

Aquatic Microbiology, BISC 431L, Maymester 2023 V1

Subject to change

Instructors:

Dr. Eric Webb

Office Hours: by appointment

E-mail: eawebb@usc.edu

Yiming Zhao

Teaching Assistant

E-mail: zhaoyimi@usc.edu

Office Hours: by appointment

Required Materials:

Kirchman DL. 2018. Processes in Microbial Ecology: OUP Oxford.

Policies:

1. Grading: There are a total of 460 possible course points that are distributed as follows:
Exams (2): 100 pts each
Lab: 260pts (see Lab Syllabus for a detailed breakdown).
2. Exam dates are firm. If a student misses an exam due to a true emergency (with an acceptable written excuse) Dr. Webb will schedule a make-up oral exam, or at HIS discretion MAY permit the use of the average of course grades from that student.
3. Regrading of exams: Exams submitted for possible regrading must be turned in to the instructor with a concise written explanation of the problem, and will be accepted only within one week of when the exam is returned initially to the student.
4. No special assignments for extra credit are given.
5. Final exams will be returned. They will be mailed if the student provides a stamped self-addressed envelope at the time of the exam. Otherwise, they will be kept at Dr. Webb's office for one semester.
6. Challenges to the final grade must be made within 6 weeks of the beginning of the Fall 2023 semester.
7. Exceptions to the grading policy are not expected, and any student believing they have been granted a deviation from the grading policies defined in this syllabus must have a written agreement signed by Dr. Webb .
8. Academic Integrity violations (including plagiarism and cheating) will not be tolerated, and will be dealt with as outlined in SCampus (scampus.usc.edu). Pursuant with USC regulations, plagiarism will result in an F grade in the course.
9. All policies and procedures described in SCampus (scampus.usc.edu), as well as within State and Federal Statutes apply while at the Wrigley Marine Science Center. Violation of these policies could result in referral to the Office of Student

Judicial Affairs and Community Standards, criminal prosecution, and/or revocation of residential privilege on Catalina Island.

Disability: Students requesting academic accommodations based on a disability are required to

register with the Office of Student Accessibility Services (OSAS) each semester. A letter of verification for approved accommodations can be obtained from OSAS when adequate documentation is filed. Please be sure the letter is delivered to Dr. Webb as early in the semester as possible. OSAS is open Mon-Fri, 8:30-5:00. The office is in Student Union 301 and their phone number is 213-740-0776.

Aquatic Microbiology Lecture Schedule

Week 1 May 15th -May 19st : Microbial Diversity

Topic 1: Introduction to Microbiology – methods (chapter 18 – supplement)

Topic 2: Diversity and Phylogeny

Topic 3: Metagenomics

Week 2 May 22th – May 26th : Microbial Biochemistry

Topic 1: Habitats of Life

Topic 2: Getting energy from the sun (Eating Light)

Topic 3: Eating the light eaters or their “poo” – microbial loop

Week 3 May 29th –June 2th: Biogeochemistry

Topic 1: Basic Oceanography/Biological Carbon pump

Topic 2: Getting energy from Nitrogen compounds

Topic 3: Eukaryotic Microbes/HABs

Week 4 June 5th –June 9th : You are never alone

Topic 1: Viruses

Topic 2: Waterborne Microbial Diseases

Topic 3: Bioluminescence and Symbiosis

Lab Syllabus

Aquatic Microbiology, Maymester 2023

Laboratory Staff:

Yiming Zhao

Teaching Assistant
zhaoyimi@usc.edu
(848) 252-1676

Lauren Czarnecki-Oudin

Lab Manager
czarnecki@usc.edu
(310) 510-4002

Kellie Spafford

Assistant Lab Manager
kspafford@usc.edu

Online Course Materials:

Blackboard (blackboard.usc.edu) will be used to post laboratory materials, to submit all lab reports (using the turn-it-in feature), and to post course grades. Students should check Blackboard and their emails regularly throughout the course.

Attendance:

Students are expected to attend all live virtual lectures/labs.

TA Office Hours:

Office hours for Yiming will be by appointment. Students should not hesitate to contact Yiming with any questions or concerns that may arise.

Grading

The Laboratory section of this course makes up a third of the total course grade (300 total lab points), The point Breakdown is as follows:

- 25 pts: Lab Presentation's
- 20 pts: Quizzes (10 pts each)
- 80 pts: Bioinformatic assignments (10-15 pts each)
- 50 pts: Post-labs/Alternative written assignments (25 pts each)
- 40 pts: Journal Clubs (10 pts each)
- 20 pts: Final Presentation
- 25 pts: Final Bioinformatic Lab Report

Participation: points will be deducted for tardiness or absence, any violation of safety rules, improper laboratory/sampling technique, inability to contribute fully to group projects, leaving your lab space messy, poor effort, annoying the TA (just kidding), etc.

Lab Quizzes: For the 2022 course Lab quizzes will be posted on blackboard. Each quiz will have between 5-10 questions worth 1 point each. Students will have 1 minute per question and

allocated only one attempt. Quizzes will be posted at 6am on Tuesday and Thursday of weeks 1 through 3 and will be available for 48 hours after posting. The questions will be a mix of multiple choice or free response. Students are expected to take these quizzes on their OWN and without working with other students. Any students found breaking these rules will receive a 0 for the quiz.

Lab Readings: Lab readings are assigned for each lab. These readings could appear in quizzes.

Bioinformatic Assignments: In addition to the two in person lab's being offered students will have pre-recorded bioinformatic lectures and assignments to follow along with. These assignments will consist of information found during the analysis of genomic datasets. These assignments will each have individual instructions posted with the assignment itself. Bioinformatic Assignments will be due as indicated in the distributed schedule and adjusted based on our progression through the lectures.

Post Lab Reports: Students will be required to submit a short, typed post lab report for both in person labs. These reports will be worth 25 points each. **No late reports will be accepted.** Reports must be submitted to the TA electronically in PDF format via email, and *turnitin*. Refer to the post lab report section on blackboard for guidance.

Final Bioinformatic Final Lab Report: All students will be expected to write a lab report on the final product of your genomic analysis from the bioinformatic section. The format will be specified during the course, but will likely follow the format for a Genome announcement which is a descriptive paper analyzing the functions and ecology of a genome being analyzed and is between 900-1200 words. Examples will be provided from the prior year for reference.

Final Lab Presentation: Each student will present a 5-8 minute talk on their Final Bioinformatic Lab Report. Instructions will be provided separately.

Journal Clubs: We will have 4 journal clubs throughout the course. These will be primarily participation based. Each journal club one student will be chosen to give an overview of the paper. Then each student will go one by one saying one thing they took away from the paper (can't be something someone else has already said), this will be worth 3 points of the total 10. Students will be expected to participate in the broader discussion and the remaining 7 points will be for participation. If you are uncomfortable speaking up or find it hard to interject in the conversation via zoom then you have the option to write a 350-450 word summary of the paper identifying the major objective/hypothesis, results/conclusions, and future directions.

Lab Safety Rules:

When you are working in lab you are required to abide by the policies and procedures of the University of Southern California as outlined in SCampus (scampus.usc.edu) and in your lab safety training. Violation of these safety regulations will result in a loss of participation points, and possible revocation of laboratory privileges. Below is a list of the most common lab safety rules; this list is not exhaustive

No eating or drinking in lab at any time. All food and drink are prohibited from lab at all times.

- Proper personal protective equipment (PPE) must be worn at all times. Open toed shoes are prohibited. Long pants and lab coats must be worn at all times, Gloves and safety glasses should be worn in the lab. Long hair must be tied back and up in lab. At

- sea, personal flotation devices must be worn while on deck.
- Report all accidents to your TA IMMEDIATELY!!
- Use EXTREME CAUTION when working over an open flame.
- Know the location of eye wash stations, safety showers, fire extinguishers, first aid kits, etc.
- Dispose of lab materials only as directed by the teaching assistant.
- Work area must be left clean

Catalina Specific Safety Procedures: During our time on Catalina Island, we will be sampling and living in a remote area where cell service may or may not be available, and evacuation to medical services may take hours. Therefore, it is imperative that you are constantly being proactive to ensure your own safety. **DO NOT TAKE UNNECESSARY RISKS!** You are required to use the buddy system and receive approval from the TA for any recreational activity occurring off campus (campus is defined as the area between the helipad and the 'bone yard'). You are always required to notify a responsible party about all of your recreational activity plans (someone should always know where you are). Violation of these procedures can result in loss of recreational privileges, or in extreme cases, loss of residential privileges at WMSC.

If an emergency occurs (even after hours), IMMEDIATELY CONTACT Yiming (848) 252-1676 and, in the case of a medical emergency, BAYWATCH TWO HARBORS (911 or 310-510-0341)