

BIMM 121, Laboratory in Microbiology, Fall 2015

Instructor: Dr. Gabriela Ring, gring@ucsd.edu

Office hours: Check calendar on TED for weekly office hour, or make an appointment.

Office Location: The Humanities and Social Sciences building (H&SS) 1145LB

Lecture: Tu, Thr 12:30 pm – 1:50 pm YORK 3010

Lab: Tu, Thr 3:00 pm – 7:00 pm YORK 2310, YORK 2332

Instructor Assistants:

C01 (YORK 2310), Jimmy Hoang Do, jhdo@ucsd.edu

C02 (YORK 2332), Ye Gao, yeg002@ucsd.edu

Course Structure:

This course will introduce you to the fundamentals of microbiology and allow you to explore the many ways in which microbes affect and are used in the world. We begin the course with a foundation in basic techniques such as sterile techniques, microscopy, methods of quantitating microbes, and preparing and examining stained slides. The remaining duration of the course will comprise two main units: a comprehensive look at bacterial physiology and the use of microbes in various aspects of our lives. Each of these units comprises several multi-day experiments and there will be considerable overlap in the execution, methodology, and analysis of data from each of these units. Throughout the course, you will also receive training in accurate data entry and analysis, scientific reasoning, and in clear and concise scientific writing.

Required Materials (needed by the first lab, bring to lab each day):

1. Lab Manual
2. Labcoat – must be to the knees
3. Eye protection (you may wear either safety glasses or goggles, but standard prescription eye glasses are not sufficient).
4. Lab notebook with carbon copies (bookstore or Grove general store)
5. Fine point Sharpie for labeling – get a dark color
6. Calculator – you cannot use a cell phone in lab!
7. Long pants and close-toed shoes are required in lab at all times – no skin on feet or legs should be showing
8. No eating and drinking in the lab

Attendance and Absences:

1. Your attendance is required at EVERY lab and through the entire lab period, until all the experimental work for the day is completed.
2. Absences will NOT be treated lightly. The labs are set up for groups of two or more and your absence will place an unnecessary burden on your partner. There are no make up labs and you will not be allowed in the lab on non-lab days or in the other Micro lab sections, although you may be asked to make up the work from the day you missed.
3. Documentation will be required for all unavoidable absences.
4. If you are likely to have interviews for graduate school, etc., please schedule them on non-lab days.
5. You need to inform both the IA and the instructor of any proposed absence. Only the instructor can decide whether or not the reason for an absence is sufficient to call it an authorized absence.
6. All absences without prior notification/permission from the instructor (not the IA) and the appropriate paperwork will be considered unauthorized.
7. **70-point penalty** for the first unauthorized, unexplained absence from the lab. If there is a second such absence, you will be asked to drop the course or will be given an F.
8. If you are ill on a lab day or have an emergency, e-mail or call (instructor or lab partner) before the start of the lab. If you are ill enough to miss lab you must go to the student health center and provide documentation of your illness.

Reading for the course:

All information pertinent to topics covered in class is in the manual and will be discussed in lecture.

- READ THE CHAPTERS BEFORE YOU COME TO LECTURE!
- When you are in the classroom, I will go over the basics as required, any fundamental concepts that you do find or might find difficult, that are important, or that are particularly exciting or newsworthy.
- Then you will go to lab and actually see all those tests and concepts in action.
- Then go back and quickly reread the material in light of the lecture and lab work and you will find that it becomes very clear since you are already familiar with most of it.

Course Website on Ted:

We will use TED to post announcements, syllabus, lectures, homework, calendar, experiment data, etc. Please check the site regularly and familiarize yourself with the information provided.

Lab Performance and Participation (Competency):

A portion of your grade will be based on participation in the lab, workshops, and computer labs. Lab techniques will also be evaluated in lab. Your attitude, cooperation with others, conscientiousness, work ethic, techniques and skill in the lab will contribute to your grade.

Subjective student evaluations will be based on the following criteria:

1. Pre-lab preparation
2. Careful management of lab procedures (e.g., sterile technique, proper waste disposal, experimental procedures, etc.)
3. Paying attention during instructions/introductions
4. Ability to adapt to unforeseen procedural changes
5. Caliber of thinking before asking questions
6. Scientific approach (e.g., proper use of notebooks, controls, experimental design)
7. Accuracy
8. Independence
9. Safety consciousness
10. General neatness in lab
11. Contribution to your group and cooperation with classmates
12. Integrity

Please note: You will be expected to get into the habit of methodical, well-planned and organized work by the mid-term. This will help you with the experiments in the second half of the course.

IClickers:

This lab will introduce you to new material and concepts. To increase the depth of your understanding and to give you practice in applying these concepts, we will discuss these concepts from different perspectives in class. Over the last few years, student feedback has shown that class participation has a very positive impact on performance in lab reports and midterms.

We will be using Clickers in class as part of the learning process and to help students stay on top of the concepts and their applications. Participation in the lecture discussion is worth 5.5% of your grade and requires that you click in at least 75% of the time in each lecture for at least 75% of the lectures. i>Clickers are available for purchase at the UCSD bookstore. Once you have purchased your Clicker, you can register it on Ted.

Lab Notebook:

The notebook must be bound and have carbons. It must have a table of contents, so on the first lab day leave several blank pages at the beginning of your notebook. Number your pages. Entries should be made in chronological order and EVERY day. Each day's entries on each experiment should begin with a brief (1 – 2 sentences) summary of work done on the same experiment the previous day.

Periodically the TA's will collect the carbons from your notebooks, without prior notice. They will also check your table of contents. So keep your notebooks up to date!

How to use your notebook:

Table of contents – update everyday – leave at least 4-5 pages for updating

Start a new page each day for each new experiment:

Purpose of experiment

Procedure

Outline or page from which protocol was taken

Note any changes

Note who did which part of the procedure – who inoculated controls, etc.

Note which organisms you used – name and species of the controls, etc.

Errors

Observations/results

Write – in detail

Draw – enlarged, labeled, and including as much detail as possible

Questions and connections

Conclusion or summary

Answer any questions in the manual or that were raised in class.

Number your pages

You may leave space to complete an experiment. When the experiment is complete and all observations have been made, cross off any blank pages or parts of pages following the written portion.

Homework and Lab report Deadlines and Submission:

1. A hard copy of your homework is due in the first 10 minutes of the lab period of the day on which your report is due. **All homework assignments submitted more than 10 minutes after start of lab are automatically late and lose 10% of the points. Any homework submitted the next calendar day would lose 50% of the points. No homework will be accepted after the second calendar day.**
2. There is only one lab proposal and it is due on the last week of the quarter (see due date). Any lab proposal turned in one day late will lose 50% of the points. Any lab proposal turned in more than one day late will not be graded.
3. In addition to the hard copy, sometimes you will be required to submit an electronic copy to Turnitin.com by the due date. A link to the e-submission website will be provided on Ted. Failure to submit on Turnitin.com will result in 0 (zero points) recorded for that homework/report. Additional points may be taken for late electronic submissions.

Students agree that by taking this course all required papers would be subject to review for textual similarity by Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the terms of use agreement posted on the Turnitin.com site.

4. Although you will be doing the experiments and collecting data with partners, you must hand in your own homework and paper, *written in your own words*. **Copying someone else's lab paper or homework is cheating.**

Grading Scheme:

Evaluation criterion	Points
Clicker	55
Lab notebook	42
Competency	70
Homework 1-5	225
Quizzes	108
Midterms	420
<u>End of quarter concept analysis paper (HW6)</u>	<u>80</u>
Total Possible	1000

HW#	Description	Due date	Points
EC1	Pre course safety survey	Thurs Sept 24	(2.5)
1	Library tutorial	Thurs Oct 1	22
2	Growth curve	Tues Oct 20	27
3	Scientific Method	Tues Oct 27	38
4	Dilution problems	Tues Nov 3	32
5	Unknown analysis	Thurs Nov 19	106
EC2	Post course safety survey	Tues Dec 1	(2.5)
Total			225

Other important dates:

- MT1 (in lecture): Thurs Oct 15th
- MT2 (in lecture and/or lab): Thurs Nov 12th
- MT3 (in lab): Thurs Dec 3rd
- End of quarter concept analysis paper (HW6): Thurs Dec 3rd

Quizzes:

Will be held in the first 10-15 min of lab. Please come on time since you will not be given extra time if you are late. We will have 6 quizzes each worth 18 points for a total of 108 points. An extra quiz will be offered to make up for any missed quizzes since there will be no make up quizzes. Students who have already taken all 6 quizzes may also choose to take the extra quiz and drop the lowest score of the 7 total quizzes.

Quiz 1: Tues Sept 29th

Quiz 2: Thurs Oct 8th

Quiz 3: Thurs Oct 22nd

Quiz 4: Thurs Oct 29nd

Quiz 5: Thurs Nov 5th

Quiz 6: Tues Nov 17th

Extra quiz: Tues Nov 24th

Most Likely Grade Distribution:

A = 90% - 100%

B = 80% - 89.9%

C = 70% - 79.9%

D = 60% - 69.9%

F = below 60%

Regrade Requests:

All regrade requests should be submitted in writing within one week of receiving the graded material.

University Policy on Integrity of Scholarship:

The principle of honesty must be upheld if the integrity of scholarship is to be maintained by an academic community. The University expects that both faculty and students will honor his principle and in so doing protect the validity of University grading. This means that all academic work will be done by the student to whom it is assigned, without unauthorized aid of any kind. Instructors, for their part, will exercise care in planning and supervising academic work, so that honest effort will be encouraged.

Student Responsibility:

Students are expected to complete the course in compliance with the instructor's standards. No student shall engage in any activity that involves attempting to receive a grade by means other than honest effort; for example:

- No student shall knowingly procure, provide, or accept any unauthorized material that contains questions or answers to any examination or assignment to be given at a subsequent time.
- No student shall complete, in part or in total, any examination, or assignment for another person.
- No student shall knowingly allow any examination or assignment to be completed, in part or in total, for himself or herself by another person.
- No student shall plagiarize or copy the work of another person and submit it as his or her own work.
- **If any work is plagiarized from that of another student, both students will be reported to the Office of Academic Integrity, even if one of the students has graduated already. Remember that most graduate schools check the undergraduate records for any indications of dishonesty before awarding a degree.**
- No student shall alter graded class assignments or examinations and then resubmit them for regrading.

- No student shall submit substantially the same material in more than one course without prior authorization.

Your homework and paper for the class must be independently written, *i.e.* **your own ideas in your own words**. While discussion of data among lab partners is encouraged, each student must independently complete all text, references, figures, graphs, and tables. The submission of homework or papers by lab partners that contain shared work is forbidden. *Both* students will be held accountable. The exception is when a figure or table contains the raw data that is supplied to each member of the group (*e.g.* absorption spectra or colony counts). In this case the labeling of that figure must be done independently.

Because all quizzes, exams, homework and the paper are required for satisfactory completion of this course, any student caught cheating on a quiz, exam, homework or paper will be given a failing grade for the course and referred to the Office of Academic Integrity for administrative discipline.