BIMM 121 Laboratory in Microbiology
Spring 2012

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Office hours: Mondays 1-2 pm. Location: 4070C York Hall

Lecture: Tuesday/Thursday 8:00 – 9:20 in PCYNH 122 (Pepper Canyon Hall, by the Gilman Parking Structure)

Labs: York 2310 and 2332
Tuesday/Thursday: 9:30 am – 1:30 pm
Wednesday/Friday: 9:00 am – 1:00 pm

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 our lives. 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 four main units: a comprehensive look at bacterial physiology, understanding the complex microbial community of soil, metagenomics as a tool in exploring complex communities, 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.

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 (you may wear either safety glasses or goggles, but 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. 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 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.

Lab report Deadlines and Submission:

1. A hard copy of each lab report is due in the first 10 minutes of the lab period or the first 20 minutes of the lecture period of the day on which your report is due. Check with your instructor and with the Homework Schedule on Ted as to where the report should be turned in. Reports turned in more than 10 minutes after the start of class will be considered late. Penalty for late reports will be 10% for each day late.
2. In addition to the hard copy of the 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.

Turnitin submission is **not required for Homework** assignments are not required to

3. Additional points may be taken for late electronic submissions.

Regrade Requests:

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

Grading Scheme

Quiz/Report/Midterm	Points
Classroom evaluation	50 points
Notebook checks	20 points
Techniques	10 points
TA eval	10 points
Lecture participation	10 points
Quizzes	80 points
Homework	90 points
Homework – data analysis	50 points
Lab Reports (2)	180 points
Lab report 1: Unknown	
Lab report 2: Enrichment & Metagenomics	
3 Midterms	250 points
Total	**700 points**

Most Likely Grade Distribution

A = 90% - 100%

B = 80% - 89.9%

C = 70% - 79.9%

D = 60% - 69.9%

F = below 60%

Notebook:

Spiral bound or composition notebook is OK. All notebooks should have a table of contents (handwritten OK) 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

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.

Lab Performance and Participation

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:

3. Pre-lab preparation
4. Careful management of lab procedures (e.g., sterile technique, proper waste disposal, experimental procedures, etc.)
5. Ability to adapt to unforeseen procedural changes
6. Caliber of thinking before asking questions
7. Scientific approach (e.g., proper use of notebooks, controls, experimental design)
8. Accuracy

9. Independence
10. Safety consciousness
11. 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.**

Course Website

This course is on Ted (https://ted.ucsd.edu) and should automatically appear on your Ted account as soon as you register for the class. We will use Ted to post information on experiments, exams, schedules, readings and practice material, experimental data, report guidelines, etc. We strongly encourage you to use the Discussion board to post questions or answers to questions and to use it as a forum for exploring the material. The TAs and I will routinely check this website and answer any questions but feel free to respond as well. 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.

Homework Assignments
With midterm and report due date info

General guidelines: There will be 9 homework assignments during the quarter. Most homework will be posted on Ted, at the latest by Tuesday morning. All homework, except HW 4 and HW7 will be due in lecture on the specified Tues. HW4 and HW7 will be due on Thursdays to accommodate other tests/reports. Work submitted after the first half hour of lecture will be considered late and will automatically receive only 50% credit. Descriptions of the homework assignments, the date of posting, due dates, and the point values are given below. ***Midterms, lab report due dates, and workshop dates are listed in italics.***

Homework # and name	**Description**	**Points**	**Date material/guidelines posted**	**Date due**
HW 1: Library pre-workshop survey	A brief anonymous online survey to assess student familiarity with course and with utilization of UCSD Library resources. Survey to be taken and submitted online	10	Fri March 23rd	Tues April 3rd
HW 2: Data organization and representation	Reorganize, analyze, and represent raw data in the form of a table and figure	10	Tues April 3rd	Tues April 10th
HW 3: Reading, summarization, annotation	Read and understand the assigned article. Provide summary and annotate the specified number of references	10	Tues April 10th	Tues April 17th
Data Analysis Workshop	***3 hour workshop to learn the fundamentals of data analysis and begin work on Lab Report 1***			***Thurs/Fri April 19th/20th***
Midterm 1	***Midterm on listed topics. In lecture***			***Tues Jan 31st***
HW 4: Online library tutorial	Complete online library tutorial and associated online quiz	20	Tues April 3rd	Tues April 24th
Library Research Workshop	***90 minute hands on workshop to go over library research methods***			***Thurs/Fri Feb 2nd/3rd***
HW5: Water analysis	**Water contamination data analysis**		**Work begun April 19th/20th**	**Thurs/Fri May 3rd/4th**

HW 6: Dilution	Complete and turn in dilution problem set	10	Tues May 1st	Tues May 8th
Midterm 2	***Midterm on listed topics in lecture or lab***			***Tues/Wed May 15th/May 16th***
HW 7: Worksheets	Complete and turned in assigned worksheets based on daily reading	10	Given in lab (not posted on Ted) Tues May 8th/Wed May 9th	Thurs/Fri May 17th/May 18th
Flow chart	***Create flow chart to facilitate easy identification of genus of unknown organism.***	***Inc in report***	***Thurs/Fri May 15th/16th and 17th/18th***	***Due with Lab Report 1***
Lab Report 1	***Identification of unknown organisms***			***Thurs/Fri May 24th/25th***
HW 8: Growth curve	Plot data obtained from class experiment	10	Tues/Wed May 22nd/23rd	Tues/Wed May 29th/30th
HW 9: Library post-workshop survey	A brief anonymous online survey to assess student improvement in library research skills following Library workshop	10	Tues May 8th	Tues June 5th
Midterm 3	***Topics as listed. In lecture, beginning at 7:30 am***			***Thurs June 7th***
Lab Report 2	***Mon of finals week***			***Mon June 11th – 1 pm***