Sinclair Community College
444 E. Third St.
Dayton, OH 45402

Master Syllabus

BIO 2206 - Lab for Microbiology

Division: Science, Mathematics and Engineering

Department: Biology

Credit Hour Total: 0.0

Date Revised: June 2015

Course Description:

Students carry out asceptic techniques; simple and special staining procedures; methods utilized for culturing, isolation and identification of bacteria (known and unknown); molecular genetic and immunological methods dealing with microbes. Also, exercises involving eukarytoic microbes (fungi, protozoa and helminths) are conducted.

General Education Outcomes:

- Oral Communication
- Written Communication
- Critical Thinking/Problem Solving
- Values/Citizenship/Community
- Information Literacy

Course Outcomes:

Basic Laboratory Competences
Properly care for and use the microscope. Carry out, successfully, bacterial staining techniques. Recognize, microscopically, a variety of bacterial shapes and arrangements.

Assessment Method: Locally developed exams
Performance Criteria: Receive at least 60% of all points possible

Bacterial Culture and Biochemical Characteristics
Recognize the colony characteristics of isolated colonies of known bacterial species. Properly inoculate differential media for conducting differential tests. Properly carry out biochemical and physiological test designed to differentiate (identify) bacterial species.

Assessment Method: Performance appraisals
Performance Criteria: Receive at least 60% of all points possible

Unknown Bacteria, Molecular Genetic, and Immunological Competencies.
Utilize techniques and knowledge gained from other competencies to identify unknown bacterial species. Perform correctly the molecular genetic transformation of bacterial cells. Perform correctly the immunological screening method for detection of antibodies against HIV in blood donor or patient sera.

Assessment Method: Locally developed exams
Performance Criteria: Receive at least 60% of all points possible

Outline:

Introduction to the microbiology laboratory and laboratory safetyProper use and care of the microscopeAseptic transfersBacterial smear preparation for staining and microscopySimple, gram, and other staining methodsBacterial cultural characteristics and growth aerobically and anaerobicallyMicrobial metabolism and differential tests for identifying unknown bacteriaAntimicrobial susceptibility testingClinical microbiology (identification of unknowns, culturing of urine samples)Genetic transformation of bacterial cellsELISA for HIV infectionExamination of eukaryotic microbes