

Virginia Western Community College

MDL 126

Clinical Immunohematology

Prerequisites

Successful completion of BIO 101, BIO 141 or equivalent.

Course Description

Incorporates basic principles of antigen and antibody reactions included in blood grouping and typing, compatibility testing, and serological procedure.

Semester Credits: 4

Lecture Hours: 2

Lab/Clinical/Internship Hours: 6

Required Materials

Textbook:

Modern Blood Banking & Transfusion Practices. Denise M. Harmening. 6th Edition. F. A. Davis.
ISBN: 9780803626829

Course Outcomes

At the completion of this course, the student should be able to:

- Understand basic blood bank concepts, terms and procedures
- Understand quality assurance as related to blood bank reagents and equipment
- Perform routine blood bank tests to include ABO/Rh, Antibody Detection, Antiglobulin Test, etc.
- Understand blood products, product storage requirements, appropriate product selection, means of transfusion and special handling requirements
- Recognize and troubleshoot unusual test results
- Understand testing and concepts from this course and apply them to continue in the Immunohematology II course.

Topical Description

I: Laboratory Safety

- General Safety Principals
- Blood-Borne Pathogen Safety
- Chemical Safety
- Radiation Safety
- Protection from Physical Hazards

II: Fundamental Concepts

- Red Blood Cell and Platelet Preservation: Historical Perspectives and Current Trends

III: Overview of the Routine Blood Bank Laboratory

- Organization
- Personnel Requirements
- Standard Operating Procedures
- Transfusion Process Oversight

IV: Quality and Compliance Issues

- Quality Management
- Equipment Preventative Maintenance/Quality Control, qualification/ validation
- Supply and Reagent receipt, inspection, acceptance testing, QC
- Nonconformance

V: Fundamental Concepts

- Basic Genetics / Blood Group Genetics
- Fundamentals of Immunology
- Concepts in Molecular Biology

VI: Blood Bank Testing Methodologies Overview

- Test tube – reagents, enhancement medias
- Automated methods – Gel, Solid Phase, other
- Overview Advanced Methods –adsorption/ elution, inhibition, chemical treatments

VII: Blood Groups and Serologic Testing

- The Antiglobulin Test
- The ABO Blood Group System
- The Rh Blood Group System
- Blood Group terminology and Other Blood Groups

VIII: Blood Collection

- Donor selection and qualification – health history questions, physical exam
- Collection Type
- Collection Processes

IX: Blood Components

- Component Production
- Blood Component Testing / Labeling
- Product Requirements and QC
- Product Storage and Distribution

X: Antibody Detection and Identification

- Low incidence antigens
- High incidence antigens
- Antibody Identification
- Positive DAT

XI: Transfusion Practices

- Pre-Transfusion Testing
- Post-Transfusion Testing/ Transfusion Reactions/ Testing for Investigation of Transfusion Reactions

Note to Instructors

1. Course continued in MDL 227 Clinical Immunohematology II.