South Central College

MDLT 2806 Immunohematology I

Course Outcome Summary

Course Information

Description This course covers the introduction to both the theory and practical aspects of Immunohematology. Areas of study include red blood cell antigens and antibodies, blood typing, antibody screening, antibody identification, compatibility testing, and quality control in the blood bank.. The course is designed to prepare the student for practical training in Immunohematology. (Prerequisite: MDLT 1810, & MDLT 1815 with a grade of C or higher.)

Total Credits 2

Total Hours 48

Types of Instruction

Instruction Type	Credits/Hours
Lecture (online)	1/16
Laboratory	1/32

Pre/Corequisites

MDLT 1810, & MDLT 1815 with a grade of C or higher.

Institutional Core Competencies

Communication - Students will be able to demonstrate appropriate and effective interactions with others to achieve their personal, academic, and professional objectives.

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Apply principles of genetics and immunology to blood bank.

Learning Objectives

Understand the terms immunohematology, blood banking, and transfusion medicine.
Name the major developments in the history of immunohematology.
Define genotype and phenotype.
Discuss the phenomena of dosage.
Define immune response.

Describe the two phases of humoral immune response.
Describe the two ways antigen-antibody reactions are visualized in blood banking.
Describe the factors that affect the two stages of agglutination.
List the uses of the direct antiglobulin test (DAT) and the indirect antiglobulin test (IAT).
Recognize agglutination reactions.

2. Perform and interpret quality control measurements.

Learning Objectives

Evaluate quality control results for acceptability and suggest corrective action.
Discuss the technician's role in error management and corrective action.
Recognize the regulatory and accrediting agencies influencing blood bank quality.
Cite quality control criteria for reagents, equipment, and blood components.

3. Perform basic immunohematology testing methods/techniques for major blood group testing, antibody screening and identification, and compatibility testing.

Learning Objectives

State the principle of the tests performed in the student laboratory.
Given the necessary materials, perform within 99% accuracy, the tests provided in the student laboratory.
Given the appropriate data, interpret and report within 100% accuracy, patient test results.

4. Interpret major blood group testing results, including discrepancies.

Learning Objectives

List the major antigens in the ABO, Rh, and other major blood group systems.
Discuss the major theories of development/inheritance of antigens of the major blood group systems.
Describe how the major blood group antigens are detected/identified.
Discuss the characteristics of antibodies of the major blood group systems.
List and explain various discrepancies in the major blood group systems.
List the carbohydrates that give specificity to ABO antigens.
Discuss the various mechanisms leading to the weak expression of the D antigen.
List possible genotypes when given an Rh phenotype.
State the clinical significance of the antibodies associated with the systems as they relate to transfusions and HDN.

5. Interpret antibody screening and antibody identification results.

Learning Objectives

Define antibody detection.
Name the various stages in antibody detection and identification.
List enhancement techniques used in antibody detection and identification.
Interpret antibody screening and identification results.
Name various aids in antibody identification studies.
List information about patients that may be helpful in antibody identification.
Know how to investigate a positive direct antiglobulin test (DAT).

6. Interpret compatibility testing results.

Learning Objectives

Define compatibility testing.
List the major steps of compatibility testing.
List the various serological tests performed in compatibility testing.
Name the limitations of serological compatibility testing.
Describe the possible serological testing results and a likely cause and resolution.
List and describe the circumstances with special compatibility testing protocols.

7. Resolve blood bank testing problems.

Learning Objectives

List and explain discrepancies in pre-transfusion testing per the instructor's discretion.
Resolve instructor assigned case studies.

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.