

COURSE OUTLINE

Revision: Carey Schroyer, April 2008

DEPARTMENT:	Academic Programs
CURRICULUM:	The Natural World
COURSE TITLE:	Microbiology
COURSE NUMBER:	BIOL& 260
TYPE OF COURSE:	Academic Transfer
Special Requirement Met:	Mathematics/Quantitative Reasoning
AREA(S) OF KNOWLEDGE:	The Living World
COURSE LENGTH:	1 quarter
CREDIT HOURS:	5
LECTURE HOURS:	33
LAB HOURS:	44
CLASS SIZE:	27
PREREQUISITES:	Two college level biology or chemistry lab courses, or instructor's permission

COURSE DESCRIPTION:

History and methods of microbiology: microbial classification, metabolism, culture requirements, molecular genetics, antimicrobial methods, immunology, epidemiology and pathogenesis. Lab included

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STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication - Read and listen actively to learn and communicate.
2. Computation - Apply quantitative skills for personal, academic and career purposes.
3. Human relations – use social interactive skills to work in groups effectively. Learn to work in teams with others to achieve goals in the laboratory.
4. Critical Thinking and Problem Solving - Think critically in evaluating information, solving problems and making decisions.
5. Technology - Select and use appropriate technological tools for personal, academic and career tasks.
6. Personal Responsibility - Be motivated and able to continue learning and adapt to change. Be aware of environmental issues.
7. Information Literacy - Access and evaluate information from a variety of sources and contexts, including technology.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Define and explain the principle of Microbiology
2. Develop and utilize skills necessary to employ basic microbiological techniques to observe culture and metabolic characteristics of prokaryotic organisms, including microscopy skills and demonstration of good scientific record keeping by maintaining a laboratory journal.
3. Describe the anatomical and physiological differences between eukaryotic and prokaryotic cells.
4. Distinguish between bacteria and viruses and how viruses differ from eukaryotic and prokaryotic cells.
5. Understand microbial genetics, including replication, gene expression, genetic recombination, and recombinant DNA technology.
6. Describe microbial growth mechanisms and identify factors required for growth of microbial populations in vitro and vivo
7. Describe and identify bacterial pathogens and disease transmission; viral pathogens and disease transmission.
8. Identify the pathogens for various common human diseases of the integument, respiratory, gastrointestinal, cardiovascular, and nervous systems.

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TOPICAL OUTLINE:	APPROX HOURS
I. Microscopy and Staining Techniques	10
II. Anti-microbial Techniques	10
III. Metabolism of Bacteria	10
IV. Viruses	10
V. Bacterial Genetics	10
VI. Diversity of Bacteria	10
VII. Clinical Aspects of Microorganisms	17
Total hours	77

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BIOL 120

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SLO #	Included in Course Objective Number	SSCC Student Learning Outcomes
SLO 1.1	1,3,4,5,6,7,8	Communication - Read and listen actively
SLO 1.2	1,3,4,5,6,7,8	Communication - Speak and write effectively
SLO 2.1		Computation - Use mathematical operations
SLO 2.2		Computation - Apply quantitative skills
SLO 2.3		Computation - Identify, interpret, and utilize higher level mathematical and cognitive skills
SLO 3.1	2	Human Relations - Use social interactive skills to work in groups effectively
SLO 3.2	9	Human Relations - Recognize the diversity of cultural influences and values
SLO 4.1	9	Critical Thinking and Problem Solving -
SLO 5.1	2	Technology - Select and use appropriate technological tools
SLO 6.1	1 – 9	Personal Responsibility - Be motivated and able to continue learning and adapt to change
SLO 6.2		Personal Responsibility - Value one's own skills, abilities, ideas and art
SLO 6.3		Personal Responsibility - Take pride in one's work
SLO 6.4		Personal Responsibility - Manage personal health and safety
SLO 6.5		Personal Responsibility - Be aware of civic and environmental issues
SLO 7.1	9	Information Literacy - Access and evaluate information
SLO 7.2	9	Information Literacy - Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society

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