

# MICROBIOLOGY LABORATORY

## SPRING 2014

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<u>Date</u>	<u>LABORATORY</u> <u>Topic</u>	<u>Lab Number</u>
Jan 14	Lab Protocol & Safety	Pages ix - xi
Jan 16	Microscopy, Survey of microorganisms	1,5
Jan 21*	Ubiquity of microorganisms, Aseptic technique	6, 8
Jan 23	Smear prep, Simple and Negative staining	10, 11, 12
Jan 28	Gram stain	14
Jan 30	Spore and Acid fast staining, Motility	15, 16, 17
Feb 4	<b>Quiz #1</b> , Pure culture technique, Effect of temp & pH on growth, Anaerobes	9, 19, 26, 28
Feb 6	Enumeration, complete previous labs	20
Feb 11	<b>Skills tests</b> , intro to culture maintenance & prep	18 (demo)
Feb 13	Fermentation tests	38
Feb 18	Hydrolytic tests	39
Feb 20	<b>Quiz #2</b> , Decarboxylase Rx, Biochemical tests	40
Feb 25	Complete previous labs	
Feb 27	WBC counts, Review for test	58

### SPRING BREAK March 1-9

<b>Mar 11</b>	<b>LAB TEST 1</b>	
Mar 13	Unknowns	36
Mar 18	Unknowns	36
Mar 20	Unknowns	36
Mar 25	Unknowns results , Phage lab	36
Mar 27	DNA ext. & PCR	
Apr 1	Transformation I, Gel & Gene Clean	
Apr 3	Transformation II, Oligodynamic effect, Alcohol and antiseptic sensitivity	31, 32, 34
Apr 8	<b>Quiz #3</b> , Conjugation I, Sequence Analysis, Water quality test	47
Apr 10	Conjugation II, Water quality, Staph ID	47, 52

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<b><u>LABORATORY</u></b>		
<b><u>Date</u></b>	<b><u>Topic</u></b>	<b><u>Lab number</u></b>
Apr 15	<b>Quiz #4</b> , Conjugation III, Propagated Epidemic, UV effects, Complete previous labs – gram stain for positive water quality	30, 47
<b>EASTER BREAK April 17-20</b>		
Apr 22	Bacteriophage I, Kirby-Bauer test, Food counts	33, 46
Apr 24	Bacteriophage II, Yogurt Prep, Alcohol conversion, Review session	51
<b>Apr 29</b>	<b>LAB TEST II</b>	

\*January 21 = Last Day to add or drop without a grade

February 28 = Last day to withdraw with W

**THE DEPARTMENT OF BIOLOGICAL SCIENCES STRONGLY SUPPORTS  
THE ACADEMIC HONOR CODE AS STATED IN THE STUDENT HANDBOOK AND  
CODE OF STUDENT LIFE AND WILL NOT TOLERATE ACADEMIC DISHONESTY**

## Grading:

### Laboratory Grade:

<b>Lab Tests &amp; Quizzes:</b>	<b>400 pts</b>
Tests – 150 pts ea	
Quizzes – 25 pts ea	
<b>Unknown Culture ID</b>	<b>200 points</b>
<b>Lab Notebooks</b>	<b>200 points</b>
<b>Lab Evaluation:</b>	<b>200 points</b>
Attendance – 100 pts	
Skills test – 100 pts	

**Total Points for Course** **TOTAL 100 % = 1000 points**  
**Grades:**

**A = 90 – 100 %**

**B = 80 – 89 %**

**C = 70 – 79 %**

**D = 60 – 69 %**

**F = > 60%**

**W = < 60 %**

**( +/- Grades will not be assigned in this course)**

### Lab Tests

Two lab tests will be given each worth 150 points. Test dates are located on the syllabus and will not be flexible. They will consist of a series of questions, short answer, used to evaluate your understanding of laboratory material.

## Unknown Culture ID

Identification of an unknown culture will be worth 200 points. Points will come from correct gram staining, and correctly identifying your culture using the techniques learned in the first half of lab. This is an individual activity meaning you cannot use your peers or your lab TA for help. All literature and on-line data may be used as well as the *Bergey's Manual of Determinative Bacteriology*, identification flow chart, which will be available in the lab.

## Lab Notebooks

Every student is responsible for keeping an organized lab notebook worth 200 points. Notebooks will randomly be collected throughout the semester for grading. Grading will be contingent upon the completion of the following standards:

### Before coming to class

- *Title and date.* Each entry requires a descriptive title and date with month/day/year, and lab exercise number.
- *Objectives.* Statement of the goals for the lab exercise in a few short sentences or bullets.
- *Methods/Procedures.* Brief description of the laboratory procedure to show that you have read the lab before coming to class. In the case that we are completing multiple exercises be sure to leave room in your notebook to add notes and drawings when needed.
  - Use of drawings and inclusion of data tables is required to make full points.

### In class

- *Results.* In this section you will be able to make notes while in lab and include specific data. Also draw pictures of specimen when needed unless part of "laboratory report".
- *"Laboratory Report"* section from each lab exercise in book must be completed in your notebook. This consists of questions and drawings. Please copy information into your spiral notebook and thoroughly complete each report. By writing this in your spiral notebook you will be able to sell back your lab manual.
- *Conclusion,* a brief description of what you learned and observed. List any difficulties you may have encountered, and state the results of your work. If the results were unexpected, reflect on why this may be the case. Remember, this is science and sometimes everything doesn't go as planned.

## Lab Evaluation

This evaluation will be based on attendance, preparedness, and participation (disinfect bench before and after, wash hands before and after, appropriate dress, etc.). Skill and efficiency of lab techniques will also be reflected in your lab evaluation points. "Skills tests" will include evaluation on how well you perform an aseptic culture, pure culture, streak plate, and gram stain that you will have learned in previous labs. Culture maintenance will prepare you for unknowns.

### Note:

1. **BIOL 425** is a stand alone lab meaning that it can be taken separate from the lecture. However to take the lab you must either be enrolled in the lecture, **BIO 425**, or have taken the lecture portion of the course previously. **BIO 246** lecture **will not** satisfy this requirement.
2. **Test dates** will not be changed except under extraordinary circumstances (e.g. hurricanes, snowstorms, etc).
3. **You are NOT allowed to drop or miss a TEST.** If uncontrollable circumstances prevent you from taking a test, you **MUST** notify the teaching assistant (e.g. telephone

and leave a message or email) with an acceptable excuse at or before the time of the test. The instructor reserves the right to define what is an acceptable excuse. General examples: **Simply not being prepared is NOT an acceptable excuse**, while sickness, family emergencies and transportation problems are generally sufficient excuses.

4. Please be sure to **turn off** your cell phones before laboratory starts and **during exams**. **Restroom breaks** are not allowed during exams.

5. Attendance in **laboratory is mandatory** and any absences could result in a lower lab grade. **Tardiness** is disruptive to the class and could result in lower evaluation scores.

6. A **lab coat** is required for every lab. Safety goggles or glasses will be worn for most labs. A set of colored pencils is needed for laboratory drawings. Sandals and open-toed shoes are not appropriate footwear in lab.

**TEXT:**

**Laboratory: Custom Lab Manual (ISBN-10: 0-39-023963-1) taken from H. J. Benson. Microbiological Applications** You must buy a new lab manual – used manuals are unacceptable! Manual are available in local bookstores. Do not order this manual online as the manual is customized for this course (Required)