

GEOL 107-L OCEANOGRAPHY FALL 2024

This course introduces the scientific study of the oceans as a general education science course with broad relevance. Today, the oceans are changing rapidly due to pressures associated with human activities, making these studies urgent and critical. We will learn about how the atmosphere and ocean interact, how ocean waters flow and where life flourishes in the oceans. We will study change in the oceans in response to the changing climate, pollution, overfishing, ocean transportation and the extraction of economic resources from the oceans – and ways to mitigate against these impacts. We will study the data that lead to the discovery of plate tectonics, the geological processes that shape ocean basins and present geological hazards to society. Oceanography offers many connections to society to interest students across many disciplines. The course uses scientific methods with hands-on physical and electronic examples in the laboratory section and develops skills in observation, interpretation, and presentation of findings. We invite students to develop the scientific literacy to equip them to assess problems, digest new information, and navigate developments in the future.

Professor: Dr. Sarah Feakins, feakins@usc.edu
Office hour: Tue 9-10am, ZHS 223F

TAs: There are 6 TAs for this course, you can go to any of their office hours.
Find TA email and office hours on lab syllabus on Brightspace posted in week 1.

Lecture: MW 2-3.20pm in person: SGM 123

Lab: Start in week 2 in person: ZHS B61. Lab syllabus on Brightspace in week 1.

Technology: [Course materials for GEOL 107 are on Brightspace](#)
[USC Brightspace help for students](#)

All course materials must be accessed via your USC login.

Students will need a computer, phone camera and internet access to complete assignments. USC Technology Support: [Software available to USC students](#).

Course uses: PollEverywhere, Google doc/sheet/slides and Zoom.

[Polleverywhere getting started](#) and [help](#).

[Zoom information for students](#) – SSO authentication required.

Textbook: *Recommended: Essentials of Oceanography*, Trujillo & Thurman Prentice Hall. (13th Ed.) ISBN 9780135487228. **Suppliers:** USC bookstore, [Pearson VitalSource](#). Used copies of older editions, or this [open access online textbook](#), covers many of the same topics. Read text for background understanding. Exams and quizzes test on lecture content only.

Basis of Grade:

10%	lecture quizzes (drop lowest)
25%	midterm exam
30%	final exam
<u>35%</u>	lab (see lab syllabus)
100%	total

Lecture Schedule & Recommended Reading

*Chapters in Trujillo & Thurman—Essentials of Oceanography—13th Ed.

Week	Date	Lecture Subject	Reading*
1	8/26/24	Dive in: ocean origins, ocean science	1
	8/28/24	Plate tectonics: gathering the evidence for motion	
2	9/2/24	Labor Day Holiday – no class	
	9/4/24	Plate tectonics: earthquakes, volcanoes and risk	2
3	9/9/24	Mapping ocean basins & marine sediments	
	9/11/24	Lecture Quiz 1 – Solid Earth The special properties of water	3-4
4	9/16/24	The temperature and saltiness of seawater	5
	9/18/24	Winds that stir the surface ocean	
5	9/23/24	Surface ocean circulation – currents	6
	9/25/24	Lecture Quiz 2 – Air-Sea Interface El Niño Southern Oscillation	7
6	9/30/24	Deep ocean circulation	
	10/2/24	Waves & tides Lecture Quiz 3 – Motion in the Ocean	
7	10/7/24	MIDTERM EXAM	
	10/9/24	Coastlines – beaches, estuaries and deltas	8-9
		Fall Recess 10-11th	
8	10/14/24	Dam that erosion from land to sea	10
	10/16/24	Systematics of Marine Biology	12
9	10/21/24	Nutrients and food webs	13
	10/23/24	Fisheries & our impact on ocean ecosystems	
10	10/28/24	Lecture Quiz 4 – Food webs Pelagic ocean & deep ocean – adaptations of life	14
	10/30/24	Marine mammals	
11	11/4/24	Managing California’s coastal oceans	15
	11/6/24	Coral reef biodiversity hotspots in peril	
12	11/11/24	Veterans Day Holiday – no lecture	
	11/13/24	Lecture Quiz 5 - Ecosystems Pollution – old foes	11
13	11/18/24	Pollution – emerging problems	
	11/20/24	Oceans of the past	16
14	11/25/24	Special topics	
	11/27/24	THANKSGIVING BREAK	
15	12/2/24	Our changing oceans	
	12/4/24	Solutions	
	12/13/24	FINAL EXAM – Friday, December 13th, 2-4 pm	

Attending class

Attendance at all class sessions is the best way to participate in the learning experience with your instructors and classmates; to complete the assigned work including polls; and to learn the class material needed for quizzes, exams and labs. Complete readings before class to get the most from class each day.

What to do if you missed a class?

You will learn best if you attend every single class, awake, alert and focused, however sickness, emergencies, interviews, USC athletics or other valid reasons may keep you from one or two classes. If you miss a class, catch up on all the posted material on Brightspace, textbook readings listed on the syllabus, and all assigned work to stay on track with your course.

Interactive participation software

To engage actively in learning during lectures this class will use participation software (**PollEverywhere; Pollev**) provided by USC. **Login using your USC credentials** to access the polls.

Lecture quizzes

Quizzes are delivered **via Brightspace** with questions that include multiple choice, graph/map reading, 'hotspot' (click on a figure to identify a feature) and matching. These are designed to check your comprehension of topics leading up to examinations. Questions will include recall of presented topics and will challenge you to apply concepts to solve new problems (higher order thinking questions). Diligent study and attending class will prepare you best to answer the recall questions. Attending class, listening and engaging with the subject material, will prepare you to answer higher order thinking questions. Best 4 of 5, the lowest (or 1 missed) quiz dropped (the gradebook automatically drops the lowest quiz and adjusts during the semester).

Examinations

Exams are **in person** in the USC scheduled class time (midterm) and USC scheduled final exam time. Exam questions are delivered **via Scantron/Brightspace**, multiple choice, graph/map reading, 'hotspot' (click on a figure to identify a feature). The midterm and final examinations evaluate your comprehension of the lecture course material. The midterm tests material in the first half of the course. The final exam focuses on the second half of the course, but concepts draw on your knowledge from the whole course – all USC final examinations are expected to be integrative assessments (i.e., cumulative, assessing comprehension of the whole course).

Missed quizzes or examinations?

Make-up quizzes and exams are generally not permitted except in extreme circumstances *e.g.* health emergency - inform the professor by email **in advance**, or as soon as circumstances allow.

OSAS Accommodations

If you have OSAS accommodations, provide documentation to your instructor as soon as possible at the start of the semester, at least 1 week before any assignment requiring accommodation from your instructors. See OSAS instructions, if needing OSAS testing center.

Learning Objectives

(adapted from those of [GE-E, Physical Sciences](#))

All USC students should have a basic grasp of scientific methods; to understand how models of the natural/living world are established and how researchers test the validity of these models using empirical evidence. They should have familiarity with many of the major scientific ideas of the modern world. Students will learn the major techniques of research and investigation, analysis and problem-solving, that provide the basis for discovery and validation in Oceanography. Scientific methods of discovery and research provide the means for confirmation and falsification of conjectures and hypotheses. The physical sciences deal with analysis of natural phenomena through quantitative description and synthesis. USC students need to understand how data is generated, presented and interpreted and how scientific discovery spurs technology growth and impacts society. Students will learn to solve scientific problems and to understand the processes by which scientific knowledge is obtained, evaluated and placed in the context of societal relevance. This Oceanography course includes an online laboratory component in which data are collected, analyzed and interpreted.

What to expect

This is a large volume course with 270 students, most students are taking this course as a required physical science GE. Throughout the course I will make connections – I am excited to show you how the science we will study is relevant to your lives and careers!

Students should read the textbook and any assigned materials before class, including any assigned videos, take notes during reading and videos, think about the topics being presented, and attend all class sessions ready to learn from lectures and to ready to participate in class activities via interactive technology. Students who delve into the topics in the news as well as by following the links presented in lecture, have a richer experience from the course.

In the lab sections students will learn in small groups through hands-on activities and questions that assess comprehension, guided by laboratory instructors, who are currently pursuing research towards doctoral degrees in the Earth Sciences. Assessment will include lab activity work and quizzes (short answer, multiple choice, fill in the blank, matching etc.) and students will make a recorded scientific presentation. See the lab syllabus.

Meet Professor Feakins <https://earth.usc.edu/feakins/>

I run an organic geochemistry laboratory-based research program – studying past climate from marine sediments in the Pacific, Atlantic, Mediterranean, Indian and Southern Oceans, as well as lakes in California and Utah. I have been teaching this course at USC for sixteen years. I am excited to dive into this oceanography semester with you! You can reach me here: feakins@usc.edu.

The lab instructors/teaching assistants are also conducting research in the Earth Sciences on various topics. As all the instructors are scientists with active laboratory, model-based and field research, GEOL 107 students gain insights into current research in the sciences, and learning opportunities that extend beyond the classroom. Ask us about our science! Ask us about the topics you might be interested in the news and for your careers!

Course technology and learning environments

USC technology rental program

If you need resources to successfully participate in your classes, such as a laptop, you may be eligible for the [USC Computing Center Laptop Loaner Program](#).

GEOL 107 Classroom Norms

Endeavor to arrive to class on time and to listen attentively and respectfully to lecture. Raise your hand to speak to ask a question or to contribute to discussion sections and be mindful that your contributions foster a respectful and inclusive environment.

In the event of Zoom use for course continuity, please be reminded of the following policies:

Zoom recording notice – class sessions *may* be recorded by the instructor per USC Zoom policy, recordings *may* be provided to all students. **GEOL 107 Zoom etiquette** - If joining a class session on Zoom, *please* mute your microphone when not speaking. Unintended audio can be disruptive. *Recommend* camera on in small meetings or when speaking; camera on/off during lecture. When connecting to Zoom always log in first with your USC Zoom login via SSO – this ensures the security of our classrooms and avoids classroom interruptions with Zoom notifications. If you do not login via SSO, you will not be admitted to the Zoom session. Viewing lecture slides and completing exams and assignments requires an internet connection. If you have connectivity or other issues, or other needs for accommodation, please reach out to the instructor outside of the class session. For any issues that arise during class (e.g., volume) please raise hand to let the instructor know.

Sharing of course materials outside of the learning environment

Students please note that USC has a policy that prohibits sharing of any synchronous and asynchronous course content outside of the learning environment.

SCampus Section 11.12(B) Distribution or use of notes or recordings based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study is a violation of the USC Student Conduct Code. This includes, but is not limited to, providing materials for distribution by services publishing class notes. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the Internet or via any other media. (See Section C.1 Class Notes Policy).

Optional Extra: JEP Service Learning

You may apply for a service learning opportunity through the USC Joint Education Project (JEP): <https://dornsife.usc.edu/joint-educational-project/> JEP places USC students in classrooms to enrich education at local schools. The commitment involves a steady commitment to engage with ocean science course material throughout the semester – a great way to improve your understanding and a great way to help the local community. Successful fulfillment of the JEP placement teaching Oceanography in local schools, is recognized with extra credit in the 107 grade of up to a partial grade, eg B to B+, dependent upon performance report from JEP instructor. Prior participants have found this a very rewarding experience. *No other extra credit opportunities are available for any reason.*

Statement on Academic Conduct and Support Systems

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), 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 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 about what constitutes unauthorized assistance on an exam or assignment. Collaboration. In this class, you are expected to submit work that demonstrates your individual mastery of the course concepts. Group work. Unless specifically designated as a 'group project,' all assignments are expected to be completed individually. Computer programs. Plagiarism includes the use of AI written content, as well as content produced by others, or procured from another. If found responsible for an academic violation, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and the course.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes

other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

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, comprises 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 your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

If found responsible for an academic violation, including plagiarism, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and/or in the course.

AI Generators are not permitted in this course:

Since developing and demonstrating analytical and critical thinking skills are assessed learning outcomes of this course, all assignments should be prepared by the student. Students may not have another person or entity (including AI such as ChatGPT) assist with any portion of the assigned coursework including assessments. Completing coursework by actively thinking and completing the work yourself is essential to learning. Developing strong competencies in thinking and learning is the function of a university education and will prepare you for a competitive workplace. Any use of AI tools is prohibited in this course, will be identified as plagiarism, and will be reported to the Office of Academic Integrity.

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

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.