

# Common Course Outline

**BIOL 230**

**Microbiology**

**4 Credits**

## The Community College of Baltimore County

### Description

#### **Microbiology**

Introduces and discusses concepts related to the study of bacteria, viruses, protozoa, fungi and both the beneficial and pathogenic interrelationships with humans; emphasizes basic laboratory techniques such as microscopy, staining, and aseptic technique.

4 credits: 3 lecture hours and 3 credit hours per week.

Prerequisite: Completion of BIOL 110 with a final grade of “C” or higher and (ENGL 052 or ESOL 052 or LVE 2 or LVE 3 or LVE 4) and (MATH 082 or MATH 013 or LVM2 or LVM 4 or LVM 5).

### Overall Course Objectives

Upon completion of this course the student will be able to:

1. Explain relationships and apply appropriate terminology relating to the structure, metabolism, genetics, and ecology of prokaryotic microorganisms, eukaryotic microorganisms, and viruses.
2. Explain interactions between opportunistic and pathogenic microorganisms and susceptible hosts in contacts that result in infection and/or disease and apply these interactions to disease symptoms.
3. Explain nonspecific body defenses and the immune responses and apply this understanding to the infectious disease process as well as the prevention and control of infectious diseases.
4. Explain principles of physical and chemical methods used in the control of microorganisms and apply this understanding to the prevention and control of infectious diseases.
5. Demonstrate appropriate laboratory skills and techniques related to the isolation, staining, identification, assessment of metabolism, and control of microorganisms.
6. Develop the ability to work both independently and with others in the laboratory and draw appropriate conclusions from laboratory results.
7. Develop an information base for making personal health decisions in regard to infectious diseases.

### Major Topics

The major topics covered in this course include but are not limited to the following:

#### Lecture Topics

- I. Introduction to Microbiology
- II. The Prokaryotic Cell: Bacteria
- III. The Eukaryotic cell
- IV. The Fungi
- VI. Viruses
- VII. Microbial Growth and Reproduction
- VIII. Microbial Metabolism
- XIX. Microbial Genetics

- X. Microbial Mechanisms of Pathogenicity
- XI. Nonspecific Body Defenses
- XII. The Immune Responses
- XIII. Control of Microorganisms
- XIV. Microorganisms and Human Diseases

### Laboratory Topics

- I. Microscopy
- II. Aseptic Technique
- III. Enumeration of Microorganisms
- IV. Staining of Microorganisms
- V. Identification of Bacteria
- VI. Viruses
- VII. Serology
- VIII. Control of Microorganisms

### **Course Requirements**

Grading/Exams: Grading procedures will be determined by the individual faculty member but may be calculated on the basis of exams, lab quizzes, lab experiments, and lab reports.

Writing: The individual faculty member will determine specific writing assignments.

### **Other Course Information**

This course contains a laboratory component. Each week the class meets for a total of 3 hours of lecture and 3.5 hours of lab.

This course is a Science core course, Science elective, and an Arts and Sciences elective.