

COLLEGEWIDE COURSE OUTLINE OF RECORD

BIOL 201, GENERAL MICROBIOLOGY

COURSE TITLE: General Microbiology

COURSE NUMBER: BIOL 201

PREREQUISITES: BIOL 101 Introductory Biology, BIOL 105 Biology I or APHY 101 Anatomy and Physiology I and earning a grade of "C" or better in MATH 050 Basic Algebra

SCHOOL: Liberal Arts and Sciences

PROGRAM: Liberal Arts

CREDIT HOURS: 4

CONTACT HOURS: Lecture: 3 Lab: 2

DATE OF LAST REVISION: Spring, 2004

EFFECTIVE DATE OF THIS REVISION: Fall, 2008

CATALOG DESCRIPTION: Presents an in-depth overview of microbiology, including fundamental structures of microorganisms, their metabolism, classification and interaction with other living things, and the laboratory techniques for their study. Introduces industrial and clinical applications of microbiology and clinically related areas of bacterial, viral, fungal, and parasitic involvement.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Describe the general properties and characteristics of bacteria, fungi, parasites, and viruses.
2. Describe the divisions of microbiology and taxonomic classification of bacteria.
3. Identify the internal and external structures of the eukaryotic vs. the prokaryotic cell and define the function of each.
4. Use the bright field microscope in the study of microorganisms, identify the parts of the microscope, and state the function of each.
5. Understand and apply recommended guidelines for safe handling of microorganisms and infectious materials.
6. Describe and recognize various bacterial morphologies.
7. Perform and/or interpret the gram stain on both direct and indirect smears.
8. Describe the general principles of bacterial metabolism, nutrition, reproduction, and energy liberation and storage.
9. Discuss the structure of DNA and the processes of replication, transcription, and translation.
10. Discuss the use of physical and chemical methods and antimicrobial agents in the control of microorganisms.
11. Describe the epidemiology of various kinds of infectious diseases and the invasive mechanisms employed by bacteria.
12. Describe the processes of transfer of genetic information between bacteria including transformation, transduction, and conjugation.
13. Discuss the applications of general concepts in microbiology for food, agriculture, ecology, health, and industry.

14. Review endemic, epidemic, and pandemic situations and methods to stop and prevent the spread of the disease.
15. Perform identification tests, use a flow diagram and describe epidemiology and describe correlations.
16. Describe the fundamentals of recombinant DNA technologies, genetic engineering, and biotechnology as they relate to microbiology, medicine, industry, and the environment.
17. Describe basic principles of immunology, immunity, and serological testing and interpretation.
18. Use appropriate microbiology media, test systems, and lab equipment.

COURSE CONTENT: Topical areas of study include –

Scope of microbiology	Eukaryotic microorganisms and parasites
Microscopy and staining	Characteristics of prokaryotic and eukaryotic cells
Fundamentals of chemistry	Sterilization and disinfection
Microbial genetics	Host-microbe relationships and disease processes
Recombinant DNA	Epidemiology and nosocomial infections
Bacteria	Nonspecific host defenses and host systems
Immunology	Essential concepts of metabolism
Viruses	Growth and culturing of bacteria
Applied microbiology	Endemics, epidemics, and pandemics
Environmental microbiology	

ACADEMIC HONESTY STATEMENT:

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