

**Department:**

Biology

**Course Description:**

This course will provide a study of the morphology, physiology, and classification of microorganisms associated with disease. The course will also focus on methods of disease prevention through sanitation, disinfection and sterilization, sources and means of infection, and body defenses.

**Course Competencies:**

Upon completion of the course, the student should be able to:

1. Describe the anatomical differences between the microorganisms within each of these groups associated with disease: fungi, viruses, bacteria, parasites.
2. Explain the environmental requirements for optimum growth of microorganisms in each group.
3. Describe the methods by which microorganisms in each group can invade the human body.
4. Describe the methods of nutrition for microorganisms in each group.
5. Describe the methods of reproduction for microorganisms in each group.
6. Explain the forms of symbiosis covered in class.
7. Define terms related to infection and parasitology.
8. List ports of entry and exit of the human body.
9. Describe the methods by which infectious microorganisms can pass from one individual to another.
10. Define terms related to sterilization and disinfection.
11. List and describe the agents of disinfection.
12. Describe the methods used in sterilization.
13. Explain how antibiotic drugs perform their functions.
14. Describe the defensive activities of the skin and lining membranes of the body.
15. List and explain the nonspecific forms of immunity.
16. List and explain the specific forms of immunity.
17. Describe the types and causes of allergies.

**Course Content:**

- A. Introduction to microorganisms
  1. What microbiology is
  2. Practical applications of microbiology
  3. Evolution of the study of microorganisms
  4. How bacteria are named
  5. The divisions of microbiology
- B. Microorganisms associated with disease

1. Fungi
  - a. Anatomical and physiological study of the fungi
  - b. Taxonomic characteristics of the fungi
  - c. Fungi associated with disease
2. Viruses
  - a. Structure of the viruses
  - b. Classification of the viruses
  - c. Cellular activities of the viruses in causing disease
3. Bacteria
  - a. Morphological and biochemical differences between the bacteria
  - b. Reproduction and genetics of the bacteria
  - c. Action of the bacteria in causing disease
4. Parasitic protozoa and helminths
  - a. Protozoa associated with disease
  - b. Parasitic worms associated with diseases of humans
- C. Infection and parasitology
  1. Definitions of the forms of symbiosis
  2. Establishment and maintenance of an infection by a pathogenic organism
- D. Control of pathogens
  1. Terminology dealing with sterilization and disinfection
  2. Methods of sterilization and disinfection
  3. Use of drugs to treat infections
- E. Defenses of the body against invading microorganisms
  1. Mechanical defenses of the skin and membranes of the body
  2. Chemical and cellular defenses of blood and the lymphatic system

## Learning Assessments:

Course competencies will be assessed by the use of lecture tests, subject area tests, lab assignments, quizzes, and Web site activities.

## Instructional Materials:

Textbook: Microbiology: An Introduction, Tortora, Funke, Case, 11th Ed., Benjamin Cummings, 2013. ISBN: 978-0-321-73360-3

### **Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition**

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the “Disabilities Self-Identification Form” on our [Disability Services website](#).

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.

### **A Note on Harassment, Discrimination and Sexual Misconduct**

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland

Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an [online report](#) about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our [Equity Grievance Policy](#).