BIMM 121- Laboratory in Microbiology - *Spring 2023 edition*

Course Syllabus*

Instructor: Giorgia Pirino, Ph.D. Email: gpirino@ucsd.edu
Please include BIMM121 your full name, ID, and IA name in all emails to Dr. Pirino

Instructional Assistants: Andrew Quach (a6quach@ucsd.edu) and Theodore Vuong (tqvuong@ucsd.edu)

Course Time as in the Schedule of Classes
Lectures: Tuesdays & Thursdays, 8:00 AM-9:20 AM in York 4080A
Labs: Tuesdays & Thursdays, 9:30 AM-12:20 PM in Tata 2101 (C01) and Tata 2102 (C02)
Dr. Pirino's office hours: Mondays, 10:30-11:30AM via Zoom. Office hours will start in week 2.

Course Description
This course is designed to illustrate processes central to microbiology and familiarize students with skills required for handling, working with, and characterizing different microorganisms. Emphasis will be on microbial ecology, microbial genetics, microbial physiology, and microbial evolution. Through inquiry-based experiments, students will be able to appreciate microbes' involvement in health, industry, the environment, and everyday life. Throughout the course, students will learn how to work with live microbes at the bench as well as scientific reasoning, scientific writing, and will analyze microbial genomes via bioinformatics.

Textbook
BIMM121 Lab Manual, author Katherine Petrie. Available at the UCSD Bookstore.

Course Website/Canvas
This course is on Canvas (https://coursefinder.ucsd.edu) and should automatically appear on your Canvas account as soon as you register for the class. We will use Canvas to post information on experiments, homework, quizzes, 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.

Lectures & Lab

1. A*ttendance in lecture is not mandatory,* and there are no points associated with attending them.
2. Even though students may watch lectures asynchronously, they are still responsible for the material discussed in lecture and required to submit assignments by the deadline. No exceptions!
3. **Labs are mandatory***,* thus*, lab attendance is required* and will contribute to your grade. You will document each lab's accomplishments in a daily lab notebook, and the lab assignments are based on the work done in lab throughout the quarter.
4. If you have to miss *one* or *two* lab sections for unforeseen circumstances, contact Dr. Pirino right away, within 24 hours. Documentation must be provided within the same day of you absence. You will still be responsible for the material you missed. If your reason is approved by Dr. Pirino (i. e. dire emergencies, illness that prevents you to attend the lab, Covid-19 hospitalization), you will be given an alternative way to make up the points missed in lab. IAs cannot excuse you for missing a lab, only Dr. Pirino can.
5. However, **anytime ill students are concerned that they would endanger others by attending lab, please email Dr. Pirino as soon as possible to discuss your situation**. There are exceptions to the general rules.
6. Concurrent enrollment in another class, conflicting exams for other classes, or graduate school/job interviews do not constitute a reasonable excuse, and will be considered unexcused absences.
7. Students who are more than 10 minutes late to lab, leave the lab meeting before their team finishes the work for the day, or before the IA dismisses the class, will be counted absent for the day. Any *unexcused* absence will result in a 40 point-penalty.
8. If illness or family emergencies force you to miss too many labs (more than two), consider taking the course in a different quarter.

Course Point Breakdown	**Points**	**%**
Lab Citizenry & Professionalism	12	6
Lab Competency & Lab Practicum	4	2
Lab Notebook	24	12
Oral presentations	20	10
Homework	60	30
Exams	80	40
Total Points for the course	**200**	**100**

Grading Scale

Letter Grade	%	Letter Grade	%
A	**(93.0-100%)**		
A-	**(90.0 - 92.99%)**	**B+**	**(87.5 - 89.99%)**
B	**(83.0 - 87.4%)**	**B-**	**(80.0 - 82.99%)**
C+	**(77.5 - 79.99%)**	**C**	**(73.0 - 77.4%)**
C-	**(70.0 - 72.99%)**	**D**	**(60.0 - 69.99%)**
F	**(X < 60%)**		

Final grades are calculated on a straight scale and they are not curved. IAs will alternate grading of assignments among the lab sections.This grading system allows fairness among the lab sections and usually excludes the need of normalizing final grades among lab sections.

Regrade Requests:

All regrade requests should be submitted in writing *within 5 days* of receiving the graded material.

Lab equipment:

For this lab you will need to purchase:

- A lab coat and proper lab attire. Failure to do so will consist in subtraction of points (at least 2 points per lab) and students will be sent home for the day. No exceptions!
- A well-fitted mask is required in the lab as in all indoor classrooms/instructional settings. No exceptions!
- A KN95/N95 masks is strongly recommended.
- Eye protection (safety glasses preferred, standard prescription eye glasses are not sufficient) must be worn all the times while in the lab, unless otherwise instructed. You may want to consider anti-fog safety glasses; the Division has tested and recommends PyramexTM S2510ST with Ztek antifog, which can be found on Amazon.
- A Sharpie permanent marker pen, preferably fine point (not extra fine or regular; avoid red)
- A lab notebook (bound notebook, regular or spiral bound with carbon). Carbon notebook (or any notebook that can copy over) are necessary. Loose-leaf binders are not allowed

Lab notebook:

Complete and organized lab notebook entries are a critical part of effective work in a research lab. As such, we expect students to practice good lab notebook entry habits. Information on how

to keep a complete and organized lab notebook will be provided by the first lab of week 1. *Lab notebook will be regularly checked and graded.*

Please follow the guidelines posted in Canvas > Administrative for tips on how to fill out your lab notebook properly. We will have 7 notebook checks, but only the best 6 scores will count toward the final grade.

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 biology or from 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/group and an experimental group.
- Definition of microbes and an understanding of the different groups of microbes (e.g. bacteria, fungi, viruses). You are not required to memorize all the names – you should, however, have at least a basic idea as to the types of organisms included in each category
- Eukaryotic vs. prokaryotic cells differences
- Metabolic pathways
- Metric system

Reading during the course:

- Read the manual before coming to lecture and lab.
- 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 (I will try my best to synchronize lectures with the lab whenever possible)
- Then, you will go to lab and actually see all those experiments and concepts in action.
- At home, after lab, go back and read your notes 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 quizzes, lab reports, and practicing science in general.

Lab Performance, Lab Participation & Lab Practicum

Lab techniques will be evaluated in class. These competency tests (except the formal lab practicum) will be unannounced.

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, dilutions, 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, experimental design)
6. Accuracy
7. Independence
8. Team work
9. Safety consciousness, including proper PPE
10. General neatness in lab
11. Overall professionalism during the course

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.**

Lab Practicum

Lab practicum will be held during regular lab (date to be announced). All students will participate in a hands-on exercise requiring skills obtained while performing various experimental procedure throughout the quarter.

Exams

There will be two exams throughout the course (see Lab Schedule). There are no make up exams. However, in case of a dire emergency, after review by the instructor, the student may be granted an **oral exam** as a substitution.

Homework/writing assignments - Deadlines and Submission:

1. All homework/writing assignments will be submitted as electronic copies to Canvas, which will automatically submit them to Turnitin.com. All homework assignments must be submitted on time to be eligible for full credit.
2. **All assignments submitted after the deadline will receive a penalty. Any submission within the first hour past the deadline is automatically late and loses 20% of the points. Any homework submitted after the first hour past the deadline and within 24 hours from the deadline will lose 50% of the points. No homework will be accepted after the second calendar day.** This policy apply to any assignment in the course.
3. It is your responsibility to verify that the submission has been successful. Do not procrastinate, since unforeseen circumstances may occur (computer problems, illness, Canvas not working, etc.). Check the deadline of the assignment submission and make sure you adhere to it. *Students agree that by taking this course all required assignments*

would be subject to review for textual similarity by Turnitin.com for the detection of plagiarism. All submitted assignments will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers; student names will never be stored in the Turnitin database. Use of the Turnitin.com service is subject to the terms of use agreement posted on the Turnitin.com site.

Class Participation

Your participation and professionalism will be evaluated throughout the course, which includes but is not limited, to one-on-one interactions, team work, mastering of lab techniques, electronic communication, contributing data to class data sets according to deadlines, asking questions, answering questions, and follow-up conversations on grades, if apply.

Professionalism and Lab Citizenry

In addition to exams, presentations, and homework assignments, student evaluations will be based on a series of criteria. Some examples are listed below:

-Developing deeper insight into course material, concepts, biology, and/or society in general

-Working collaboratively to improve in skill building and future opportunities and contributing to an inclusive learning environment

-Learning conceptually and meaningfully why full credit was not awarded for an assignment

-Clarifying course material that facilitates deeper learning

-Reporting errors or problems in class, on assignments, or for other course material

-Arriving on-time to lab sessions and being prepared to work in lab

- Pre-lab preparation

- areful management of lab procedures (e.g., sterile technique, proper waste disposal, experimental procedures, dilutions, etc.)

- Ability to adapt to unforeseen procedural changes

- Caliber of thinking before asking questions

- Scientific approach (e.g., proper use of notebooks, experimental design)

- Accuracy & indipendence

-Contributing equally to team work

-Asking questions when other teams present their work in the classroom

-Before asking questions, verifying that the information is already available or will eventually be known

-Being respectful of IAs, instructor, and classmates, either in person or online

-Following the directions or requests from the instructional team

-Overall professionalism demonstrated in the course

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.**

Lectures

The lectures, which do not have mandatory attendance, will be in person, will be recorded, and available asynchronously in Canvas > Media Gallery.

Homework

There will be 4 writing assignments (see lab schedule).

The four writing assignments represent an excellent opportunity to practice your scientific writing skills, learning how to write and formulate hypotheses, summarize results, discuss and provide reasoning for claims. Detailed guidelines will be provided.

Oral Presentations

Presenting ideas and results in an oral format to an audience of peers is a valuable skill to have. In the course, each team of students will be responsible for providing two 15 minute presentations (May 23 and June 6; specific details will be provided in class). The first presentation will receive an individual grade, whereas in the second one each member of the team will receive the same grade for the oral presentation. The oral presentations will be evaluated by the instructor and IAs.

Regrade Requests:

All regrade requests should be submitted in writing to Dr. Pirino within 5 days of seeing the graded material.

Statement on Academic Integrity: Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind. The consequences of being caught cheating can be severe. Information can be found here: http://www.ucsd.edu/current-students/academics/academic-integrity/index.html
Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship: http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2
Academic misconduct will NOT be tolerated. Students suspected of Academic Integrity (AI) violations on exams and/or homework will be reported for AI violations. Cheaters will receive a failing grade on the exam or assignment, and/or in the course. They may also be suspended from UCSD pursuant to University guidelines.

All class material, such as syllabus, readings, homework, scientific articles, lecture slides, etc. are copyrighted and cannot be posted to websites and/or distributed without instructor's approval for any reason. Students that sell and distribute course materials not only violates the student code of conduct, but also violates UC's 2005 policy on the Use of Recordings of Course Presentations: http://copyright.universityofcalifornia.edu/resources/recorded-presentations.html .

Academic misconduct includes but is not limited to:

1. **Cheating**, such as using "crib notes", copying answers from another student during the assignments, or forge assignments.
2. **Plagiarism**, such as using the writings or ideas of another person, either in whole or in part, without proper attribution to the author or the source. Copying anything from any source is plagiarism if the source is not clearly cited. Quotations should not be used, since they constitute plagiarism. Plagiarism is stealing someone else's ideas and presenting them as your own.
3. **Collusion**, such as engaging in unauthorized collaboration on exams or assignments, completing for another student any part or the whole of an exam or assignment, or procuring, providing or accepting materials that contain questions or answers to an exam or assignment to be given at a subsequent time.

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 or internet sources 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/forge 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.
- No student shall post class material on online websites without instructor's approval

Statement on Office for Students with Disabilities (OSD): To receive accommodation, students must present or email their "Authorization for Accommodation" (AFA) form provided by the Office for Students with Disabilities (OSD) to the instructor. Considering that students will complete assignments from home, no extra time will be given.

Discrimination and Harassment: The University of California, in accordance with applicable federal and state laws and university policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender, gender identity, gender expression, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition, genetic information, ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The university also prohibits harassment based on these protected categories, including sexual harassment, as well as sexual assault, domestic violence, dating violence, and stalking. The nondiscrimination policy covers admission, access, and treatment in university programs and activities.

If students have questions about student-related nondiscrimination policies or concerns about possible discrimination or harassment, they should contact the Office for the Prevention of Harassment & Discrimination (OPHD) at (858) 534-8298, https://ophd.ucsd.edu/ , or http://ophd.ucsd.edu/report- bias/index.html

Campus policies provide for a prompt and effective response to student complaints. This response may include alternative resolution procedures or formal investigation. Students will be informed about complaint resolution options. A student who chooses not to report may still contact CARE at the Sexual Assault Resource Center for more information, emotional support,

individual and group counseling, and/or assistance with obtaining a medical exam. For off-campus support services, a student may contact the Center for Community Solutions. Other confidential resources on campus include Counseling and Psychological Services, Office of the Ombuds, and Student Health Services.

CARE at the Sexual Assault Resource Center: 858.534.5793 | sarc@ucsd.edu | https://care.ucsd.edu

Counseling and Psychological Services (CAPS): 858.534.3755 | https://caps.ucsd.edu

* tentative.

