Miami Dade College

Course Description

MLS4461| Clinical Diagnostic Microbiology | 3.00 credits

Clinical Diagnostic Microbiology provides concepts in bacteriology identification methods, rapid identification methods for parasites and fungi and an overview of virology methodology.

Course Competencies

Competency 1: The student will demonstrate knowledge of traditional and rapid identification methods by:

1. Explaining the principles, and efficacy of at least three laboratory instruments that are currently used to identify organisms in the laboratory
2. Comparing and contrasting at least five rapid identification methods for microbiology identification of bacteria, fungi and parasites
3. Analyzing serological diagnostic identification for infectious diseases

Competency 2: The student will demonstrate knowledge and identification methods of Gram Positive Rods and Cocci commonly encountered in clinical microbiology by:

1. Analyzing identification methods of catalase positive Gram Positive Cocci such as Staphylococci and Streptococci and Micrococci
2. Explaining catalase negative Gram Negative Cocci such as Streptococci and Enterococci
3. Explaining identifying characteristics of Bacillus spp, Listeria, Lactobacillus and similar organisms
4. Explaining Gram Positive Anaerobes as it relates to diseases in the community

Competency 3: The student will demonstrate knowledge and identification methods for organisms belonging to the Enterobacteriaceae family by:

1. Explaining the general principles of media used for identifying and distinguishing member of the family Enterobacteriaceae
2. Identifying the intestinal pathogens that are considered pathogenic such as Salmonella spp, Shigella spp and Yersina enterolitica
3. Differentiating between members of the opportunistic pathogen by using biochemical reactions and explain their significance
4. Explaining cephalosporin and carbapenems resistance

Competency 4: The student will demonstrate knowledge and identification methods for Parasitology and Mycology by:

1. Analyzing and identifying the characteristics of parasites
2. Explaining the life cycle of at least one representative from the Protozoa, Plasmodium spp, Cestoda, Nematoda and Digenea groups
3. Recognizing and differentiating pathogenic organisms from nonpathogenic Protozoa
4. Explaining rapid and conventional identifying methods of commonly encountered yeast, dermatophytes and dimorphic fungi

Competency 5: The student will demonstrate knowledge of antimicrobial agent's methodology of susceptibility testing by:

1. Explaining cephalosporin and carbapenems resistance as it relates to Enterobacteriaceae
2. Analyzing antimicrobial agents and their mode of action
3. Explaining the mechanisms for antibiotic resistance
4. Analyzing methodology for antimicrobial susceptibility testing

Learning Outcomes:

1. Communication
2. Critical Thinking
3. Ethical Issues