?

Many of the MLT courses are delivered online through Desire to Learn. Having your own computer allows you the freedom to complete assignments on your schedule. Computer labs are available on campus for student use. Some documents will be posted in Desire to Learn for you to print and bring to class; students can print documents at any campus computer lab if they do not own their own printer. Please see the course syllabi for computer technical requirements.

How much are tuition and fees for the MLT program at CMU?

Please go to www.coloradomesa.edu for the most current tuition and fees.

Are there other requirements and costs associated with the MLT program after I've been accepted?

Yes, below is a list of requirements and associated costs that need to be submitted to the Medical Laboratory Technology Program Administrative Assistant at least 2 weeks prior to the first day of classes. Students that fail to meet the requirements will not be allowed to enroll in the program.

- 1. Pass a criminal background investigation.*
- 2. Required professional liability insurance: students who wish to apply for insurance through the National Professional Group as a phlebotomy student. The website is <http://www.hpsa.com>. Students may choose to go through a different company; however, the policy must be comprehensive general liability insurance covering bodily injury and property damage liability with minimum coverage limits of \$1,000,000 per occurrence/\$2,000,000 general total limit, and medical professional liability insurance with minimum coverage limits of \$1,000,000 per claim/\$3,000,000 annual aggregate.*
- 3. Required personal health insurance: student must submit proof of personal health insurance.*
- 4. Physical and Immunizations: students will be required to have a physical examination along with proof of several immunizations; proof of two Measles/ Mumps/ Rubella immunizations, Varicella, Tetanus (current within 10 years), Hepatitis B (this is a series of three immunizations), Influenza, as well as a current TB skin test. (Either a two-step TST within the past 12 months or proof of negative TST documented yearly for 2 years. If the student has proof of a one-step TST within the past 12 months, a one-step TST should be done.)*
- 5. Drug Screen*
- 6. Any other requirements set forth by the clinical affiliate site which could include additional drug screening, finger printing, name badges, in service education and orientation.*
- 7. Activate CMU email account by going to the Tomlinson Library computer room (if not already activated). This account is free for CMU students. ***All MLT students are required to activate - and regularly check CMU e-mail. *All correspondence regarding the MLT program will be delivered to the student's mavs.coloradomesa.edu email account. This includes information regarding admission to the course, instructions to prepare for the course, assignments, and any other instructions and information needed by the student.***