

**El Paso Community College**  
**Syllabus**  
**Part II**  
**Official Course Description**

<b>SUBJECT AREA</b>	<u>Medical Laboratory Technology</u>		
<b>COURSE RUBRIC AND NUMBER</b>	<u>MLAB 1101</u>		
<b>COURSE TITLE</b>	<u>Introduction to Clinical Laboratory Science</u>		
<b>COURSE CREDIT HOURS</b>	<u>1</u>	<u>1</u>	<u>1</u>
	Credits	Lec	Lab

**I. Catalog Description**

Provides an introduction to medical laboratory science, structure, equipment, and philosophy. A grade of "C" or better is required in this course to take the next course. **(1:1). Lab fee**

**II. Course Objectives**

- A. Unit I. Laboratory Operations
1. Identify the major clinical laboratory departments and describe their function.
  2. Identify accrediting and certification agencies that regulate medical laboratories.
  3. Discuss concepts of professionalism and ethics as they relate to laboratory personnel.
  4. Identify laboratory personnel and their levels of education.
  5. Discuss the importance of professional development for laboratorians.
  6. Discuss the significance of developing good communication skills with laboratory staff, healthcare personnel, patients, and patient family members while adhering to HIPAA protocols.
  7. Explain the significance of Delta checks.
  8. Discuss the importance of adhering to Standard Operating Procedures and Standard Precautions.
  9. Comply with government, state, and organizational safety regulations involving Biological, Chemical, Radioactive, Fire, Physical, and Electrical hazards.
  10. Identify STAT, ASAP, routine, peak/trough, and other timed specimens in relation to turnout time for sample collection, test performance, and test reporting.
  11. List the types of body fluids that can be analyzed in the medical/clinical laboratory and identify their source.
  12. Explain the significance of participating in Quality Assurance, Quality Control, and Proficiency Testing.
  13. Locate and explain the use of SDS (Safety Data Sheets).
  14. Follow standard operating procedure for preparation, collection and reporting of point of care tests
- B. Unit II. Introduction to Clinical Hematology and Coagulation
1. Explain the function of the hematology and coagulation department in the clinical laboratory.
  2. Identify the tube, the additive, and the reason for this type of additive for the hematology and coagulation department.
  3. Describe the four components of blood and their basic function.
  4. Explain the clinical significance of testing RBC's, WBC's, and Platelets in the clinical laboratory.

5. Describe a CBC count and identify its parameters.
  6. Identify additional commonly ordered body fluid counts in the hematology department.
  7. Describe the composition and function of a thrombocyte.
  8. Explain the role platelets play in coagulation.
  9. Explain the significance of collecting a quality sample for the hematology and coagulation departments and the effect excessive probing may have on the lab testing.
  10. Explain the use of the evacuated Light Blue Tube and the importance of maintaining the proper ratio.
  11. Discuss the formation of a clot, scab, and fibrinolysis.
  12. List common coagulation tests performed in the coagulation department.
- C. Unit III. Introduction to Clinical Immunology and Immunoematology
1. Describe the function of the human immune system.
  2. List the components of the immune system
  3. Compare innate and adaptive immunity.
  4. Explain the role antigens and antibodies play in the human body system.
  5. Explain the effect of vaccination shots on the immune system.
  6. Describe the function of lymphocytes.
  7. List two antigen-presenting cells.
  8. Perform simple dilutions.
  9. Identify possible diseases that cause the body to produce antibodies.
  10. Explain where the antigens and antibodies are found when dealing with Immunoematology.
  11. Explain the ABO system.
  12. Explain how one would determine a person's blood type.
  13. Identify the four blood types possible when using the two antigens A and B found on red blood cells.
  15. Explain what is meant by the Rh factor.
  16. Identify which blood type is considered the "Universal Donor."
  17. List possible consequences if the identification process is not followed when identifying a donor and/or recipient.
- D. Unit VI. Introduction to Clinical Chemistry and Urinalysis
1. Identify the different body fluids that can be tested in the clinical/medical laboratory.
  2. Explain the significance of performing a urine test on a patient.
  3. Describe the different urine collection containers used to collect urine specimens.
  4. Discuss the importance of giving correct and comprehensive "Urine Collection Procedure Instructions."
  5. Differentiate between the use of a voided urine sample and a mid-stream clean catch urine sample.
  6. Describe the types of information that can be determined by performing a visual, microscopic, and chemical test on a urine sample.
  7. List the types of chemistry dip-stick tests that can be performed on a urine sample.
  8. Identify urine formed elements that can be seen microscopically.
  9. Explain glomerulonephritis.
  10. Identify blood collection tubes that can be used in the chemistry department.
  11. Differentiate between plasma and serum.
  12. Explain the use of :
    - a. Clot activator
    - b. Thixotropic gel
    - c. Anticoagulant
    - d. Thrombin
  13. Create a Levey Jennings chart.
  14. List tests that can be performed in the urinalysis or chemistry departments.
  15. Explain basal state and how it can be achieved by a patient.
  16. Explain the reason for drawing a lipid panel while in the basal state.

17. Discuss the importance of following protocols for specimen acceptability and/or rejection such as light and/or temperature sensitive, sufficient quantity, correct collection tube, etc.

- E. Unit V. Introduction to Clinical Microbiology, Parasitology, and Mycology
1. Describe the function of the microbiology, parasitology, and mycology departments in the clinical lab.
  2. Identify the types of samples that can be sent to be analyzed in these departments.
  3. Explain the significance of collecting quality samples for these departments.
  4. Explain techniques used to isolate and identify organisms in the microbiology, Parasitology, and mycology departments.
  5. Describe the procedure for collecting blood cultures.
  6. Distinguish between aerobic and anaerobic bacteria.
  7. Describe the appearance of gram negative and gram positive organisms.
  8. Explain how to streak a Petri plate and why it is important to perform the procedure with skill.
  9. Explain the importance of adhering to Standard Precautions in these departments.
  10. Explain C&S and MIC.

### **III. THECB Learning Outcomes (WECM)**

1. Perform laboratory math.
2. Identify laboratory equipment.
3. Describe quality control, safety, accreditation, certification, professionalism, and ethics.

### **IV. Evaluation**

#### **A. Preassessment**

Students should have successfully completed the Specialized Admissions process to enter the Medical Laboratory Technology Program. Prerequisites and/or Corequisites may be required for MLAB courses.

#### **B. Postassessment**

1. Quizzes, lecture exams, and a final comprehensive written examination will be used to assess students' competency in didactic objectives.
2. Lab competency exams and lab practical exams are used to assess students' achievement of psychomotor objectives.
3. Lab practical exams require students to demonstrate a particular skill learned in the lab component of the class.
4. Written unit exams will consist of the following question types: multiple-choice, completion, essay, matching, spelling, analysis, and definition or any combination of these.

#### **C. Final Examination**

A comprehensive final exam will be administered at the end of the course.

**D. Evaluation**

To evaluate students' achievement of course objectives, student grades are tabulated using a final grade break down sheet. To successfully complete MLAB1101, Introduction to Clinical Laboratory Science, the student must achieve at least a 70% in course components. The student's overall grade must be no less than "C," to be allowed to progress to the next program level.

**E. Remediation**

If a student scores less than 70% on any exam, the instructor will encourage the student to conference with the instructor or tutor to review problem areas. Different learning and studying techniques will be discussed.

**F. Grading**

Grading Scale used in calculating students' final grade for MLAB 1101, Introduction to Clinical Laboratory Science.

<u>Evaluation Tools</u>	<u>% Value</u>	<u>Grading Scale</u>
Quizzes	20%	A = 90 -100%
Lecture Exam I	25%	B = 80 - 89%
Lecture Exam II	25%	C = 70 - 79%
Comprehensive Exam	<u>30%</u>	D = 60 - 69%
	100%	F = 59% and below

*(MLAB 1101 Introduction to Clinical Laboratory Science Lab is on a Pass/Fail basis. Laboratories will be graded on a Pass/Fail system based on the competency limits set by the program for each individual procedure. An average of 80% is required to pass the laboratory portion of MLAB 1101 Introduction to Clinical Laboratory Science.)*

Each grade will initially be determined in decimals to the tenths. The final grade, however, will only be recorded as a whole number. The guide used will be to round 0.1 through 0.4 to the lower whole number and 0.5 through 0.9 to next whole number. Example: If at the end of the course a student earns 87.4, the grade will be reflected as 87%. If the student earns 87.6 the grade is rounded to 88%. No decimals will be shown on the final grade scanners.

**IV. Disability Statement (Americans with Disabilities Act [ADA])**

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

**V. 6 Drop Rule**

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.