

**SEWARD COUNTY COMMUNITY COLLEGE  
COURSE SYLLABUS**

**I. TITLE OF COURSE:** MT2506- MLT Immunohematology

**II. COURSE DESCRIPTION: 6 credit hours  
3 credit hours of lecture and 3 credit hours of lab per week.**

A study of the immunology of blood, including those principles and practices that are known collectively as blood banking. An overview of blood component collection and component preparation is presented. Basic concepts of genetics, immunology and antiglobulin testing are included as a foundation for the understanding of the blood group systems and antibody detection and identification. Current transfusion practices are discussed. The student will gain experience in performance of techniques in immunohematology.

For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite: Admission in the MLT program.

**III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:**

The Seward County Community College Medical Laboratory Technology program provides a curriculum that produces competent, career entry level medical laboratory technicians.

**IV. TEXTBOOK AND MATERIALS:**

Harmening, D. Modern Blood Banking and Transfusion Practices, 7th Ed. Philadelphia: F.A. Davis, 2019.

Dorresteyn Stevens, C. Clinical Immunology & Serology, 4th Ed. Philadelphia: F.A. Davis, 2017.

**V. SCCC OUTCOMES**

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

I: Read with comprehension, be critical of what they read, and apply knowledge gained to real life

II: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.

III: Communicate their ideas clearly and proficiently in speaking, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.

IV: Demonstrate mathematical skills using a variety of techniques and technologies.

V: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

VI: Exhibit skills in information and technological literacy

VII: Demonstrate knowledge and comprehension of the diverse cultures, creeds, and lifestyles of America and the world community.

IX: Exhibit workplace skills that include respect for others, teamwork competence, attendance/punctuality, decision making, conflict resolution, truthfulness/honesty, positive attitude, judgment, and responsibility

## VI. COURSE OUTCOMES:

Upon completion of this course the student shall be able to:

1. Relate the proper specimen collection and handling, type of quality control used, reference ranges, principles of analysis currently available, and sources of analytical errors for each of the analytes discussed or approached in the course.
2. Perform all procedures with regard to prescribed safety protocol and confidentiality.
3. Correlate abnormal results with the most likely disease process by determining the clinical significance of the findings.
4. Describe the theory and principle of immunogenetics and immunohematology.
5. List the major blood group systems and the major antigens and associated antibodies of each system.
6. Describe the theory and principles of routine blood banking procedures.
7. Perform routine blood banking procedures with competency (as judged with the use of control materials).
8. Demonstrate the proper use and care of selected laboratory equipment.
9. Illustrate the basic concepts of donor selection and therapeutic use of blood components.

## VII. COURSE OUTLINE:

### LECTURE

1. Transfusion Safety and Federal Regulatory Requirements
2. Blood Preservation
3. Classic Genetics
4. Fundamentals of Immunology for Blood Bankers
5. Orientation to the Routine Blood Bank Lab
6. Quality in Blood Banking
7. The Antiglobulin Test
8. The ABO Blood Group System
9. The Rh Blood Group System
10. Alternative Technologies - Gel
11. The Lewis System
12. Other Major Blood Group Systems
13. Detection and Identification of Antibodies
14. Compatibility Testing
15. Transfusion Therapy
16. Adverse Effects of Blood Transfusion
17. Transfusion-transmitted Viruses
18. Hemolytic Disease of the Newborn
19. Autoimmune Hemolytic Anemia
20. Donor Selection and Component Preparation
21. Bacterial Infections in STD - Syphilis
22. Hepatitis
23. Rubella
24. Retroviral Infections - HIV
25. Infectious Mononucleosis
26. CRP and other APR's
27. Herpes Viruses

### LAB

1. Biosafety
2. Patient Identification
3. Cell suspensions
4. Agglutination reactions
5. Precipitation Reactions

6. Antigen-Antibody Ratio
7. Antiglobulin testing
8. ABO and RH-hr typing
9. Antibody Screening
10. Compatibility testing
11. Quality Assurance
12. Elution and Absorption
13. Antibody Identification
14. Basic Problem Solving
15. Pre and Post Natal workups, Fetal screens
16. Blood Donors
17. Transfusion Complication Investigation
18. Syphilis testing
19. Hepatitis testing
20. Antistreptolysin O, Cold Agglutinins
21. CRP, Mononucleosis testing, RA
22. Pregnancy testing
23. AIDS testing
24. Rubella testing

#### **VIII. INSTRUCTIONAL METHODS:**

Textbook reading, lecture, discussion, demonstration, role playing, web based tutorial programs, case studies.

#### **IX. INSTRUCTIONAL AND RESOURCE MATERIALS:**

Textbooks, handouts, slide cassettes, videos, selected reference readings, computer reviews.

#### **X. METHODS OF ASSESSMENT:**

SCCC Outcome #1 will be assessed and measured by class participation and writing assignments indicating comprehension of the material read.

SCCC Outcome #2 will be assessed and measured by written laboratory reports

SCCC Outcome #3 will be assessed and measured by verbal communication with clinical instructors and of laboratory reports.

SCCC Outcome #4 will be assessed and measure by the student's ability to correctly perform clinical laboratory calculations.

SCCC Outcome #5 will be assessed and measured by the student's ability to correctly perform routine blood bank and serology procedures, determine validity of results and resolve discrepancies as encountered. Students will also be assessed on their ability to follow prescribed procedures for troubleshooting and problem solving.

SCCC Outcome #6 will be assessed and measured by the student's ability to properly and efficiently operate a microscope and serofuge in the student laboratory and automated equipment and gel technology in the clinical site labs and by the student's ability to locate and review articles(s) from professional publications relevant to the specified course work.

SCCC Outcome #9 will be assessed and measured by the completion of the MLT Student Attitude Assessment tools by didactic and clinical instructors.

#### **XI. ADA STATEMENT:**

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or go to the Student Success Center in the Hobbie Academic building, room A149.

Syllabus Reviewed: 11/1/2022