

# Minnesota State College Southeast

## MEDL 2120: Advanced Microbiology

### A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite

MEDL 2101 - Clinical Microbiology

Corequisites: None

MnTC Goals: None

This course introduces anaerobic bacteria, fungi/yeasts and parasites of clinical significance. Students gain knowledge of specimen collection, handling, processing and identification techniques. Students will also be introduced to the components of a clinical molecular diagnostics laboratory and common molecular techniques used in the diagnosis of infectious diseases. (Prerequisite: MEDL2101. Must be a Medical Laboratory Technician accepted student) (2 credits: 1 lecture/1 lab)

**B. COURSE EFFECTIVE DATES:** 05/07/2012 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Recognize anaerobic bacteria, Mycobacteria, fungi and parasites commonly encountered in a clinical microbiology laboratory
2. Demonstrate comprehension of the technical and procedural aspects of molecular based tests
3. Perform processing of biological specimens for microbiological analysis
4. Identify microorganisms utilizing microscopic and chemical test procedures
5. Correlate microbiology test results to disease processes

#### **D. LEARNING OUTCOMES (General)**

1. Identify the endogenous anaerobes commonly involved in human infections
2. Recognize specimens that are acceptable and unacceptable for anaerobic culture
3. Compare the microscopic and colony morphology and interpret the results of differentiating test of anaerobic isolates
4. Describe antimicrobial susceptibility testing of anaerobes
5. Set up an anaerobic culture and identify growth of anaerobes
6. Describe the general characteristics of mycobacteria and compare them with other groups of microorganism
7. Describe the appropriate specimen collection, processing and tests used to recover and identify mycobacteria
8. Perform digestion, decontamination and staining procedures used to recover and identify mycobacteria
9. Describe the general characteristics of fungi
10. List the four divisions of fungi and the diseases they cause
11. Identify the appropriate specimen collection procedures, staining methods and culture techniques used in the mycology laboratory
12. Perform and interpret microscopic procedures used in the mycology laboratory
13. Describe and/or perform the general procedures for performing the direct wet mount, fecal concentration and permanent stained smears for identification of human parasites
14. Compare the general characteristics of the major phyla of human parasites
15. Concentrate a stool for parasite examination
16. Describe the different molecular diagnostic applications used in the clinical microbiology laboratory
17. Adhere to and practice safety and regulatory requirements in the 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