BIMM121

Microbiology Lab
Spring quarter 2024

Lecture: Warren Hall 2113, Tu/Th 8-9:20 am
Lab: TATA hall 2101/ 2102, Tu/Th 9:30am-12:20 pm
Instructor: Jiyoung Park <j9park@ucsd.edu>
    (Include BIMM121 in the subject line of emails)
Office Hours: Tuesday 1-2pm, HSS 1145A and Zoom
Course Website: http://Canvas.ucsd.edu

Course Description

In this class, we will be learning techniques in microbial physiology, microbial genomics, microbial evolution, and microbial ecology will be used to explore the role of microbes in industry, health, and the environment. Inquiry-based experiments will cover the fundamentals of both working with live microscopic organisms at the bench and bioinformatically analyzing their genomes at the computer.

Instructional assistants (IAs)

Here, you can find the IA assigned to your section, who will be the primary point of contact when you have any questions regarding the course. You can also contact the instructor at j9park@ucsd.edu.

C01 (TATA hall 2101)	Yuhan Zhang	yuz168@ucsd.edu
C02 (TATA hall 2102)	Ryan Dogoldogol	rdogoldo@ucsd.edu

Required Materials

- **The Spring 2024 BIMM 121 Lab Manual.** Get a hard copy from the UCSD bookstore.

- **Personal Protection Equipment (PPE; a full-length lab coat and safety glasses**). Your lab coat needs to be kept in the BIMM 121 lab for the entire quarter for safety reasons. Please prepare a lab coat only for BIMM 121, if you are using one in another lab setting. Safety glasses need to be ANSIZ78.1-rated, while chemical splash goggles are NOT required. You will need the PPE starting from **the first lab** meeting. PPE can be purchased from the UCSD bookstore or any other vendor.

- **Access to Canvas and electronic device.** All course-related information will be available on Canvas. Check Canvas regularly; turning on notifications is highly recommended. If you do not have access to a computer, please see "Campus and community resources" on our Canvas page to request a loaner.

Grading & Course components
This course is fully in-person. Please look closely at the following and the more detailed lab schedule in this syllabus.

 Assessments in this course are *not* to judge you, but to check your understanding that will *help your learning*. So please let your instructor know, if you have any questions on the course content or any concerns regarding assessments.

Assignment	Points	#	Total possible points	Percent
Quizzes (Drop the lowest)	20	7	120	30%
Lab Reports	40	3	120	30%
Lab Notebook (Drop the lowest)	5	~19	80	20%
Lecture Participation (Drop the lowest THREE)	2	20	34	8%
Lab Participation (Drop the lowest)	2	20	38	9%
Plagiarism Assignment		1	14	3%
Total			**406**	**100%**

Grading scale
Grade assignments will be based on the percentage of total points earned. We do not decide your grade, but rather you as a student do the work to earn your grade. **Grading in this course will be linear, *not* curved. Final grades will not be rounded up.** There will be no additional extra credit opportunities in addition to what is in the syllabus. The point cut-offs listed below will be strictly followed when assigning final letter grades.

$\geq 97.0\%$	A+	94.0% to $\leq 97.0\%$	A	90.0% to $\leq 94.0\%$	A-
87.0% to $\leq 90.0\%$	B+	84.0% to $\leq 87.0\%$	B	80.0% to $\leq 84.0\%$	B-
73.0% to $\leq 80.0\%$	C+	66.0% to $\leq 73.0\%$	C	60.0% to $\leq 66.0\%$	C-
50.0% to $\leq 60.0\%$	D	$< 50.0\%$	F		

Course Components

1. Quizzes (30% of grade)

You will take weekly quizzes covering material from the week's lectures and labs. A total of 7 quizzes will be given throughout the quarter, as we will skip weeks that overlap with lab-report deadlines. Quizzes will be available on Canvas from Friday 5 pm until 11:59 pm Monday, and can be taken any time within that. Once you open a quiz, you must complete it within 30 minutes. Quizzes are open-note, but you must work on your own. **The lowest quiz will be dropped.**

2. Lab Reports (30% of grade)

There will be three lab reports throughout the quarter. Detailed guidelines and rubric regarding how to write each lab report are posted on Canvas. **None of the lab report grades will be dropped.**

3. Lab Notebook (20% of grade)

You will complete a Google Doc lab notebook entry for every lab session (2 per week). They should be completed by 5 pm on Friday at the end of each week (2 entries per week). The notebook assignment is supposed to be completed during the lab or by the end of the lab day, but you can have some room by the Friday due date. For detailed lab notebook guidelines, see canvas. **The lowest notebook grade will be dropped.**

4. Lecture Participation (8% of grade)

In order to get the most out of this class, you need to **attend both the lab sessions and lecture sessions**. Lecture will cover crucial information needed to complete the lab activities. You can earn the Lecture Participation points by attending each lecture and actively participating. During every lecture, you will be asked to complete **Lecture Participation Questions on Canvas. The access code will be given during each lecture.** If you have issues completing the questions, immediately notify Dr. Park. The participation answers are not graded for accuracy, just completion. Completing the Lecture Participation Questions without attending in-person sections is prohibited. Students must be present in lecture the entire lecture to receive participation points. Late submission will not be accepted.

Students can earn the full credit for Lecture Participation by attending **17 or more lectures** throughout the whole 10-week quarter. That means, if you happen to miss a lecture due to an emergency, that will not affect your final grade. Students may use "drop the lowest THREE" when they cannot attend a lecture for any reason including illness and family emergencies. Plan your quarter accordingly, so you can keep this opportunity for an emergency.

5. Lab Participation (9% of grade)

   Lab attendance is required and will be monitored and recorded by the IAs. Each lab session will be worth one point. Students can earn the full credit for Lab Participation by attending **19 or more labs** throughout the whole 10-week quarter. That means, if you happen to miss a lab due to an emergency, that will not affect your final grade. Students may use "drop the lowest one" when they cannot attend a lab for any reason including illness and family emergencies. Plan your quarter accordingly, so you can keep this opportunity for an emergency.

   IMPORTANT: If you miss a lab, you are still responsible for completing your lab notebook and other assignments on time, so you'll have to be sure to keep in touch with your group mates to get any missed data or information.

6. Plagiarism assignment (3% of grade)

   This assignment provides key training for your lab reports. More details will be given in the class.

7. Late Banks.

Everyone has 2-day late banks that they can use to extend the due date for lab notebook, quizzes, or lab report without explaining a reason. Please submit the extension request form available on Canvas before the due date. If you experience extenuating circumstances (illness, family emergencies etc.) that would prevent you from submitting work on time more than what is allowed, please reach out to Dr. Park to discuss further options.

Class schedule

Below is the tentative lab schedule. The lab schedule may be a little ahead or behind track as the course progresses.

Week	Module	Date	Lecture (WLH 2113)	Lab (TATA 2101/2102)
1	Microbes in the world	4/2 (Tu)	Course overview, cultures, inoculation, isolation	Lab 1
		4/4 (Th)	sterile technique, examining solid cultures, colony morphology, t-streak **Plagiarism Assignment**, initial submission due Monday, **April 8**	Lab 2
2	Microbes in the world / Microbes as models	4/9 (Tu)	examining liquid cultures, microscopy	Lab 3
		4/11 (Th)	biofilm introduction **Plagiarism Assignment**, revised submission due Monday, **April 15**	Lab 4
3	Microbes as models	4/16 (Tu)	more biofilm info, serial dilution 1, wet mounts	Lab 5
		4/18 (Th)	heat fixation, serial dilution 2 **Lab 1 Report due Monday, April 22**	Lab 6
4	Microbes as models	4/23 (Tu)	DNA extraction, cryoprotection, DNA quantification, Sanger sequencing	Lab 7
		4/25 (Th)	Illumina sequencing, library prep 1	Lab 8
5	Microbes as models	4/30 (Tu)	library prep 2, tape station, DNA quantification (how qubit works)	Lab 9
		5/2 (Th)	calculate molar concentration (in class activity), pixel to um ratio	Lab 10
6	Microbes as food / Microbes in the world	5/7 (Tu)	fermentation, protists, phase contrast reminders	Lab 11
		5/9 (Th)	cell appearance and arrangement, gram staining, history of CRISPR discovery	Lab 12
7	Microbes as food	5/14 (Tu)	PCR	Lab 13
		5/16 (Th)	what we know about CRISPRs of lactic acid bacteria (genetic organization), gel electrophoresis,	Lab 14
8	Microbes as food / Microbes as models	5/21 (Tu)	using CRISPR-Cas finder and BLAST	Lab 15
		5/23 (Th)	Illumina quality scores, coverage, common SBW25 mutations (WspF, Fuz), interpreting mutations	Lab 16
9	Microbes in the world	5/28 (Tu)	physiology vs 16S identification, amplicon metagenomics, Qiime basics (biome matrix) **Lab 2 Report due Wednesday, May 29**	Lab 17
		5/30 (Th)	Qiime, continued (diversity metrics)	Lab 18

| 10 | Microbes in the world | 6/4 (Tu) | TBD | TBD |
| | | 6/6 (Th) | TBD
Lab 3 Report due Sunday, June 9 | TBD |

BIMM 121: Microbiology Lab
UCSD, Spring 2024 - Park

Student Resources for Support and Learning

Learning Resources
> [Writing Hub](#)
> [Supplemental Instruction](#)
> [Content Tutoring](#)
> [Learning Strategies Tutoring](#)

Academic Accommodations

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) (https://osd.ucsd.edu/). We will try our best to provide accommodations listed in your AFA letter. Please note that instructors are unable to provide accommodations unless they are first authorized by OSD.
> Contact the OSD for further information:
> https://osd.ucsd.edu/ | osd@ucsd.edu | (858) 534-4382

Technical Support

For help with accounts, network, and technical issues, contact the IT Service Desk:
> https://support.ucsd.edu/its/

Mental Health Services

Counseling and Psychological Services (CAPS) provides individual, group, couples, and family psychotherapy to registered undergraduate and graduate students.
> CAPS (https://caps.ucsd.edu/) | Phone & Crisis: 858-534-3755 | Emergencies: 911

UC San Diego Academic Policies

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 https://ophd.ucsd.edu/report-bias/, (858) 534-8298, or ophd@ucsd.edu.

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 (https://www.ccssd.org/). 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

Academic Integrity:
Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating, or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result in sanctions. Sanctions can include an F in the class and suspension or dismissal from the University. So, think carefully before you act. Ask yourself the following questions: a) is my action honest, fair, respectful, responsible, and trustworthy, and b) is my action authorized by the instructor? If you are unsure, don't ask a friend, ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at https://academicintegrity.ucsd.edu/.