

USC Dornsife

Dana and David Dornsife
College of Letters, Arts and Sciences

ENST 499: Subtidal Coastal Ecology

Fall 2023: Tues: 11:00am-12:20pm (Lecture) and Fri: 8:00am-4:00pm (Field days on Catalina Island and some lectures on main campus); Section 33054; 4 units

Location: WPH 104 and Wrigley Marine Science Center (Catalina Island)

Instructor: Dr. David Ginsburg, Professor, Teaching, ENST

Office: CAS 116

Office Hours: Day/Time TBA. Make an appointment via Calendly: <https://calendly.com/ginsbuda>

Email: dginsbur@usc.edu

Course description

The California Channel Islands are located in the Southern California Bight (SCB), which stretches from Point Conception off California to Ensenada, just south of the US–Mexico border. Known as a marine biodiversity hotspot, the SCB is one of the most productive and economically valuable coastal regions in the United States. Marine environmental scientists have long been attracted to this region, which has generated research insights of broad ecological importance. ENST 499 will introduce students to subtidal coastal ecosystems off Catalina Island, closely examine how research studies have contributed to our understanding of these habitats, and provide students with both the knowledge and skills to conduct independent research underwater. **Course participants must be certified, active AAUS scientific scuba divers** (see [link](#) for details). Completion of ENST 100 and ENST 483 is recommended.

Course ground rules

- Share responsibility for including all voices in a conversation
- Listen respectfully to your classmate's and your instructor's viewpoints
- Be open to changing your perspectives based on what you learn from others
- Understand that we are bound to make mistakes in this space
- Understand that your words have effects on others
- Take group work during class and outside of lecture and laboratory seriously
- Understand that your classmates may have different experiences from your own
- Make an effort to get to know your classmates
- Understand that there are different approaches to solving problems

Course learning objectives

Student learning objectives are aligned with the ENST Program (see [link](#)) in which students will:

- Learn about the physical, chemical and biological aspects of subtidal coastal ecosystems
- Critically examine primary literature focused on nearshore coastal habitats
- Become familiar with skills and protocols commonly used to conduct underwater research
- Identify common species that inhabit the southern California subtidal coastal zone
- Apply quantitative reasoning skills and analytical methods to ecological data
- Conduct independent research in which they formulate hypotheses, collect and analyze ecological data, write scientific reports, and provide critical feedback to their peers

Course modality

ENST 499 will be taught as a synchronous, in-person course and you are expected to be present for each lecture section. Recorded lectures will not be provided to students via Zoom (or any other platform) unless accommodations have been requested via [OSAS](#). Students that miss class are expected to get notes from their classmates.

This course will primarily use Blackboard (Bb) for communication, information and turning in assignments. PDF copies of lecture slides and links to topics discussed during class will be made available on Bb after each lecture is completed. Additional readings will be assigned throughout the semester and will be announced in class, posted on Bb and via email. During some lectures, we will work with spreadsheet data (using MS Excel) and run data simulations or experiments as either a class or asynchronously (see course schedule for specific dates).

Required readings

- Primary literature articles corresponding to each lecture will be available for download via Bb.

Recommended identification guides

- Gotschall, D.W. 1994. Guide to Marine Invertebrates – Alaska to Baja California. Sea Challengers, Inc. Monterey, California.
- Mondragon, J. and J. Mondragon. 2003. Seaweeds of the Pacific Coast: Common Marine Algae from Alaska to Baja California. Sea Challengers, Inc. Monterey, California.
- Gotschall, D.W. 2001. Pacific Coast Inshore Fishes. Fourth Edition (revised). Sea Challengers, Inc. Monterey, California

Description and assessment of exams, assignments, etc.

You will be graded on the basis of your performance on exams, written assignments, course activities and participation during lectures. **If there is a scheduling conflict with an exam, assignment or WMSC dive day you must notify me via email at least two-weeks in advance to see if alternative arrangements can be made.** If it is an excused absence (official USC travel, medical reasons, religious observation, etc.), I will do my best to provide you with a way to obtain the associated points. Otherwise, no make-ups will be allowed. If you miss an exam, quiz, activity, etc., you will receive a zero for that assignment.

Over the course of the semester, students will conduct 3 class projects via scuba at the USC Wrigley Marine Science Center off Catalina Island. which will require the submission of written scientific report, as well as an oral presentation detailing their experiences. Exam topics will include taxonomic identification of the common algae, invertebrates and fishes that inhabit the southern California coastal zone. Questions will be drawn from course readings, lecture materials and any related assignments, activities and discussions.

The final exam will be administered in the classroom Bb (specific details will be discussed/posted closer to the date on the course schedule). Therefore, each student is *required* to bring a laptop computer to class on the day of the final (If you need to borrow a computer – see the [USC Computing Center Laptop Loaner Program](#) website for details). During exams, students are NOT allowed to work as a group, use notes, books, mobile devices, etc. Failure to comply with exam policies will result in a zero on that specific exam.

All assignments must be submitted by the stated deadlines. Late assignments will have 20% deducted each 24 hours, with the first 24 hr deduction starting 15 min after the deadline. Reminder: USC policy prohibits sharing of any course content outside of the learning environment

Overview of primary assignments and activities

- **Species ID Exams:** Students will be tested on their ability to identify common algae, seagrasses, invertebrates and fishes that inhabit the waters off Catalina Island. Two exams will be administered (100 pts each; 200 points total).

- Data summary:** Student groups will collect and analyze (via Excel, R, etc.) a specific subtidal dataset (i.e., Projects 1-3) and submit (via Bb) a written summary of their experimental results and conclusions, as well as present/lead a discussion about these data with class). Write-ups will include a discussion on the health and sustainability of and/or ecosystem of a given habitat based on what we have learned in class. Students are required to complete 2 out of the 3 project data summaries, as well as present/lead a discussion related to one of these data sets once during the semester (Individual group summary: 2 × 50 pts each, 100 points total; All group summary & presentation: 75 pts). We will discuss this in more detail during lecture.
- Article analysis & discussion:** Student groups (n = 3) will select and post an article and relevant reading questions (for their classmates) from the primary literature and present/lead a discussion (~20-30 min total) during class. Each presentation is worth 50 points total (35 pts presentation plus 15 pts posting article and discussion questions ≥5-days before presentation date).

Grading Breakdown

Assignment	Points	Grade %
Exam #1: Macroalgae & Seagrass ID	100	17%
Exam #2: Inverts & Fish ID	100	17%
Final Exam	115	19%
Project data summary (individual dive teams) (2 x 50 pts)	100	17%
Project summary (all teams combined) presentation	75	13%
Article presentation & discussion	50	8%
Participation (data interp., disc, etc.)	60	10%
TOTAL	600	100%

Grading scale

Final course grades will be determined based on the percentage of points earned as outlined below. This scale may be adjusted depending on the progress of the class. If course taken as a “Pass” grade, you must earn a letter grade of C- or greater (see above) in course. A final point score at or below a D+ grade will result in a “No Pass”.

A	94-100	C	73-76
A-	90-94	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	59 and below

Additional policies

Routine attendance and active participation are an important part of each class session. Participation will be evaluated via thought exercises, reading assignments, in-class quizzes and questions. You are responsible for all information, announcements, date changes and any other course material presented, regardless of your participation or presence in the classroom.

The use of phones and other devices for text messaging, email, social media use, and web-browsing is not permitted in class except where required for in-class work. Students are encouraged to use a paper notebook and pen for recording notes.

Course schedule

For the best learning experience, you are expected to have read the assigned material by the date it is discussed in class. Articles, supplemental readings and in-class data sets will be posted online via Bb. If

you have to miss class make sure you arrange to get notes and announcements from one of your classmates. The readings and schedule of topics may be adjusted throughout the semester depending on progress of the class. Note: WMSC field days highlighted in yellow.

Date	Topic	Readings and Activities
Aug 22	Lecture: Course overview and logistics	AAUS Materials; USC Dive Manual (2023)
Aug 25	Lecture: TBA	Asynchronous Assignment; see Bb
Aug 29	Lecture: Project 1 Goals, Objectives & Overview	Overview article TBA
Sep 01	WMSC Catalina Island Field Day: Project 2 Checkout & Data Collection	
Sep 05	Lecture: Nearshore Coastal Ecosystems	Ebeling et al. (1985); Reed & Foster (1984)
Sep 08	WMSC Catalina Island Field Day: Project 2 Data Collection & Surveys	
Sep 12	Lecture: Macroalgae Ecology & Taxonomy	Holbrook et al. (1997), Davenport & Anderson (2007)
Sep 15	Lecture: Scientific Writing Article Analysis & Discussion #1	Day (2021) In-Class Activity; See Bb
Sep 19	Lecture: Coastal Ecosystem Restoration	Estes et al. (1998); McPherson et al. (2021)
Sep 22	Project Summary & Presentation #1: Group 1	In-Class Activity; See Bb
Sep 26	Lecture: Project 2 Goals, Objectives & Overview	Overview article TBA
Sep 29	WMSC Catalina Island Field Day: Project 2 Data Collection & Surveys	
Oct 03	Lecture: Ecology of Kelp Forest Invertebrates	Watanabe (1984); Sala & Graham (2002)
Oct 06	Article Analysis & Discussion #2	In-Class Activity; See Bb
Oct 10	SPECIES ID EXAM #1: Macroalgae and Seagrass	
Oct 13	<i>Fall Break – No Class</i>	
Oct 17	Lecture: Reef Fishes Ecology & Taxonomy	Hallacher & Roberts (1985);
Oct 20	WMSC Catalina Island Field Day: Project 2 Data Collection & Surveys	
Oct 24	Lecture: Reef Fishes Recruitment & Behavior	Levin et al. (1997); Carr (2001)
Oct 27	Article Analysis & Discussion #3	In-Class Activity; See Bb
Oct 31	Lecture: Ocean Ecosystem Function	Article TBA
Nov 03	Project Summary & Presentation #2: Group 2	In-Class Activity; See Bb
Nov 07	SPECIES ID EXAM #2: Reef Fishes & Invertebrates	
Nov 10	<i>Veteran's Day – No Class</i>	
Nov 14	Lecture: Project 3 Goals, Objectives & Overview	Overview article TBA
Nov 17	WMSC Catalina Island Field Day: Project 3 Data Collection & Surveys	
Nov 21	TBA	Asynchronous Assignment
Nov 24	<i>Thanksgiving – No Class</i>	
Nov 28	Article Analysis & Discussion #4	In-Class Activity; See Bb
Dec 01	Project Summary & Presentation #3: Group 3	In-Class Activity; See Bb
Dec 12	FINAL EXAM: Tues, 8:00-10:00 am	

About the instructor

Dr. David Ginsburg is a Professor (Teaching) of Environmental Studies at the University of Southern California and a Research Associate in Invertebrate Zoology (Echinoderms) at the Natural History Museum of Los Angeles County. Ginsburg oversees undergraduate research projects across a range university- and externally-funded (ARPA-E, NSF) initiatives. He holds a Ph.D. in Marine Environmental Biology (USC), M.S. in Chemical Ecology (Univ of Guam) and B.A. in Biology from UC Santa Cruz, and has worked in a variety of marine environments from tropical coral reefs and temperate kelp forests to polar benthic habitats. Prior to joining the USC faculty, Ginsburg was a postdoctoral researcher in UCLA's Department of Civil and Environmental Engineering and a Marine Policy Fellow with NOAA. His teaching

is focused on environmental studies and sciences, which includes hands-on learning and research experiences in the classroom and field. His awards include the USC Provost's Prize for Teaching with Technology and the Steven B. Sample Mentoring and Teaching Award. Ginsburg is certified as an AAUS, NAUI, and SDI scuba instructor, and has been as active AAUS scientific diver since 1993.

Statement on Academic Conduct and Support Systems

Academic integrity

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, compromises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask me if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and disability accommodations

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services](#) (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support systems

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.