



**BIOE 108 Marine Ecology- Syllabus Summer 2021**  
**Session I: June 21 – July 23, 2021**

**Where:** Zoom (link in Canvas)

Make sure to register here  
 Meeting ID: 996 8845 8155  
 Password: urchin

**When:** Mon/Wed 9:00am-12:30pm (no discussion section)

**Instructor:** Josh Smith

Virtual Office/Social Hours: Monday: 2-3pm; Wednesday: 2-3pm or by appointment  
 Office hours location: Zoom; Meeting ID: 943 1480 4934; Passcode: urchin

**Email** (preferred mode of contact): [jogsmith@ucsc.edu](mailto:jogsmith@ucsc.edu)

Time frame for answering emails: 9am-5pm

**TA:** Sara Gonzales ([satgonza@ucsc.edu](mailto:satgonza@ucsc.edu))

Office Hours: Monday: 1-2pm; Thursday: 10-11am

**Email:** [satgonza@ucsc.edu](mailto:satgonza@ucsc.edu)

**Class website:** Canvas (BIOE-108-01)

**Withdrawal and Drop Dates:**

Add - Thursday, June 24

Drop - Monday, June 28 (tuition reversed)

**No classes** are held in observance of Independence Day - Monday, July 5

Request "W" Grade - Friday, July 9 (no tuition reversal)

\*You must drop yourself, you will not be dropped for non-attendance\*

**Table of Contents:**

Course Description.....[2](#)

Assignments and Exams.....[3](#)

Inclusion, Accessibility, Title IX.....[4](#)

Course Schedule.....[5](#)

# Course Description

## Class overview

The goal of this course is to introduce you to the foundational concepts and theories that shape the way we understand and study populations and communities in marine ecology. Through this understanding, you will learn how to conduct ecological research in coastal marine ecosystems. This course also partially fulfills the Disciplinary Communication requirement. As such, we will not only focus on content but also the important scientific practices of observing patterns in nature, creating hypotheses, and designing experiments. A purely lecture style class will not be conducive to learning these skills, we will use both active and collaborative learning strategies to master course material.

I will be recording zoom lectures to help you with your assignments, but a significant portion of your grade will come from in-class activities and participation. I hope we can create a community of active participation in this course even over zoom because I have found it is the best way to retain information and engage in learning.

## Learning Objectives

- Students will be able to identify and describe the frameworks that explain the structure and dynamics of marine communities

- Students will develop multiple hypotheses to explain spatial or temporal patterns (e.g. changes in abundance of a species over time) they observe in nature and design experiments to test their hypotheses
- Students will learn to read, discuss, critique, and synthesize the main conclusions of foundational marine ecology papers
- Students will learn to correctly interpret graphs and will be able to create graphs that illustrate key results
- Students will learn about a multitude of marine ecosystems and will be able to use their knowledge to educate the public on facts or theories that excite people about the marine environment they are in or near

## Required course prerequisites

Biology 20A, 20B, and 20C or equivalent (1 yr Introductory Biology)

## Readings

We will read papers from the primary literature. Readings are available on Canvas. We will try to keep required readings to a minimum. I will announce readings on Canvas each session, but they are also listed in the course schedule.

## Required software

Microsoft Excel, Office, and Word -- available for **free** on the UCSC student software page here (Office 365).

## Writing

BIOE 108 is one of many EEB courses that contribute to fulfilling half of the Disciplinary Communication (DC) graduation requirement!

Therefore, we're going to focus on developing your writing and speaking skills. The [EEB Guide to Writing](#) will help you with your writing assignment

## Assignments and Exam

The major goal of this course is to teach you how to conduct marine ecological research. Lectures and exams have limited ability to teach and assess how to conduct marine ecological research. For this reason, you will use pattern journals to (1) conduct the basic tasks of observing and recording patterns in nature, (2) develop hypotheses to explain your observed patterns, (3) and eventually come up with tests of your hypotheses. There will be one midterm and final exam— all potential exam questions will be available before the test date to give you time to prepare your answers. Additionally, an in-class quiz will be due at the end of each class.

### 1) Pattern and Hypothesis Journals:

The description of patterns is a fundamental component of ecological studies and science in general. Patterns motivate the questions and hypotheses that ecologists propose and the studies/experiments they design to address them. For your journal of ecological patterns, you will submit:

- a. 2 patterns due **June 23**

- b. 2 patterns due **June 30**

- c. 1 patterns with hypothesis due **July 7**

- d. 2 patterns with hypothesis and test of hypotheses due **July 14**

- e. 1 marine pattern with intro, pattern, hypotheses, and test of hypotheses due **July 21**

- 2) In class quizzes: At the end of each class, a short quiz will be given to ensure you are comfortable with the material from the assigned readings. Half of the credit will be for participation and the other half will be based on accuracy. The final question will show whether you participated in the class session's active learning activity.

- 3) Midterm and Final Exam: There will be one midterm and final, each worth 25% of your grade. The questions will be short answer about lecture content, synthesizing the main points of the scientific papers you've read, and interpreting and drawing graphs. You will get a list of all the possible questions so you can answer the questions before the exam day.

## Grading Breakdown

Category	% of grade
Pattern and hypothesis journal	30%
Content check quizzes	10%
Participation in class including: attendance, completing active learning activities, leading primary literature discussion	10%
Midterm	25%
Final	25%

If you do better on your final than on your midterm, I will replace your midterm grade with the grade you received on the final.

## Policies regarding attendance and late assignments

I will give you a one-day grace period for one assignment. After that, late assignments will be accepted with 10% points removed each day past the due date. Traumatic events are unwelcome and because I understand how difficult these times are, if you contact me within 24 h of the deadline, I will establish new deadlines and a plan for you to get back on track.

## Academic Integrity

Plagiarism occurs when writers deliberately or unintentionally use another person's language, ideas, or materials and present them as their own without properly citing the source. Familiarize yourself with [resources](#) on source citation, [tutorials](#) on how to avoid plagiarism, and [checklists](#) for ensuring you have properly cited your sources.

For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the [Academic Integrity](#) page at the Division of Undergraduate Education.

## Inclusion, Accessibility, Title IX

Your suggestions for making this class as inclusive as possible are encouraged and appreciated. Please let me know if you identify ways to improve the effectiveness of the course for you personally or for other students or student groups. If any of our class

meetings conflict with your religious or cultural events, please let me know so that we can work together to make alternative arrangements.

Your success in this class is important to me. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me within the first two weeks. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at [drc@ucsc.edu](mailto:drc@ucsc.edu).

Finally, the university has instituted a number of measures designed to protect its community from sex discrimination, sexual harassment, sexual violence, and other related prohibited conduct. [Information about the Title IX Office](#), the [online reporting link](#), applicable campus resources, reporting responsibilities, the [UC Policy on Sexual Violence and Sexual Harassment](#), and the UC Santa Cruz Procedures for Reporting and Responding to Reports of Sexual Violence and Sexual Harassment can be found at: [titleix.ucsc.edu](http://titleix.ucsc.edu) .

## Tentative Schedule

Week	Day	Topic	Readings	Assignments
1	June 21 (3.5 hours)	Introductions, explanation of pattern journal, philosophy of science/hypothesis testing, stats review	1) Popper 1961 2) Quinn 1983 3) Hutchinson 1959	
	June 23 (3.5 hours)	Fundamentals of population and community ecology	1) Roughgarden 1983 2) Paine 1996	Pattern journal (2 patterns)
2	June 28 (3.5 hours)	Intertidal ecology (the experimental revolution)	1) Lively and Raimondi 1987 2) Connell 1961	
	June 30 (3.5 hours)	Maintenance of diversity, stability, and life history responses	1) Hughes 1994 2) Harvell 1984 3) Warner 1984 4) He and Cui 2015	Pattern journal (2 patterns)

<b>3</b>	July 5	<b>Independence day observed</b>	1) Victor 1983 2) Gaines and Bertness 1992	
	July 7 (3.5 hours)	<b>MIDTERM</b>  Settlement and Pre-settlement processes	1) Ebert and Russel 1998 2) Jones et al. 1999	Pattern journal (1 pattern + hypotheses)
<b>4</b>	July 12 (3.5 hours)	Maintenance of diversity synthesis, Biodiversity and Ecosystem Functioning	1) Connell 1978 2) Warner and Chesson 1985 3) Hixon and Carr 1997	
	July 14 (3.5 hours)	Marine Ecosystem Review		Pattern journal (2 patterns + hypotheses + test of hypotheses)
<b>5</b>	July 19 (3.5 hours)	Global change in marine ecosystems	1) Munday 2010 2) Sanford 1999 3) Pinsky 2013 4) Cheung 2008	
	July 21 (3.5 hours)	<b>FINAL EXAM</b>		Pattern journal (1 marine pattern + hypotheses + test of hypotheses + background information)