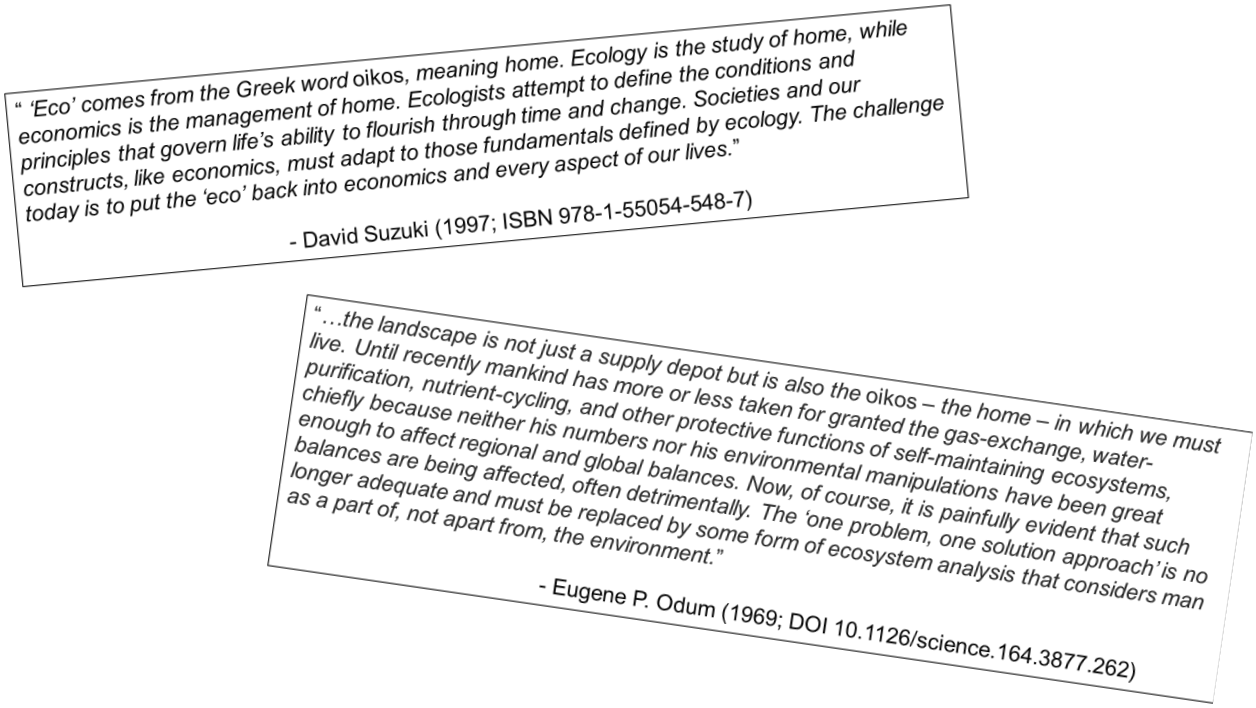
UC San Diego

SIO 190: Special Topics in Earth, Oceans, and Atmosphere (*Marine Ecology Laboratory*)



Welcome to the Course

Course Information

Course Description	Laboratory course in marine ecology, including topics of population biology, species interactions, and community ecology.
Credits	4 units Course fulfills one *restricted elective [laboratory]* for Marine Biology
Instructor	Stuart Sandin; ssandin@ucsd.edu
IA/TA	Kendall Chancellor; kchancel@ucsd.edu

Course Learning Outcomes

These are the skills and abilities that we will develop throughout the quarter, and that you will be asked to demonstrate through assignments, quizzes, and examination. We will build up foundational knowledge of marine ecology concepts, terminology, tools, and core questions, making connections that allow us to synthesize, hypothesize, and predict ecological dynamics. Upon completion of this course, students will be able to:

- describe the natural history of groups of marine organisms, including adaptations to environmental conditions, geographic distributions, and population growth patterns;
- explain how marine ecological units (e.g., organisms, populations, communities) interact with physical, chemical, and biological processes through time;
- make accurate observations and convey this information using scientific terminology;
- construct models of understanding for the communities or ecosystems we are studying, based upon empirical evidence; and
- apply theoretical concepts from biology and ecology to our observations of marine ecosystems.

Course Format

Laboratory meetings:

Marine Conservation and Technology Facility (MCTF) 140
Friday, 9:00-11:50am

Asynchronous (Online) Lectures:

Weekly lecture materials, providing background material for upcoming laboratory meeting (available starting Week 2 on UC San Diego's Learning Management System; https://canvas.ucsd.edu)

A Typical Week in This Course

Course content: The course is designed to explore principles of ecology through laboratory investigations, explorations, and experiments. The **laboratory meetings** will provide the hands-on experiences with marine biological organisms and ecological dynamics. The **asynchronous lectures** will provide the theoretical background to underpin and motivate the laboratory exercises. Beginning after our first meeting, we will expect you to watch the asynchronous lectures (not to exceed three hours of content) in the week before each laboratory meeting.

Quizzes: As an ecological laboratory course, we will be covering a breadth of material that includes elements of theory, practical skills, and natural history. In order to reinforce key elements from the lectures and laboratory sessions, we will begin most class meetings with a brief quiz. The quiz will cover material from the lectures and the previous lab meeting.

Assignments: Each week you will receive an assignment intended to reinforce the content and principles from the laboratory. The assignments will fit into one of three types: (i) in-class worksheet, intended to be completed by the end of the laboratory meeting, (ii) laboratory report, intended to be completed after the laboratory meeting and submitted within the next week, and (iii) research paper, which is the one longer-term report expected during the course. Students will be expected to produce a short (3-5 minute) recorded presentation summarizing the findings from their research paper; the presentation will be shared and viewed with the class. The Course Schedule, below, provides a schedule for each assignment across the quarter.

Overall Course Expectations

What you can do to support your success in the course:	What I will do to support your success in the course:
Read the syllabus and stay current with course information	Be prepared and bring my enthusiasm for teaching to each session
Keep up with readings and lab assignments, as each one builds on the previous one.	Provide timely feedback on assignments / submissions.
Contribute to the learning environment with fairness and professionalism	Establish a learning environment with fairness and professionalism, and will take action if these principles are violated.
Treat your classmates, instructional assistants and myself honestly and ethically	Treat you honestly and ethically, and will address any concerns you might have
Commit to excel with integrity[1]. Have the courage to act in ways that are honest, fair, responsible, respectful and trustworthy.	Uphold integrity standards and create an atmosphere that fosters active learning, creativity, critical thinking, and honest collaboration.
Manage your time, so you can stay on track with the course and complete tasks on time	Only assign work that is vital to the course, and will work to meet the standard credit hour allotment for the course.
Communicate with me if you determine that a deadline cannot be met due to extenuating circumstances	Consider requests for adjustments and will make reasonable exceptions available to all students when approved

1. Please read UC San Diego's Policy on Integrity of Scholarship and take the integrity pledge.

Course Materials

Text & Readings

- Required textbook – *Marine ecology: concepts and applications* by Martin Speight and Peter Henderson, 2010, Wiley-Blackwell (abbreviated "S&H" in **Course Schedule**)
- Supplementary readings will be posted on Canvas

Course Materials & Technology

- Laptop with R/R-Studio and Excel installed. Instructors will assist with setup in the first weeks. Please contact the instructor directly with any concerns regarding accessibility.

Attire & Safety Requirements

- Proper laboratory attire (long pants, closed-toed shoes) must be worn to all class meetings. Individuals will not be allowed to enter the laboratory wearing sandals or shorts.

Grading

Summary of Grade Criteria

Assignment	Points	Total Weight	Due Date
In-class worksheets (x4)	3 each	12%	End of class
Laboratory reports (x5)	7 each	35%	One week after laboratory
Research paper		15%	14 March
Research presentation		10%	13 March
Quizzes (x8)	1 each	8%	Beginning of class
Final Exam		20%	TBD
		100%	

Grading Scale

A = 90-100% **B** = 80-89% **C** = 70-79% **D** = 60-69% **F** = 59%-below

Grading Procedure

Grading will be conducted on an absolute scale. Lab reports or papers that are late will incur a 10% per day reduction, unless formally excused by an official doctor's note. Quizzes must be completed in-person. Assignments will be graded and returned within 10 days.

Attendance and Participation

As a laboratory course, attendance is essential to achieve learning outcomes. Thus, attendance to all labs is mandatory. If you are unable to attend for an acceptable reason, notify the

instructor directly and in advance. Due to the nature of lab setup and participation, makeup labs are not available. Assignments will not be evaluated for labs that are not attended. Students must also show up on time as experiments and activities will be explained at the outset of each meeting, including safety information.

Accommodation for medical emergencies will be made individually only when discussed with the instructor and supported by official documentation. Additional academic policies for this course, including the policy on religious accommodation, and be found in the UC San Diego Academic Regulations.

Resources for Support and Learning

Learning and Academic Support

Ask a Librarian: Library Support
Chat or make an appointment with a librarian to focus on your research needs

Course Reserves, Connecting from Off-Campus and Research Support
Find supplemental course materials

First Gen Student Success Coaching Program
Peer mentor program that provides students with information, resources, and support in meeting their goals

Office of Academic Support & Instructional Services (OASIS)
Intellectual and personal development support

Writing Hub Services in the Teaching + Learning Commons
One-on-one online writing tutoring and workshops on key writing topics

Supplemental Instruction
Peer-assisted study sessions through the Academic Achievement Hub to improve success in historically challenging courses

Tutoring – Content
Drop-in and online tutoring through the Academic Achievement Hub

Tutoring – Learning Strategies
Address learning challenges with a metacognitive approach

Support for Well-being and Inclusion

Basic Needs at UCSD
Any student who has difficulty accessing sufficient food to eat every day, or who lacks a safe and stable place to live is encouraged to contact: foodpantry@.ucsd.edu | basicneeds@ucsd.edu | (858) 246-2632

Counseling and Psychological Services
Confidential counseling and consultations for psychiatric service and mental health programming

Triton Concern Line
Report students of concern: (858) 246-1111

Office for Students with Disabilities (OSD)
Supports students with disabilities and accessibility across campus

Community and Resource Centers
Office of Equity, Diversity, and Inclusion
As part of the Office of Equity, Diversity, and Inclusion the campus community centers provide programs and resources for students and contribute toward the evolution of a socially just campus
(858) 822-3542 | diversity@ucsd.edu

Undocumented Student Services
Programs and services are designed to help students overcome obstacles that arise from their immigration status and support them through personal and academic excellence

Course Schedule

Week	Laboratory Topic (*Date*)	Supporting Activities
1	Autecology (*10 Jan*)	Read: S&H Chapter 1 Assignment: In-class worksheet (due at end of class)
2	Population biology – growth models (*17 Jan*)	Read: S&H Chapter 2 Watch: Week 2 Lectures Assignment: Laboratory report (due 24 Jan)
3	Population biology – demography (*24 Jan*)	Read: S&H Chapter 3 Watch: Week 3 Lectures Assignment: Laboratory report (due 31 Jan)
4	Species interactions – competition & predation (*31 Jan*)	Read: S&H Chapter 6 Watch: Week 4 Lectures Assignment: Laboratory report (due 7 Feb)
5	Species interactions – herbivory (*7 Feb*)	Read: S&H Chapter 4 Watch: Week 5 Lectures Assignment: Laboratory report (due 14 Feb)
6	Community ecology – spatial dynamics (*14 Feb*)	Read: S&H Chapter 7 Watch: Week 6 Lectures Assignment: In-class worksheet (due at end of class)
7	Community ecology – food webs (*21 Feb*)	Read: Supplementary readings Watch: Week 7 Lectures Assignment: Laboratory report (due 28 Feb)
8	Species interactions – parasitism (*28 Feb*)	Read: S&H Chapter 5 Watch: Week 8 Lectures Assignment: In-class worksheet (due at end of class)
9	Ecosystem dynamics (7 *Mar*)	Read: Supplementary readings Watch: Week 9 Lectures Assignment: In-class worksheet (due at end of class)
10	*Class presentations* (*14 Mar*)	Assignment: Research paper (due 14 Mar) and presentation (due 13 Mar)