Bergen Community College  
Division of Math, Science and Technology  
Department of Biology and Horticulture

Course Syllabus  
BIO 104 Microbiology

Instructor: Miss Lowe  
Office: S230  
e-mail: mlowe@bergen.edu

Office hours: M: 7:00 - 7:55 am; T: 7:00 - 7:55 am; W: 7:00 - 7:55 am

COURSE TITLE: BIO 104 Microbiology  
COURSE COORDINATOR: Miss Lowe

COURSE CREDIT: 4 CREDITS, 3 LEC, 3 LAB.

GENERAL ED COURSE: Yes

PREREQUISITES: None (High School biology and/or chemistry helpful)

COURSE DESCRIPTION: Microbiology is a laboratory science course that emphasizes the principles of biology as they apply to microorganisms. The morphology, anatomy, physiology, growth, metabolism, nutrition, control and identification of the various microbes, genetics including recombination technology, industrial and clinical case studies in microbiology are discussed. Representative laboratory exercises include staining procedures, media preparation, pure culture techniques, culture identification, and serology.


OPTIONAL: Lammert, Techniques in Microbiology, Pearson, 2007
ACCOMMODATIONS: Students who require accommodations in accordance with the Americans with Disabilities Act (ADA) can request these services from the Office of Specialized Services. To learn more about how to apply for services, please visit them at: http://www.bergen.edu/oss

MATERIALS: Students must wear protective eye wear, vinyl gloves and laboratory coats. *All lab books must be new and unused*

CLASS OBJECTIVES: To acquire an understanding of the general principles of microbiology and the role of microbes in our universe and to become proficient in the techniques for observing, cultivating, enumerating, isolating, and identifying these organisms.

STUDENT LEARNING OBJECTIVES:

1. Students will learn the major principles of microbiology and the relationship of microbes to other living organisms. Assessment will be based upon performance on exam questions. Assessment can also be based on research papers/projects.

2. Students will demonstrate proper scientific procedure to identify various type of microbes. Students will be evaluated by observation in the laboratory and analysis of an unknown bacteria. Assessment will also be based upon performance on exam questions.

3. Students will be able to explain the scientific basis for each technique used. Students will be required to answer exam questions designed to allow them to demonstrate their acquisition and retention of this knowledge.

4. Students will demonstrate proper scientific laboratory record keeping. Students will be evaluated by periodic notebook collection.

5. Students will learn to practice critical thinking Skills and apply them to both material presented in lecture and the analysis of data generated in the laboratory. Students will be evaluated by observation in the laboratory and analysis of experimental results. Assessment will also be based upon performance on exam questions.

Henry and Edith Cerullo Learning Assistant Center: For tutoring help please go to L-125. Tutoring is available for every Bergen student. Their phone number is 201-447-7489.
<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Chapter</th>
<th>Lab</th>
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<tr>
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<td>Introduction, 1</td>
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<td>Unknown Bacteria 28</td>
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<td>Known bacteria 29, 30, 31</td>
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<td>Read Known/ do unknown 29, 30, 31</td>
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<td>Read Known/ do unknown 29, 30, 31</td>
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<td>Read 34, 35 - Review, Turn in unknown</td>
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<td>Comprehensive Final</td>
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**COURSE ASSESSMENT:** The student will be evaluated using a variety of methods which may include, but are not limited to, some of the following: quizzes, exams, written assignments, lab work/books, research projects and presentations.
GRADES: 3 lecture tests 100 points each  60% of Grade
1 lecture final 200 points
       (Comprehensive)
Quizzes  100 points

Lecture tests will consist of multiple choice, fill-in-the blanks and essays. **If you miss a test the comprehensive final will count twice.** If you miss a second test you will receive a zero.

Lab Practical  200 points     40% of Grade
Unknown  100 points
Lab Work/book  100 points
Research Project  50 points
Presentation  50 points

The prelabs are due at the beginning of each lab. For every lab missed your grade will drop 8 %. If you are tardy you will miss the directions and not be allowed to participate in lab. This will also drop your grade by 8%.  **No Exceptions.**

A - 93-100; B+ - 90-92; B - 85-89; C+ - 82-84; C - 77-81; D - 70-76

No handheld devices are allowed at student work benches.

You have registered for a Web Enhanced course:

To enter go to: moodle.bergen.edu and enter your username and password and click Login. You must log into your course using the following guidelines for your username and password.  **This is the only way you can enter your course - you cannot change your username or password or you will not be able to log in.**

1) Your user name is the same as your WebAdvisor username.

2) Your password is up to first 8 letters of your last name followed by last 4 digits of your BCC ID. Type the first initial of your last name in uppercase. Example: John O'Shaughnessy & BCC ID# 1071234 = Oshaughn1234.

3) You can access your course from the Courses Available To You block. Click the + sign to expand the term and you will find your course(s).

Unless you are on campus, you are responsible for supporting your own Internet access and email account throughout the course.

If after following these instructions you still have difficulty logging in, please call the help desk at 1-877-612-5381.
Addenda

Class Assignments: It is the student’s responsibility to make sure that all assignments are turned in on time. Late assignments will receive reduced grades due to tardiness. Grades will be decreased 10% for each day late.

Class Attendance: Students will have 8% deducted from their grades for every lab missed. Students will also have 8% deducted for tardiness.

Lab Attendance: If you find it necessary to miss a laboratory meeting, you should make arrangements by informing your instructor before or the day of the absence. It is up to the student to make up the laboratory work at home and during the next laboratory period.

Smoking Policy: As of January 1, 1992, Bergen Community College facilities are smoke free. Smoking is not allowed in any building or on campus.

Eating & Drinking: Eating and drink in the classrooms, lecture halls, laboratories, and passageways is forbidden. Eating and drinking are permitted in the cafeteria and vending areas only.

Faculty Absence: A daily listing of cancelled classes will appear in the glass case located outside the Evening Office (L-113). Another such listing will appear in the glass case adjacent to the Hotel / Restaurant bulletin board in East Hall. Students can consult these cases before going to class. If students find a class cancelled which has not been listed, they should report this to the Evening Office or the Divisional Dean’s office, A325.

Laboratory Safety: Students must wear protective eye wear, vinyl gloves and laboratory coats. No handheld devices are allowed at student work benches.

LABORATORY ATTENDANCE AND EXAM POLICY: NO MAKE-UP EXAMINATION IS GIVEN. Students missing an exam will have the comprehensive exam count twice. A student missing a second exam will receive a zero for that exam. No student missing more than three laboratory classes will receive credit for this course. If a student is constantly absent due to personal obligations and stops attending class, PLEASE OFFICIALLY DROP THE COURSE or else the student will receive an "E" grade.
Microbiology 104 Essays

Due with the first test

Compare and contrast Eukaryotic and Prokaryotic cells. Be sure to include all the eukaryotic organelles and any counterpart found in a prokaryotic cell.

Due with the second test

Discuss the innate immune response. Be sure to include information on complement, interferon, histamine, inflammation and a section on allergies.

Due with the third test

Compare and contrast DNA and RNA viruses. Go through the lytic and lysogenic cycles characterizing which are more virulent. Don’t forget to add a section on retroviruses and their specialized abilities. Also include a modification of Koch’s Postulates to work with viruses.

An Example of a prelab

Lab 15 - Gram Staining
Miss Lowe (your name not mine!)
Lab sec. 0011
date

Purpose: To distinguish Gram positive and Gram negative cell walls by use of the Gram Stain technique.

Materials: slides with heat fixed smears
Gram-staining kits
Bibulous paper
Fresh cultures of S. aureus, E. coli and B. megaterium.

Methods: prepare smear (as in previous lab)
1. crystal violet - 30 sec
2. grams iodine - 30 sec
3. alcohol/acetone rinse - 3x
4. safranin - 2 min
HOW TO STUDY SCIENCE

Here are some basic tips on how to study for a science class.

1. Keep a journal of how much you study every day. Even if you only put in five minutes, log that information. *Turn this information in with the first test* and it will help us discuss how you are doing in the course. Remember this is a 6 hour/4 credit lab/lecture science class. You will spend more time on this class than you would a 3 hour/3 credit class.

2. READ, READ, READ! Be sure and read your chapters before the lecture material is discussed in class. Note any words you do not understand and look them up. If you have questions jot them down. If the question isn’t answered in the lecture be sure to ask about it.

3. Always answer the review questions at the end of the chapter. The textbook will read differently than the way the professor talks. Test questions will come from the text as well as the lecture and discussion material.

4. Use the class discussions! What you see as important or even common sense the next person will ignore. You must use your classmates to help you study and you in turn will help them study too.

5. It can’t be helped. This is a science course and some facts will just have to be memorized.

6. If you look over your notes every day, even if you just skim them for 30 minutes, you will be able to stay on top of the course. You must keep up with the material. Look at the chapters and decide how long it will take you to read them. Then compare the lecture notes with the material in the chapters.

MICROBIOLOGY UNKNOWN RULES:
FOR ALL MICROBIOLOGY LABORATORY CLASSES

1. You cannot share unknowns. Everyone must have his or her own unknown.

2. If you are absent when unknowns are distributed, have a laboratory partner get one for you.

3. If you are absent and you cannot transfer your unknown, please ask a classmate to transfer it for you.

4. You must be present to do the physiological characteristics of your unknown. However, if you are not present you will only have one week to do the physiological characteristics of your unknown. If the work on your unknown is not completed by that time, you will receive a grade of 33% for that portion of the laboratory.

5. *THERE ARE NO EXCEPTIONS TO THESE RULES.*
STANDARDS OF CONDUCT:

Upon accepting admittance to BCC, all students acknowledge that while participating in activities on campus, they are governed by College rules and regulations, as well as those set be the Student Senate.

Each student is expected to exercise discretion, and act within the limits of decorum and propriety at all times and in all places. Students are accountable for behavior contributing to

1) danger to the safety and well-being of themselves or others;
2) a breach of College rules and regulations (see Student Handbook);
3) a disruption of the College’s regularly planned programs and activities, including classroom and laboratory sessions.

Any student who exhibits disruptive, threatening, or inappropriate behaviors will be asked to leave the classroom or lab immediately, and report to the Vice President of Student Services.

NOISE AND SOUND:

BCC values an environment conductive to learning. It is expected that students respect and support that concept. Noise created by electronic devices cannot and will not be tolerated. Students who disturb the operation of the College, including the classroom and laboratory, may be subject to disciplinary action. No electronic devices will be allowed at the student work benches to prevent contamination.

Please turn off the sound to all electronic devices before entering any classroom or lab. You will be asked to leave, if this disruption occurs, and report to the Vice President of Student Services.

I have carefully read and fully understand the above and the material in the syllabus.

Name:___________________________ Date:_____________

Print Name: ________________________________
COLLEGE POLICIES

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