

**BIEB 135 Syllabus Winter 2021**  
**Aquatic Ecology Lab**

Lab: Monday and Wednesday      1:00-5:50pm      On Zoom  
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BIEB 135 (*Aquatic Ecology Lab*) provides an overview of the physical, chemical and biological processes that characterize inland and coastal waters (lakes, streams, estuaries and the ocean). This course will introduce some of the dominant biota of aquatic environments, and how they are related to physical and chemical processes of the systems in which they reside. A series of case studies and contemporary issues will also be presented to highlight the interdisciplinary nature of this science, and its application to environmental problem solving and conservation. You will learn to use methods for sampling the physical and biological environment and experiments to measure key processes. The course emphasizes data analysis and presentation and scientific writing.

Date	Topic	Reports
March 29	Lecture 1: Introduction to the course & group exercise (ice breakers)	
March 31	Lecture 2: How to write a lab report, Statistics review lecture, R tutorial. <b>Group exercise: reading scientific papers</b>	<b>Exercise 1</b>
April 5	Lecture 3: Analyzing experimental data. <b>Group exercise: Fear of Fish data in R</b>	
April 7	Lecture 4: Physical and chemical properties of water	<b>Exercise 2</b>
April 12	Lecture 5: Top-down and bottom-up control of productivity. Analysis of lake data. <b>Group exercise: comparative study of reservoirs</b>	
April 14	Lecture 6: Plankton diversity	<b>Exercise 3</b>
April 19	Lecture 7: Ecosystem metabolism. <b>Group exercise in measuring lake metabolism</b>	
April 21	Lecture 8: Stream ecology	<b>Exercise 4</b>
April 22	<b>First lab report due, lake ecosystem comparison</b>	
April 26	Lab 2: Stream invertebrates (Lab work)	
April 28	Lab 2: Stream lab work and data analysis	<b>Exercise 5</b>
May 3	Lecture: Estuarine ecology	
May 5	Analysis of estuarine data	<b>Exercise 6</b>

May 10	Lecture: Marine plankton ecology	
May 12	Analysis of marine plankton data	<b>Exercise 7</b>
May 17	Natural History exercise data collection	
May 19	Analysis of natural history data	<b>Exercise 8</b>
May 21	<b>Second lab report due, ecosystem comparison</b>	
May 24	Group presentations; topics in aquatic ecology	
May 26	Group presentations; topics in aquatic ecology	<b>Exercise 9</b>
May 28	<b>Natural history exercise report due</b>	
May 31-NC	No Class Memorial Day	
June 2	Optional lecture: careers in ecology and science	<b>Exercise 10</b>

Note: all Zoom sessions will be recorded and made available asynchronously. This syllabus is subject to change, particularly because of campus efforts to contain covid-19. Any schedule changes will be posted on Canvas.

#### DAILY WORK and ASSIGNMENTS

Lectures will be recorded and available in the Media Gallery on Canvas. Please watch the lecture, read through the assignment for the week, and do any preparation reading before class meetings. We'll be using the class time for group exercises, and you'll want to make sure you're prepared ahead of time so those exercises can be completed efficiently. Exercises are bolded in the schedule above. All assignments will be posted on Canvas, and turned in online, their due dates (and points) are underlined above.

#### EXAMS

There will be no final exam in this course, and we do not meet during finals week.

#### GROUP WORK

You will often work in groups. You may analyze data and create graphs and tables as a group, but each individual must do their own writing for their lab notebook and lab reports. Working in a group is great way to practice productive professional relationships. You should treat your fellow students in the same way that you would want to be treated in a future job. Treat everyone with respect and ask questions rather than make assumptions about shared views or experience. Put your best effort into group work, including listening to everyone's perspectives and ideas. By entering into the class you have agreed to abide by UCSD's Principles of Community: <https://ucsd.edu/about/principles.html>

## TECHNOLOGY

We will be using Zoom to this quarter (link for the class is in the calendar on Canvas). Please plan to use headphones with a microphone if possible (earbuds you'd use to talk on a cell phone are fine). If you have a smart phone you should download the free "SEEK by iNaturalist" application, as you'll use it for your Natural History Assignment. You'll also download the free R statistical platform, and R Studio. Finally, in order to access scientific journals you'll need to be able to access the UC Library resources from off campus via "VPN." See this link to set up VPN access:

<https://library.ucsd.edu/computing-and-technology/connect-from-off-campus/> If you do not have access to a laptop please fill in this link for a loaner computer,

<https://eforms.ucsd.edu/view.php?id=490887>, questions about the program can be addressed to [vcsa@ucsd.edu](mailto:vcsa@ucsd.edu). Additional support for students, including technology trainings are available at <https://keeplearning.ucsd.edu>.

## PARTICIPATION

Participation during lab hours is preferred, please be on time. However, we understand that some students may be living several time zones away or have responsibilities such as child care that preclude participation during the scheduled time. Please tell Prof. Shurin if you require an alternate time or mode of interacting with the material.

## TIME MANAGEMENT

A 4-credit class is equivalent to 12 hours per week of effort. We will spend some time interacting over Zoom, but you'll use the remaining hours to write lab reports, work on your natural history assignment, and prepare your presentations. The faculty and IAs will be present during the group exercises; after we discuss our findings as a group you will work independently on completion of your assignments. You should make sure you fully understand the data and assignments by the end of this group discussion each session.

## DROP POLICY / WAIT LIST

The Division of Biology has an automated, first on, first off policy regarding the wait list. If you decide to drop or withdraw after the second week please send Prof. Shurin an email to let him know, otherwise she worries if you disappear!

## WRITING

Scientific writing is a genre with specific expectations, and practice is the only way to improve. We will discuss the findings of each activity so you're clear on the required content for your lab reports and write-ups, and we will give suggestions to improve your writing clarity in the grading process. Grading expectations will get stricter as the quarter progresses as we expect you to incorporate this feedback. Labs will be graded both on specifics (did you address all the hypotheses?) and on the general qualities (did you convey the information in the clearest, most concise manner possible?). The Teaching +

Learning Commons has both tutoring by virtual help to help you improve your writing, as part of the Writing + Critical Expression Hub (<http://commons.ucsd.edu/students/writing/index.html#For-Undergraduate-Student-Write>). Note that you should always follow formatting guidelines in "How to write a lab report," but you can seek help with clarifying statements and arguments. You can also ask a friend to read your assignments and give you feedback on clarity. They can't write your report for you, nor can you copy theirs, but they can give you friendly comments with the goal of improving your writing.

## LAB NOTES

You will keep digital lab notes for exercises in lab. For each exercise you'll briefly summarize the question, study site & methods, and present the results. Make sure you include the figures and any statistical results, as well as discuss whether the results did or did not support our initial hypotheses. Note that you can choose to write your second lab report based on exercises in any of these three weeks, and your lab notes will form the basis for that lab report. All notes should be finished before the end of lab time each day.

## GRADING

Your grade for the course will be based on a total of 1000 points. You have four major assignments each worth 200 points (two lab reports, a natural history collection, and an individual presentation). There are an additional 10 assignments worth 20 points each. Late assignments will lose 5% for each day the assignment is late (ex. 1 day and 1 hour late = 10% reduction in the grade), unless there was an unavoidable delay (email Prof. Shurin). More information on assignments, will be found on Canvas.

## ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

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) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to Faculty and to the OSD Liaison in the department in advance so that accommodations may be arranged. Contact the OSD for further information: 858.534.4382 (phone) [osd@ucsd.edu](mailto:osd@ucsd.edu)(email) <http://disabilities.ucsd.edu>(website)

## ACADEMIC INTEGRITY

Students are expected to do their own work. Cheating will not be tolerated and all suspected cases will be handed over to the Academic Integrity Coordinator. Any student caught cheating will fail the course. Submitting any material written by someone else (copied from a lab member, or from any on-line source) is a violation of academic integrity. For information on academic integrity at UCSD: <https://students.ucsd.edu/academics/academic-integrity/index.html>

## RESOURCES FOR STUDENT SUPPORT

A college education teaches you to identify solutions to tough problems. These are skills that future employers will value. University students often encounter non-academic issues as well, and UC San Diego has invested in a variety of resources to help students. It's your job to use these resources to ensure your success, here's a partial list that may be useful to you:

Basic Needs refers to the most essential resources required to thrive as a student, which includes access to nutritious food, stable housing, and financial wellness resources. The Hub is a new UC San Diego space that offers students the opportunity to engage in and link to Basic Needs resources. This includes the Triton Food Pantry.  
<https://basicneeds.ucsd.edu/>

The Campus Community Centers at UC San Diego build community among our diverse population of students, faculty and staff members. Each provides a forum to increase awareness of social issues, encourage dialogue, build community, improve retention, increase outreach and yield, and foster academic success. For a list of the many campus community centers, as well as other resources to support students, go to:  
<https://diversity.ucsd.edu/centers/index.html>

Counseling and Psychological Services (CAPS) provides free, confidential, psychological counseling and crisis services for registered UCSD students. CAPS also provides a variety of groups, workshops, and drop-in forums. For more information, please visit our Counseling Services page. <https://caps.ucsd.edu/>

CARE at the Sexual Assault Resource Center is the UC San Diego confidential advocacy and education office for sexual violence and gender-based violence (dating violence, domestic violence, stalking). CARE provides free and confidential services for students, staff and faculty impacted by sexual assault, relationship violence and stalking.

The Undocumented Student Services Center is committed to serving our undocumented students and their families through holistic services. We also advocate for generating a sense of community for all students that are undocumented or come from mixed immigration-status families. <https://students.ucsd.edu/sponsor/undoc/>

The Student Veterans Resource Center (SVRC) is committed to ensuring that military affiliated students successfully make the transition from the military environment to campus life, and are assisted in their progress toward

completing their academic degree. In collaboration with other University partners, the SVRC seeks to identify and mitigate the barriers to academic success that are specific to the military affiliated student community.

<https://students.ucsd.edu/sponsor/veterans/index.html>