

Virginia Western Community College

MDL 101

Introduction to Medical Laboratory Techniques

Prerequisites

ENG 111, SDV 101

VWCC Course Description

Introduction to Medical Laboratory Techniques provides students with a foundational understanding of the clinical laboratory profession and its essential role in healthcare. This course explores the structure and function of modern medical laboratories, introduces fundamental laboratory principles, and highlights the critical contributions of laboratory professionals in disease detection, diagnosis, treatment, and prevention.

Students will gain insight into major laboratory departments—including hematology, microbiology, clinical chemistry, immunology, urinalysis, and transfusion services—while learning basic concepts such as specimen collection and handling, safety protocols, quality assurance, and the ethical and legal responsibilities of laboratory personnel. Emphasis is placed on accuracy, precision, professionalism, and effective communication within the healthcare team.

Through lectures, demonstrations, and introductory hands-on activities, students will begin developing the scientific mindset, technical awareness, and problem-solving skills necessary for success in Medical Laboratory Technology and future clinical practice.

Semester Credits:3

Lecture Hours: 2

Laboratory Hours: 3

Required Materials

Textbook

Clinical Laboratory Science, 9th Edition. Concepts, Procedures, and Clinical Applications.
Author: Mary Louise Turgeon. ISBN: 9780323829342

VWCC AND DISCIPLINE SPECIFIC OUTCOMES

1. Professional Roles & Regulatory Framework

- Describe the scope of practice and professional expectations of Medical Laboratory Technicians/Technologists as outlined by ASCP and other professional certifying bodies.
- Explain the purpose and impact of major regulatory and oversight agencies—including OSHA, CLIA '88, FDA, CAP, AABB, and CLSI—on clinical laboratory operations, patient safety, and laboratory quality systems.
- Identify key regulatory requirements, such as CLIA complexity levels, FDA test classifications, and CAP accreditation standards, and explain how they influence daily laboratory procedures.

2. Laboratory Safety & Compliance

- Demonstrate comprehension of OSHA standards, including Bloodborne Pathogens, Hazard Communication, and laboratory-specific safety protocols, and explain how these regulations are applied to protect workers and patients.
- Describe best practices in infection control, biosafety levels, PPE usage, and incident reporting consistent with OSHA and CLSI guidelines.

3. Quality Systems & Risk Management

- Explain the principles of Quality Assurance (QA) and Quality Control (QC) and how they align with CLIA '88, CAP accreditation checklists, and CLSI quality system essentials.
- Recognize sources of pre-analytical, analytical, and post-analytical error, and describe safeguards required by regulatory agencies to ensure accuracy and reliability of test results.

4. Laboratory Operations & Workflow

- Identify major departments of the clinical laboratory (hematology, chemistry, microbiology, immunology, urinalysis, transfusion services, phlebotomy) and describe the types of testing performed in each.
- Explain specimen handling requirements, including labeling, transport, storage, and rejection criteria, using CLSI and CAP guidelines as a reference framework.
- Discuss the role of the FDA in regulating in vitro diagnostic devices (IVDs), point-of-care testing, and laboratory instrumentation.

5. Ethics, Professionalism & Patient Interaction

- Describe ethical and professional responsibilities of laboratory personnel, including confidentiality, result verification, and communication standards

- influenced by ASCP's Code of Ethics.
 - Discuss the importance of professionalism, teamwork, and accountability within the healthcare environment.
- 6. Introduction to Blood Banking & AABB Standards**
- Explain basic concepts of immunohematology, including blood typing and compatibility testing, and describe the role of the AABB in establishing practice standards for transfusion services.
 - Identify regulatory differences between AABB accreditation and CLIA/CAP laboratory requirements.
- 7. Laboratory Informatics & Documentation**
- Describe the role of Laboratory Information Systems (LIS) in workflow, test ordering, result reporting, data security, and regulatory documentation.
 - Explain documentation requirements necessary for CLIA compliance, CAP inspections, and FDA record maintenance.
- 8. Critical Thinking & Problem-Solving**
- Interpret simple case-based scenarios involving specimen collection issues, QC failures, or safety breaches and determine appropriate corrective actions based on OSHA, CLSI, or CAP guidance.
 - Demonstrate emerging analytical thinking skills applicable to advanced laboratory coursework and clinical practice.

[TITLE IX STATEMENT](#)

[ADA STATEMENT](#)