

# **BIOLOGY 2065: Principles of Microbiology Lab**

## **Spring Semester 2015**

**Instructor:** Kim Jolley

**Office and Office Hours:** SC121, by appointment

**Phone and Email:** 632-2785 [kjolley@dixie.edu](mailto:kjolley@dixie.edu)

**Required Laboratory Manual:** Microbiology, Laboratory Theory & Application, 3<sup>rd</sup> edition,  
by Michael J. Leboffe and Burton E. Pierce

**Laboratory Schedule:** You should be registered in one of the following lab sections:

Sec 01 M, W 12:00-1:30 pm

Sec 02 M, W 2:00-3:30 pm

**This laboratory accompanies the BIOL 2060 lecture section. You must be registered for both lecture and lab.**

**Course Description:** BIOL 2065: Principles of Microbiology Laboratory is a prerequisite course for most health related programs such as nursing, dental hygiene, respiratory therapy and many other programs.

**General Education Objectives:** Through testing, written or oral reports the student will:

1. Explain and apply major concepts of a view of life, the cell, and the genetic basis of life.
2. Demonstrate knowledge of the process of science including asking testable questions, use inductive and deductive reasoning in forming hypotheses, and make reliable predictions.
3. Explain the objective of science and research including distinguishing among the natural sciences, liberal arts (humanities and fine arts), social and behavioral sciences and pseudo-science.
4. Compute ratios, proportions, percentages, decimals, fractions, frequencies, and elementary probabilities.
5. Perform successfully in a Bio-Safety Level 2 laboratory, and transfer that ability to a clinical setting elsewhere.

### Specific Course Objectives:

1. Demonstrate the ability to reason in a scientific manner and apply the scientific method in solving problems.
2. Apply proper safety procedures in the laboratory setting.
3. Apply the concepts of sterile technique when working with microorganisms (microbes).
4. Understand the proper disposal methods for microbes in the laboratory.
5. Demonstrate simple stain, gram stain, endospore stain, and capsular stain.
6. Demonstrate proper microscope technique including oil immersion.
7. Demonstrate the ability to evaluate antiseptics and disinfectants.
8. Demonstrate the ability to evaluate effectiveness of selected antibiotics.

**Disability Accommodation:** Students with medical, psychological, learning or other disabilities desiring reasonable academic adjustment, accommodations, or auxiliary aids to be successful in this class will need to contact the DISABILITY RESOURCE CENTER Coordinator (Baako Wahabu) for eligibility determination. Proper documentation of impairment is required in order to receive services or accommodations. DRC is located in the North Plaza Building. Visit or call 652-7516 to schedule appointment to discuss the process. DRC Coordinator determines eligibility for and authorizes the provision of services.

**Grading Policy:** The grade you earn in this laboratory will be based upon 800 total points to be distributed as follows:

23 lab assignments	@ 15 points =	345 points
10 weekly quizzes	@ 10 points =	100 points
1 midterm exam	@ 150 points =	150 points
1 final exam	@ 150 points =	<u>150 points</u>
	Total =	745 points

Final grades will be based on these ranges:

A = 93-100%	C+ = 77-79.99%	D- = 60-62.99%
A- = 90-92.99%	C = 73-76.99%	F = <60%
B+ = 87-89.99%	C- = 70-72.99%	
B = 83-86.99%	D+ = 67-69.99%	
B- = 80-82.99%	D = 63-66.99%	

**Instructor Expectations:** You are expected to be on time to your scheduled laboratory and ready to work. Please read the laboratory exercises BEFORE coming to the lab. This saves you, your lab

partners, and your lab instructor much frustration if you know what tasks are to be completed during the lab session and have an idea of how to budget your time.

If you are absent from your regularly scheduled lab, you should notify your instructor and, if possible, arrange to attend another lab section that SAME DAY that is doing the SAME EXERCISE you might have missed. Aside from this option, there are no makeup labs. Do not make a habit of lab switching. The labs are designed to accommodate 18 students. Please don't be upset if the lab instructor tells you she can't fit you into another lab if you are seeking a makeup situation. A listing of all lab sections, time slots, and instructors is included in this syllabus for your convenience.

**Assignments/Quizzes in Laboratories:** It is at the discretion of your lab instructor to give written assignments, quizzes, or a combination of both each week in lab. You may earn up to 15 points per lab session for lab assignments. This is consistent throughout all lab sections. Once you are oriented to the procedures and equipment to be used that day, then you are more or less free to complete the lab at your own pace **provided you do so within the 1 ½ -hour time block**. If you are unsure what you are doing at any time, please ask for help. This is the reason the lab instructors are here.

**College Withdrawal Policy:** Students may drop courses through **March 6th**. Dropping after this time requires approval from the Academic Appeals Committee. Therefore, if you miss this deadline or simply stop coming to lab, expect to see an "F" as your final grade.

**Academic Integrity:** Plagiarism, or claiming the work of others as your own, is considered cheating. Furthermore, if a student is observed looking on another student's exam, quiz or assignment, talking to another student during an exam or quiz, using notes or books not authorized for use during an exam or quiz, or in any other manner not observing the "code of conduct" as written in the Dixie State College catalog, disciplinary action will be undertaken.

**Laboratory Exams:** Two laboratory exams worth 150 points each will be given in the middle and at the end of the semester. Each student, regardless of which lab section he/she attends, will complete this lab exam to be taken on the dates outlined in this syllabus. **There will be no makeup or substitute laboratory exam**. However, if an emergency exists prior to the time of the lab exam, you MAY be given permission to take the exam in another section. It is your responsibility to coordinate action AND obtain approval from the instructor BEFORE showing up for the exam in a different section than your own. The midterm exam will cover material from the beginning of the course up to the time of the exam. The final exam will cover material presented since the midterm exam. Both exams will be of a practical and written nature, requiring you to identify and understand things you have observed, procedures you have carried out, different media you have used, etc.

**A Word of Warning:** It would be to your advantage to keep detailed notes of what you are doing, what you are seeing on the microscope slides, or the specific procedures to be followed in any given lab exercise. This information will come back to haunt you on the laboratory exams. Pay close attention to what you are doing. Write things down. Don't fool yourself into thinking you'll remember. There is a lot to remember in this lab! There will be no scheduled review for you to repeat any lab procedures; there simply isn't time in the schedule to allow for this. You have one shot at it during the lab. **Don't take this advice lightly**.

**About Cellular Phones and Pagers:** All cellular phones must be turned off during class. Be advised that if your phone rings, points will be deducted from your grade. If your job requires you to carry a pager, leave it on vibrate and then leave class without disturbing anyone.

**PLEASE NOTE: NO SANDALS, GUM CHEWING & YOU MUST WEAR A LAB COAT OR YOU WILL BE SENT OUT OF THE LAB DUE TO OUR BSL-2 LEVEL!**

**2015 SPRING SCHEDULE: The instructor reserves the option to change all dates.**

<b>Jan 12</b>	Lab rules, Lab safety, Pour plates, stuff	
<b>Jan 14</b>	EX 1-4 Aseptic technique, EX 1- 5 Streak Plate Isolation	
<b>Jan 19</b>	<b>NO CLASS – MARTIN LUTHER KING BIRTHDAY</b>	
<b>Jan 21</b>	Metric system fun – Hand-out with problems. (Not in lab book)	
<b>Jan 26</b>	EX 2-1 Ubiquity of Microorganisms	
<b>Jan 28</b>	EX 3-1 Brightfield and Darkfield Microscopy	
<b>Feb 2</b>	EX 3-4, 3-5 Smear prep, simple stains and Negative stain	
<b>Feb 4</b>	EX 3-6 Gram Stain	
<b>Feb 9</b>	EX 3-7, 3-8 Demo of Acid-Fast and Capsule stains, EX 3-9 Endospore Stain	
<b>Feb 11</b>	EX 4-4, 4-5 Selective & Differential Media	
<b>Feb 16</b>	<b>NO CLASS-PRESIDENT'S DAY</b>	
<b>Feb 18</b>	EX 6-1 Standard Plate Count	
<b>Feb 23</b>	EX 5-11, 5-12, 5-14 Starch and Protein Hydrolysis	
<b>Feb 25</b>	EX 7-8 Fermentation, yogurt making	
<b>March 2</b>	Study Guide Handout for Midterm exam, Ex 7-4 Biofilms- <b>HANDOUT</b>	
<b>March 4</b>	<b>Midterm Exam – Held in the lab, bring paper, no scantron</b>	
	<b>MARCH 9 -13 SPRING BREAK</b>	
<b>March 16</b>	Hand back mid-term, EX 5-4 Catalase test, EX 2-8,2-10 Oxygen Requirements	
<b>March 18</b>	Ex 5-24 Motility Test	
<b>March 23</b>	EX 2-8, 2-10 Effects of Temperature and Osmotic Pressure	
<b>March 25</b>	EX 2-12 UV Radiation	
<b>March 30</b>	EX 2-13 Antiseptics, EX 5-20 Antibiotics and 7-2 (Kirby-Bauer Method) SETUP	
<b>April 1</b>	EX 2-13, EX 7-2 and EX 5-20 READ OUT	
<b>THESE</b>	<b>April 6</b>	<b>EX 3-3, 3-4 Examination of Eukaryotic Microbes</b>
<b>WILL</b>	<b>April 8</b>	<b>EX 12-3 Protozoans of Clinical Importance</b>
<b>BE</b>	<b>April 13</b>	<b>EX 12-1 The Fungi – Common Yeasts and Molds</b>
<b>ON</b>	<b>April 15</b>	<b>EX 12-4 Parasitic Helminths</b>
<b>HANDOUTS</b>	<b>April 20</b>	<b>EX 6-5 Plaque Assay of Virus</b>

**April 22** Ex 7-4 Epidemic Simulation or Lab Field Trip

**April 27** Handout study guide for final

**APRIL 29 FINAL IN LAB-BRING PAPER ONLY**

**Click on this link - <http://www.dixie.edu/reg/syllabus/> - for comprehensive information on the Semester Dates, the Final Exam Schedule, and University resources such as the library, Disability Resource Center, IT Student Help Desk, Online Writing Lab, Testing Center, Tutoring Center, and Writing Center. In addition, please review DSU policies and statements with regards to Academic Integrity, Disruptive Behavior and Absences related to university functions.**