BIOL3317 General Microbiology
Laboratory Syllabus
Spring 2017

Instructor and Contact Information:

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Email: mcgowanm@temple.edu
Office Hours: Wednesday 12:00 – 2:00 pm, Friday 12:00 – 1:00 pm, or by appointment

Laboratory:

All Labs Meet in Room 128, BioLife Science Bldg.

Section 001: Thursday at 11:00 am – 1:50 pm
Section 003: Wednesday at 9:00 – 11:50 am
Section 004: Friday at 9:00 – 11:50 am

Laboratory Materials:

Customized Lab Manual: *General Microbiology Laboratory, BIOL 3317*. NOTE: This customized version is available at the main bookstore in the lower level of the Gittis Student Center.

A formal lab notebook is required. Please make sure the notebook is bound. Spiral notebooks are unacceptable.

Lab coats, gloves, and safety glasses will be provided. Regarding proper clothing, legs and feet must be covered. Anyone with exposed legs and / or feet will be denied entry to lab. You will be assigned a locker in which to store belongings other than lab-related materials.

Attendance:

Laboratory attendance is **MANDATORY**. You are permitted one (1) lab absence per semester due to a valid reason such as illness, injury, family emergency, or religious observance. If possible, try to make up the missed lab period during the same week. Otherwise, you will not receive credit for any work performed during that week of lab. Two (2) missed labs will result in a 20% final lab score deduction. Three (3) or more missed labs will result in your repeating the entire course. Also note, you **MUST** attend the lab section for which you are registered. You are only permitted to attend one (1) lab section for which you are not registered per semester. A 5% deduction will be taken from your total lab score for each additional occurrence. For instance, if you have a

total score of 300 but attended two (2) labs sections for which you were not registered, 15 points (5%) will bring your score down to 285. If this happened three (3) times, a 10% deduction (30 points) will bring your score down to 270 and so forth.

Lateness:

Please be prompt. Entering the room after lab has started is not only disruptive but may pose a safety hazard to your peers. If you arrive 10 minutes late, you will not be permitted to remain in the lab. If possible, you must then make-up the lab that week in another section or risk losing credit for any work performed that week. If you do not attend lab that week, you will be marked absent.

Preparation:

You must come to lab prepared by reading the assigned material beforehand. Students who come to lab unprepared are more liable to make mistakes and perhaps cause accidents.

Blackboard:

Please check Bb frequently. This site contains important information concerning lab grades, background and supplemental information, instructions for submitting assignments, etc….

Academic Honesty:

Academic dishonesty will not be tolerated in this course. The information given below regarding university policy on plagiarism and cheating may be found in the Temple University 2016-2017 Undergraduate Bulletin and can be accessed using http://bulletin.temple.edu/undergraduate/about-temple-university/student-responsibilities/

Academic cheating is, generally, the thwarting or breaking of the general rules of academic work or the specific rules of the individual courses. It includes falsifying data; submitting, without the instructor's approval, work in one course which was done for another; helping others to plagiarize or cheat from one's own or another's work; or actually doing the work of another person.

The penalty for academic dishonesty can vary from receiving a reprimand and a failing grade for a particular assignment, to a failing grade in the course, to suspension or expulsion from the university. The penalty varies with the nature of the offense, the individual instructor, the department, and the school or college.

Students who believe that they have been unfairly accused may appeal through the school or college's academic grievance procedure. See Grievances under Student Rights in this section.

Disability Resources and Services:

Any student who may need an accommodation based on a disability should contact the Disability Resources and Services (DRS) office as soon as possible. The website may be found at www.temple.edu/disability and the following is the contact information for the DRS office:

100 Ritter Annex
1301 Cecil B. Moore Avenue
Philadelphia, PA 19122
215-204-1280 (Voice) 215-204-6794 (Fax)
drs@temple.edu

Grading:

Your lab score comprises 30% of your entire course grade. It is based on six (6) criteria:

1. As a group (lab bench) you will submit a **worksheet** by the end of a particular lab period as directed by the instructor. Worksheets are designed to help you use critical thinking for self-directed analyses and assessments of the lab exercises at hand. Please note that all worksheets on specific topics precede corresponding quizzes.

2. Announced **quizzes** will be given at the beginning of the lab period. Make sure you arrive on time so that you will have the fully allotted time to take the quiz. At the end of the semester, your lowest quiz score will be dropped. NOTE: There are no make-up quizzes.

3. Your **technique grade** will be based on your ability to successfully perform a Gram stain as well as obtain isolated colonies using the dilution streak plate method. For both techniques, you are allowed to use your lab manual/notes.

   Regarding the Gram stain, you must heat-fix specimens, perform the staining procedure, and demonstrate proficiency in using the microscope by focusing the stained bacteria using the oil-immersion lens (100X). Note that the Gram stain procedure is still widely used in diagnostic labs. The ability to distinguish Gram positive from Gram negative microorganisms can aid in the identification of a particular organism and even impact appropriate treatments for infection.

   Successfully performing the dilution streak plate method will comprise the second half of your technique grade. You will dilution streak a mixed broth culture onto a TSA plate. Your score will be based on your ability to use aseptic technique to isolate colonies. This technique highlights the importance of obtaining “pure” cultures for further testing and analyses.

4. You are required to keep a **lab notebook**. You must submit your notebook for grading at mid-semester and on the last day of lab. Instructions on how to properly keep a notebook are posted on Bb and will be reviewed in lab.

5. You will be given a current **research article** to evaluate. A copy of the article will be posted on Bb along with ten (10) questions that you must answer for the written part of the evaluation. The **written critique** must be submitted through SafeAssign on Bb by the deadline. Your oral score will be determined by the **quality** of your **participation** in an active discussion of the article in lab.

6. You will have a **cumulative lab practical exam** at the end of the semester. Please use the study guide that is posted on Bb to help you prepare for this test. Also, the purpose of keeping a lab notebook is to help you organize your work in order to use it as a study tool for the practical exam.

Point Breakdown:	**Point Values:**
I. Worksheets	
6 Worksheets 10 pts. / worksheet x 6 worksheets	60
II. Lab Quizzes	
6 Quizzes (drop lowest score) 20 pts. / quiz x 5 quizzes	100
III. Technique	
1. Gram Stain	10
2. Dilution Streak Plate	10
IV. Lab Notebook	20
V. Evaluation of Research Article	20
VI. Lab Practical	80
TOTAL POINTS	300

COURSE SYLLABUS FOR BIOL3317
GENERAL MICROBIOLOGY LAB
SPRING 2017

Lab	Date	Topic
1	1/16-1/20	Introduction Laboratory Safety Brightfield Microscopy Motility Determination
2	1/23-1/27	Microscopic Measurements Smear Preparation Simple Staining
3	1/30-2/3	Gram Staining Spore Staining: Schaeffer-Fulton Method Acid-Fast Staining: Kinyoun Method Capsular Staining – Demonstration Flagellar Staining - Demonstration
4	2/6-2/10	Pure Culture Techniques Enumeration of Bacteria: The Standard Plate Count PCR – Crime Scene Investigation-Part 1 Blood Grouping – Crime Scene Investigation
5	2/13-2/17	PCR – Crime Scene Investigation-Part 2 Ultraviolet Light: Lethal Effects Evaluation of Alcohol: Its Effectiveness as an Antiseptic
6	2/20-2/24	Antimicrobial Sensitivity Testing – The Kirby-Bauer Method E-Test – Minimum Inhibitory Concentration Research Article: Written Evaluation and Oral Analysis
7	2/27-3/3	A One-Step Bacteriophage Growth Curve
8	3/6-3/10	Use of Bergey's Manual Physiological Characteristics: Oxidation and Fermentation Tests, Hydrolytic and Degradative Reactions, and Multiple Test Media *Enterobacteriaceae* Identification: The EnteroPluri-Test System

	3/13-3/17	**SPRING BREAK – NO LABS**
9	3/20-3/24	Bacteriological Examination of Water: Most Probable Number Determination and The Membrane Filter Method
10	3/27-3/31	The Staphylococci: Isolation and Identification Staph Latex Agglutination Test Kit
11	4/3-4/7	The Streptococci and Enterococci: Isolation and Identification Group A Strep Test Kit
12	4/10-4/14	Urine Culture Techniques Enzyme-Linked Immunosorbent Assay (ELISA) – HIV Simulation Kit
13	4/17-4/21	Fungi: Yeasts and Molds Protozoa
14	4/24-4/28	**CUMULATIVE LABORATORY PRACTICAL**

GENERAL MICROBIOLOGY LABORATORY, BIOL3317
SPRING 2017
DUE DATES

Week	**What's Due**
1.	N/A
2.	**Worksheet #1:** Microscopy, Motility Determination, Microscopic Measurement, Smear Prep, and Simple Staining
3.	**Quiz #1**: Microscopy, Motility Determination, Microscopic Measurement; Smear Prep, and Simple Staining
4.	**Worksheet #2**: Staining, Pure Culture Technique, The Standard Plate Count, PCR and Blood Grouping **Gram Stain Technique Grade**
5.	**Quiz #2**: Staining, Pure Culture Technique, The Standard Plate Count, PCR and Blood Grouping **Dilution Streak Plate Technique**
6.	**Worksheet #3**: UV Light, Evaluation of Alcohol, Antimicrobials, E-Test **Research Article: Written Evaluation and Oral Analysis**
7.	**Quiz #3**: UV Light, Evaluation of Alcohol, Antimicrobials, E-test
8.	**Worksheet #4**: Bacteriophage Growth Curve, Bergey's Manual, Physiological Characteristics, Multiple Test Media, Enterotube II System **Submission of Lab Notebook**
	SPRING BREAK – NO LABS
9.	**Quiz #4**: Bacteriophage Growth Curve, Bergey's Manual, Physiological Characteristics, Multiple Test Media, Enterotube II System
10.	**Worksheet #5**: Bacteriological Examination of Water: Most Probable Number and The Membrane Filter Method, The Staphylococci, and Staph Latex Agglutination
11.	**Quiz #5**: Bacteriological Examination of Water: Most Probable Number and The Membrane Filter Method, The Staphylococci, and Staph Latex Agglutination

12. **Worksheet #6**: The Streptococci and Enterococci, Group A Strep Test, Urinalysis, and ELISA – HIV Simulation

13. **Quiz #6**: The Streptococci and Enterococci, Rapid Group A Strep Test, Urinalysis, and ELISA – HIV Simulation

14. **Submission of Lab Notebook**
Cumulative Laboratory Practical