

**SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS**

I. TITLE OF COURSE: MT2306- MLT Pathogenic Microbiology

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

Normal flora and pathogenic bacteria will be identified by morphology, staining characteristics, colonial morphology, growth on selective media, biochemical testing and serological methods. Basic theory in antimicrobial susceptibility testing will be covered. Principles of all tests will be studied. Study of viruses will be limited to the processing and handling of specimens for consultant referral and principles of serological testing. Normal and pathogenic parasites and fungal elements will be identified, and procedures utilized for proper identification will be discussed.

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 to the MLT program.

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

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

IV. TEXTBOOK AND MATERIALS:

Tille, P. (2021). Bailey and Scott's Diagnostic Microbiology. 15th Ed. Mosby Elsevier: St. Louis, MO ISBN 978-0-323-681056.

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

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 will be able to:

1. Relate the proper specimen collection and handling, type of quality control used, reference ranges, principle 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. Relate the transmission, entry into their host, and disease mechanism of common human pathogenic bacteria with the collection and processing of clinical specimens for bacteriological culture.
5. Describe the appropriate methods of collecting clinical specimens given the body site and the type of organism that is suspected.
6. Describe and perform accurately and safely basic microbiology techniques including microscopic, staining, plating, sub-culturing, and identification techniques.
7. Relate the physical and biochemical growth requirements of specific bacteria to the composition of general, selective and identification media.
8. Utilize simple and compound stains, colony characteristics, and growth on selective media to determine initial grouping of bacteria commonly encountered in clinical specimens to determine identification steps.
9. Identify common normal flora and possible pathogens from clinical specimens by the utilization of biochemical testing. Relate the principle behind each test utilized.
10. Relate the method of transport of either culture or specimen for unusual pathogenic organisms. Briefly discuss the characteristics that would be used to identify the organism.

VII. COURSE OUTLINE:

1. Laboratory Safety
2. Quality in the Clinical Microbiology Laboratory
3. Specimen Management
4. Bloodstream Infections
5. Host-Microorganism Interactions
6. Traditional Cultivation and Identification.
7. Nucleic Acid Based Analytic Methods
8. Staphylococcus, Micrococcus
9. Streptococcus, Enterococcus
10. Neisseriae, Moraxella
11. Haemophilus
12. Enterobacteriaceae
13. Pseudomonas, Burkholderia
14. Acinetobacter, Aggregatibacter, Kingella, Cardiobacterium, Capnocytophaga
15. Lab Methods and Strategies for AST
16. Vibrio, Aeromonas, Chromobacterium
17. Campylobacter, Helicobacter
18. Legionella
19. Bordetella pertussis and parapertussis
20. Eikenella
21. Pasturella
22. Francisella
23. Erysipelothrix, Lactobacillus, Gardnerella
24. Bacillus
25. Listeria, Corynebacterium
26. Spirochetes
27. Chlamydia

28. Anaerobes
29. Mycobacteria
30. Virology
31. Parasitology
32. Mycology

**** FOR EACH GROUP OF ORGANISMS STUDIED THE FOLLOWING WILL APPLY:**

1. Classification of organisms within the group
2. Special considerations for primary isolation
3. Colonial and cellular morphology
4. Identification protocol
 - a. methods
 - b. principles
 - c. interpretation
5. Clinical significance of each organism
 - a. disease states
 - b. normal flora
 - c. treatment
6. Sensitivity patterns

VIII. INSTRUCTIONAL METHODS:

Lecture, laboratory exercises, demonstration, simulation, and computer tutorials.

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

Handouts, laboratory equipment and supplies, selected reference readings.

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 by the students' ability to correctly perform clinical laboratory calculations.

SCCC Outcome #5 will be assessed and measured by the students' ability to correctly process cultures, determine validity of results and correlate with possible pathogenic organisms. 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 students' ability to properly and efficiently operate automated equipment and the microscope 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 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 going to the Student Success Center in the Hubble Academic building, room 149 A.

Syllabus Reviewed: 11/16/2022