

## General Microbiology Laboratory (PMB112L and MCB112L) Fall 2013

**Instructor:** Arash Komeili

**Laboratory personnel:** Irania Alarcon, Kendra Ovitz

**GSI:** Nicole Abreu, Onur Erbilgin

**Lab:**

**Section 1:** Tuesdays 1-5 pm, GPB 209

**Section 2:** Wednesdays 1-5 pm, GPB 209

First lab session: September 3<sup>rd</sup> and 4<sup>th</sup>

**Discussion:**

Thursdays, 1-2 pm, 103 GPB

First discussion section: September 5<sup>th</sup>

**Office Hours:**

GSIs, Time to be determined.

Instructor, Time to be determined.

**Purpose:**

In this class we have chosen a set of experiments that will familiarize you with the process of conducting research in a microbiology lab. You will learn about the growth dynamics of bacteria, observe the link between mutations and adaptation, become familiarized with light microscopy and use molecular biology techniques to identify bacterial species. It is our hope that you will learn not only the tools to do microbiology research but also the general thinking and analytical process involved in all laboratory research.

**Expectations and General Lab Conduct:**

- Success in this course *will not depend* on your previous lab courses or research experiences. For those of you with little to no research experience there will be ample opportunities to learn the required techniques and succeed in the course. For those who have worked in a research environment there is still much to learn about the concepts and the underlying practice of research. If you have any reservations about your readiness for the course please see me during class or at office hours.
- Collaborate with and learn from your lab partners. I realize that conflicts can arise in any group so please bring any such issue to my attention as soon as possible.
- Everyone is encouraged to ask questions and participate in discussions. The class relies heavily on interactions between the instructors and the students. As a result participation is a requirement and a significant portion of your grade.

- Please follow our instructions and directions. Nowhere is this more important than when it comes to safety. There are several simple rules that everyone is required to follow. No eating or drinking in the lab. No open-toed shoes. Please wear gloves, safety goggles and lab coat when appropriate (we will tell you when these are required).
- Accidents are bound to happen in a lab. For your safety and the safety of others please report all accidents to us immediately. You will not be penalized for an accident.
- Fire alarms: in case of a fire alarm please exit the lab immediately and gather in the lawn area south of Pat Browne's.
- No cellphone use during lab or discussion sections. If there are emergencies where you need to use a phone please let us know first.
- There may be periods where you have to wait in between steps of an experiment. During these times there is plenty to do related to the lab such as preparing for the next step, organizing your notebook, discussing the reading and working on problem sets. Please refrain from leaving the lab during these times, playing games or working on homework from other classes during your time in lab. If you need to use the restroom or go out for a drink of water please let one of us know first.

**Attendance:**

**Attendance is mandatory for the labs and discussion sections.** We will use the discussions to provide the background necessary for the following week's experiments and answer any unresolved questions from the previous week. You will not be penalized for absences if you discuss them with me beforehand or if there is a documented emergency. The midterm and the last day of class, where each group will present a paper, are mandatory for attendance.

We will begin promptly at 10 minutes after 1 pm for the lab and discussion sections. Points will be taken off of the attendance grade for being late to lab and discussion. **Too many unexcused absences will lead to an F grade in the course.**

**Lab Manual and Problem Sets:**

Lab manual and problem sets can be obtained via [bspace.berkeley.edu](http://bspace.berkeley.edu) and you will be notified by email once they are posted.

**Lab book:**

Please buy a carbon copy notebook to use as your lab book. You are required to have your pre-lab written up at the beginning of each day's lab. Your lab assignments will be

turned in at the end of each lab and will be graded by the GSIs. We will provide guidelines for you that will help you to prepare these lab reports.

**Exams:**

There will be a practical midterm exam on November 5<sup>th</sup> and November 6<sup>th</sup>. In place of a final we will have formal presentations of scientific papers from each group on the last day of the class (December 3<sup>rd</sup> and 4<sup>th</sup>).

**Grading:**

Your grade is broken down as follows: 10% attendance, 10% lab conduct, 10% participation in discussions, 15% lab book, 30% practical midterm and 25% final presentation given during the last lab session. The final letter grade will be determined on a curved scale.

**Accommodations for Students with Disabilities:**

If you need accommodations for any physical, psychological, or learning disability or if you want me to have emergency medical information, please speak to me after class or during office hours.

## **Planned Syllabus**

<b>September 3<sup>rd</sup> and 4<sup>th</sup></b>	Introduction
<b>September 10<sup>th</sup> and 11<sup>th</sup></b>	Sterile Technique and Culturing of Bacteria
<b>September 17<sup>th</sup> and 18<sup>th</sup></b>	Measurements of Bacterial Populations
<b>September 24<sup>th</sup> and 25<sup>th</sup></b>	Growth Dynamics of Bacterial Cultures
<b>October 1<sup>st</sup> and 2<sup>nd</sup></b>	Mutations and Adaptation I
<b>October 8<sup>th</sup> and 9<sup>th</sup></b>	Mutations and Adaptation II
<b>October 15<sup>th</sup> and 16<sup>th</sup></b>	Microscopy I
<b>October 22<sup>nd</sup> and 23<sup>rd</sup></b>	Microscopy II
<b>October 29<sup>th</sup> and 30<sup>th</sup></b>	Magnetotactic Bacteria
<b>November 5<sup>th</sup> and 6<sup>th</sup></b>	<b>Midterm</b>
<b>November 12<sup>th</sup> and 13<sup>th</sup></b>	Identification of Bacterial Species I
<b>November 19<sup>th</sup> and 20<sup>th</sup></b>	Identification of Bacterial Species II
<b>November 26<sup>th</sup> and 27<sup>th</sup></b>	Identification of Bacterial Species III
<b>December 3<sup>rd</sup> and December 4<sup>th</sup></b>	<b>Presentation of Journal Articles</b>