

Minnesota State College Southeast

MEDL 2101: Clinical Microbiology

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 2

Lab Hours/Week: 4

OJT Hours/Week: *.*

Prerequisites:

This course requires either of these prerequisite categories

1. BIOL 2530 - Microbiology

Or

2. BIOL 2531 - Microbiology

Corequisites: None

MnTC Goals: None

This course covers the appropriate collection, processing and identification of clinically associated microorganisms. Emphasis on the significance of microorganisms isolated from various body sites. Epidemiology and the laboratory role in infection control will be discussed. Students will perform microorganism identification procedures and antibiotic susceptibility testing. Students will gain experience in a simulated clinical Microbiology laboratory. (Prerequisite: BIOL2531 and must be a Medical laboratory Technician accepted student.) (4 credits: 2 lecture/2 lab)

B. COURSE EFFECTIVE DATES: 10/15/2012 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Differentiate microorganisms commonly encountered in a clinical microbiology laboratory
2. Process biological specimens for microbiological analysis
3. Interpret microscopic, chemical and immunological tests to identify microorganisms
4. Perform and interpret antimicrobial susceptibility testing
5. Correlate microbiology test results to disease processes
6. Exhibit an awareness of regulatory requirements, safety regulation and ethical standards to practice in the microbiology laboratory
7. Utilize effective oral and written communication skills

D. LEARNING OUTCOMES (General)

1. Explain the nutritional and environmental requirements for bacterial growth
2. Describe the fundamentals of specimen collection, preservation, storage and transport for microbial analysis
3. Identify the criteria for specimen rejections
4. Classify the categories of media used for culturing bacteria and explain how media is selected
5. Recognize atmospheric requirements of various classes of microorganisms
6. Describe the 4 categories of bio-safety levels
7. Explain the use of various stains used in the clinical microbiology laboratory
8. Perform and interpret the Gram stain procedure
9. Compare microscopic characteristics of various bacteria encountered in the clinical microbiology laboratory
10. Distinguish cells, microorganisms and local material seen in a Gram stain from various biological specimens
11. Discuss and assess quality control as it applies in the clinical microbiology laboratory
12. Perform and interpret common microbial differential tests used in the clinical microbiology laboratory
13. Describe the reactions involved and products of metabolism tested in routine biochemical procedures performed in the clinical microbiology laboratory
14. Discuss the automated methods used for rapid identification of bacteria
15. Describe the appearance of common microorganisms on various medias and how gross colony characteristics are used in the presumptive identification of microorganisms
16. Differentiate normal flora from pathogenic microorganisms by body site
17. Describe disease characteristics of common pathogens
18. Perform the procedures for Minimal Inhibitory Concentration methods and interpret results
19. Compare and contrast the mechanism of action of the different classes of antimicrobials
20. Explain how disk diffusion and MIC results are interpreted
21. Point out the various roles the laboratory may play in an infection control program
22. Adhere to Standard Precautions and exhibit safe microbiology laboratory practices to establish and maintain a safe Microbiology laboratory
23. Discuss how common viruses are transmitted or acquired, the infection(s) they produce and the most effective method of laboratory diagnosis
24. Assimilate a clinical microbiology laboratory

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted