BIMM 121- Laboratory in Microbiology
Course Syllabus

Instructor: Giorgia Pirino, Ph.D. Email: gpirino@ucsd.edu
Office: H&SS 1145F #A
Office Hours: Thursday, 6:30-7:30PM. Location: York 2300. Additional office hours may be scheduled by appointment only. You are encouraged to take advantage of office hours. Office hours function as a relaxed forum to ask questions and discuss course content. *Office Hours will start in week 2 (Thursday, April 13th).*

Instructional Assistants: Alexandra Chun (archun@ucsd.edu): section B01, 2:30 PM-6:20 PM; Vince Garin (vgarim@ucsd.edu): section B02, 2:30 PM-6:20 PM.

Course Time and Location
Lecture: Tuesday & Thursday, 9-10:50 AM in York Hall 4080A;
Lab B01: Tuesday & Thursday, 2:30 PM-6:20 PM in York 2310;
Lab B02: Tuesday & Thursday, 2:30 PM-6:20 PM in York 2310.

Course Description

This course is designed to illustrate processes central to microbiology and to familiarize students with skills required for handling, working with, and characterizing different microorganisms. Emphasis will be on sterile techniques, cultivation of different microorganisms, their morphological and biochemical characterization, their physiology, antibiotic susceptibility profiling, tools use for identifying unknown bacteria. At the end, students will be able to appreciate microbes' involvement in everyday life. Throughout the course, students will receive training in accurate data entry and analysis, scientific reasoning, and scientific writing.

Textbook

Custom manual available through University Readers.

Course Point Breakdown	**Points**	**%**
Competency	70	7.0
Lab Notebook	42	4.2
Class Participation	56	5.6
Class discussion (18 points)		
iClickers (18 points)		
Facebook page (20 points)		
Homework	305	30.5
Quizzes	108	10.8
Midterms	419	41.9
Total Points for the course	**1000**	**100**

Regrade Requests:

All regrade requests should be submitted in writing *within 5 days* of receiving the graded material. Please check the regrade policy on TritonEd for more information.

Equipment:

For this lab you will need to purchase:

- A lab notebook (bound notebook, regular or spiral bound). Carbon notebook not necessary. Loose-leaf binders not allowed.
- A lab coat
- Eye protection (safety glasses preferred, standard prescription eye glasses are not sufficient).
- A Sharpie permanent marker pen, preferably fine point (not extra fine or regular)

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. Attendance in the lab is **mandatory**. 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. All absences without prior notification/permission and the appropriate paperwork will be considered unauthorized.

6. **50-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.
7. If you are ill on a lab day or have an emergency, e-mail or call (instructor, IA, 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.
8. 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.

Reading for the lab

Reading ahead of the course:
I will assume that you all have a basic understanding of, and reasonably good memory of the following from lower division bio or form high school. If you don't remember, you may wish to read ahead:

- Scientific Method: brush up on this concept – there are several online sites, including Wikipedia, that do a good job of explaining dependent, independent, and controlled variables as well as the difference between a control experiment and a regular experiment.
- Definition of microbes and an understanding of the different groups of microbes (e.g. bacteria, fungi). You are not required to memorize all the names – you should, however, have at least a basic idea as to the types of organism included in each category
- Eukaryotic vs. prokaryotic cells structure.

Reading during the course:

- Read the chapters before you come to lecture. After week 1, I will post guidelines to reading the chapters in the folder under "Assignments & Lessons", labeled "Readings" on TritonEd
- 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.

As often as possible, I will give you questions/problems to think about that should apply the concepts you learned in class. Thinking about and attempting to answer these questions and participating in any classroom/lab discussion is the best practice you can have for midterms, lab reports, and practicing science in general.

Lab Performance and Lab Participation (Competency)

In addition to quizzes, midterms, lab reports and homework assignments, student evaluations will be based on the following criteria:

1. Lab techniques will be evaluated in class
2. Lab workshop participation

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. Ability to adapt to unforeseen procedural changes
4. Caliber of thinking before asking questions
5. Scientific approach (e.g., proper use of notebooks, controls, experimental design)
6. Accuracy
7. Independence
8. Safety consciousness
9. General neatness in lab

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.**

Notebook

A spiral bound or composition notebook is OK. All notebooks should have a table of contents and should be handwritten 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.

How to use your notebook (further instructions will be provided in the lab)

- 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
  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.

Midterms

There will be 3 midterm exams throughout the course (see schedule). Midterm exams will consist mostly in short answer-questions with an emphasis on lab topics. Students may use the lecture slides and lab manual as a guide to see what topics to focus for the two exams. *In order to pass the course, students must have a C- average grade for the three midterm exams.*

Homework and Lab report Deadlines and Submission:

1. A hard copy of your homework is due in the first 5 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 the Monday of finals week. 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 of the assignments/report, you are required to submit an electronic copy to Turnitin.com. A link to the e-submission website will be provided on Ted. Failure to submit on Turnitin.com will results in 0 (zero points) recorded for that report. Check the deadline of the Turnitin.com submission and make sure you adhere to it. 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. Some homework assignments also require Turnitin.com assignments.
4. Additional points may be taken for late electronic submissions.

Assignments

Homework# (HM)	Description	Due date	Points
Extra Credit (EC)	Pre course safety survey	Tue Apr 4	(3)
Day 1 activity(D1)	Scientific Method	Tue Apr 4	20
HM 1	Library tutorial	Tue Apr 11	25
HM 2	Simple dilutions	Thu Apr 20	20
HM 3	Growth curve	Tue May 2	35
HM 4	Complex dilutions	Tue May 9	25
HM 5	Unknown analysis	Tue May 30	100
Extra Credit(EC)	Post course safety survey	Fri Jun 9	(3)
End of Quarter:	**Concept analysis paper**	**Mon Jun 12**	**80**
Total			**305**

Exams
Midterm 1 (in lecture): Tue Apr 25st
Midterm 2 (in lecture): Thu May 18th
Midterm 3 (in lab): Thu Jun 8th

Quizzes
Quiz 1: Thu Apr 6th
Quiz 2: Thu Apr 13th
Quiz 3: Thu Apr 27th
Quiz 4: Thu May 4th
Quiz 5: Tue May 16th
Quiz 6: Thu May 25th
Extra quiz (Q7): Thu Jun 1st

Quizzes begin on the first Thursday of the quarter (week 1). Quizzes will be held in the first 15-20 min of lab. Please come on time since you will not be given extra time if you are late. Bring a calculator, unless otherwise instructed. 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.

Class Participation
Participation in class is very important. The classroom should be active all week, not just during class hours. Student class participation should incorporate responses to their peers, their opinions, pertinent information regarding subjects covered in class, from microbiology topics that students have read, and examples from their experience. The distinguishing feature of a well done class discussion might include an objective and critical analysis of lecture notes, reading

assignments and what you have experienced. *Students should seat next to their team members during lecture to facilitate discussion.* Class participation points will be assigned via 3 ways: iClickers (see below), Facebook (see below), and class discussion (see below).

Class Discussion
Students will receive points for participating, which implies discussion within their team and other classmates, NOT for giving a correct answer. In the spirit of scholarly discussion, the instructor expects responses and viewpoints that agree and disagree with others as long as they apply to the topic and are respectful. In our learning model, the heart of active learning occurs through discussions that help students test their ideas, reinforce what they have learned, and share resources with others in the class. Students who participate in discussion (see above) and are present for 85% of the lectures will receive full credit.

iClickers
To facilitate class discussion, we will use iClickers during lecture. Students will receive points for clicking, NOT for giving a correct answer. Students who participate in iClickers and are present (clicking) for at least 85% of the lectures will receive full credit.
We will start recording iClickers participation in week 1. iClickers are available for purchase at the UCSD bookstore. Once you have purchased your Clicker, you can register it on TritonEd – go to the tools section and look for the iClicker registration link. I strongly recommend the i>Clicker 2 as it is very convenient. Older versions of i>Clicker are acceptable if you already have one, but you may need to reset your clicker every time it goes into sleep mode. **Do NOT count on sharing a clicker with another student in the same quarter as the software only records scores for one student, even if both of you are in different classes. After registration, your iClicker is linked to your name on the class roster. Therefore, sharing iClickers is illegal.**

Facebook page
Our Facebook page should work as a message board: students may post/answer questions on the Facebook page. This will provide instant clarification to the entire class. Students who participate **actively** to the class' Facebook page receive points that will count toward the final grade. Active participation includes, but is not limited to, posting comments, scientific articles, answering questions posted by other classmates, etc. during the entire course. Students receive points at the end of each week (starting at the end of week 1; max 2 points per week) and will be added at the end to generate the final grade for the Facebook participation. Here is the link to the Facebook page: https://www.facebook.com/groups/1237317173052102/

Regrade Requests:

All regrade requests should be submitted in writing within 5 days of receiving the graded material. Please check the regrade policy on TritonEd for more information.

Course Website/TritonEd

This course is on TritonEd (https://tritoned.ucsd.edu) and should automatically appear on your TritonEd account as soon as you register for the class. We will use TritonEd to post information on experiments, exams, schedules, readings and practice material, experimental data, report guidelines, etc. This website will also be used to post any announcements that pertain to the entire class. Please check the site regularly and update yourself on the information provided.

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.

Accommodations/Special needs

Anyone who has any special needs associated with health or other issues that affect your ability to take this class or that require any special accommodation should tell me on or before the first day of lab. Such special needs include allergies, immune challenges, pregnancy, or any other situations that might affect your safe functioning in this lab. Please do not hesitate to bring any questions or issues to our notice. Our primary concern is your safety in this lab. If you have any questions or doubts, please feel free to contact me or to ask the Student Informational Services.