

**NORTHEASTERN TECHNICAL COLLEGE  
COURSE OUTLINE**

<b>COURSE:</b> Biology	<b>PREFIX NO.</b> BIO 225	<b>EFFECTIVE DATE</b> Fall 2010	<b>NEXT REVIEW DATE</b> Fall 2011		
<b>TITLE:</b> Microbiology		<b>CREDITS</b> 4	<b>CONTACTS</b>		
			<b>CLASS</b>	<b>LAB</b>	<b>TOTAL</b>
			3	3	4

**PREREQUISITES:** BIO 101 or BIO 210 with grade of "C" or better.

**DESCRIPTION:** This is a detailed study of microbiology as it relates to infection and the disease processes of the body. Topics include immunity, epidemiology, medically important microorganisms, and diagnostic procedures for identification.

**TEXTBOOK(S) OR ALTERNATIVE:** Microbiology: An Introduction; by Tortora, Funke, & Case, 9th Edition, 10<sup>th</sup> edition

Laboratory Experiments In Microbiology; by Johnson & Case, 9<sup>th</sup> Edition

**MATERIALS (specifying those to be purchased by student):** The student must purchase the texts listed above. All other materials will be provided by NETC.

**COLLATERAL READING:**

**CLASS MANAGEMENT ACTIVITIES (Attendance, tardies, testing, etc.):**

**ACADEMIC DISHONESTY:**

As stated in the Policy and Procedures Manual, any student that plagiarizes or is caught cheating on any assessment in a course will receive a zero for that assignment. The documentation will be collected and reported to the Dean of Student Services.

**ATTENDANCE:**

According to college policy, a student may miss 20% of the scheduled class periods. When a student exceeds this limit, he or she will be dropped for excessive absences, with the resulting grade of "F". If the student initiates the withdrawal before midterm, a grade of "W" will be recorded. After midterm, the grade of "W" will only be used for students who are passing the course; if a student who is not passing initiates a drop after midterm, he or she will receive a grade of "WF".

**TARDIES:**

A student is considered tardy if he/she arrives for class after the scheduled time. Three tardies constitute one hour of absence.

**ELECTRONIC DEVICES IN THE CLASSROOM:**

To minimize classroom disruptions and to protect the integrity of testing, activated electronic communication devices such as pagers, beepers, and telephones are not permitted in classrooms at NETC. The only exception is for on-call emergency personnel

(police, fire, EMS); these students are required to notify the instructor of their need for such devices with documentation verifying employment. This information must be provided at the beginning of the term and at the beginning of each applicable class session.

STUDENT ID:

It is mandatory that every student wear his or her student ID at all times. Students will be dismissed from class if not wearing their ID. The student may get his/her ID and return to class before the midpoint of the class. If the student cannot get his/her ID and return to class by the midpoint, the instructor will record the absence.

DISABILITIES STATEMENT:

Students with disabilities are encouraged to contact the Dean of Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Dean of Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs. (See *College Catalog*)

ASSESSMENTS:

Assessments will be assigned during the term by the instructor.

RESOURCES (A-V, persons, tools/equipment):

The following equipment may be used in lecture or lab settings: overhead projector, TV/VCR/DVD, computer, XGA or LCD projector, microscopes, various biological lab equipment as specified in individual labs.

COURSE TOPICAL OUTLINE (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.

<u>CHAPTERS</u>	<u>DESCRIPTION</u>
1	The Microbial World and You (1 week)
14 - 17	Interaction between Microbe and Host (3 weeks)
4 - 7	Fundamentals of Microbiology (3 weeks) TEST 5 suggested
11; 21-26	A Survey of the Microbial World; Microorganisms and Human Disease (Bacteria) (3 weeks)
13; 21-26	A Survey of the Microbial World; Microorganisms and Human Disease (Viruses) (3 weeks)
12; 21-26	A Survey of the Microbial World; Microorganisms and Human Disease (Protists, Helminths) (2 weeks)

**TENTATIVE TOPICAL LAB SCHEDULE:**

<b><u>WEEK</u></b>	<b><u>LAB</u></b>
1 & 2	Microbes in the Environment (Exercise 9) Epidemiology Lab (Handout)
3	Use and Care of the Microscope (Exercise 1)
4	Transfer of Bacteria: Aseptic Technique (Exercise 10) Handwashing Lab (Handout)
5	Preparation of Smears & Simple Stains (Exercise 3)
6	Negative Staining (Exercise 4)
7	Gram Staining (Exercise 5)
8	Lab Midterm
9	Acid-Fast Staining (Exercise 6)
10	Structure Stains (Exercise 7)
11	Chemical Methods of Control: Antimicrobial Drugs (25) My Favorite Germ Killer (Handout)
12	Microbial Metabolism (Handouts, Exercise 14) Bacteria of the Skin and Respiratory Tract
13	Field Trip to the Water Treatment Plant/Wastewater Plant
14	Student Presentations
15	Lab Final

**LEARNING OUTCOMES/OBJECTIVES OF COURSE:**

1. Students will be able to use the aseptic technique to inoculate media and prepare stained smears for study in lab.
2. Students will be able to use the microscope to find and identify microbes present in the stained smears they have made.
3. Students will be able to identify specific bacteria, viruses, fungi, algae, protozoa, and helminthes that cause disease.
4. Students will be able to discuss microbial transmission, growth, and methods of controlling their growth, including treatments.

5. Students will be able to describe how the immune system defends itself against microorganisms.

**COLLEGE-WIDE COMPETENCIES:**

1. The student will be able to collect information needed for a given task.
2. The student will be able to analyze information.
3. The student will be able to evaluate information to determine its usefulness.
4. The student will be able to apply knowledge to make decisions and solve problems.

**INSTRUCTIONAL METHODS TO COMPLETE OBJECTIVES:** Lectures, laboratory work, videos, and slides on topics in anatomy and physiology may be used. Science projects and reports may also be used to supplement instruction.

**EVALUATIVE METHODS TO APPRAISE OBJECTIVES:** Course assignments may include tests, lab reports, and other activities as outlined in the syllabus or by handouts. A comprehensive final exam will be given. No lecture test grades will be dropped. Practical tests, objective tests, and/or lab reports may be used in lab as assessments, with one lab report/assignment being dropped before final averaging.

**COURSE GRADES WILL BE A WEIGHTED AVERAGE OF THE FOLLOWING COMPONENTS:**

Final Average  
Lecture test average = 50%  
Lab average = 25%  
Outside assignments = 5%  
Cumulative Final Exam = 20%

Lab Average  
Lab report average = 50%  
Lab midterm = 25%  
Lab final = 25%

**GRADING SCALE:**

92 - 100 = A  
83 - 91 = B  
74 - 82 = C  
65 - 73 = D  
BELOW 65 = F