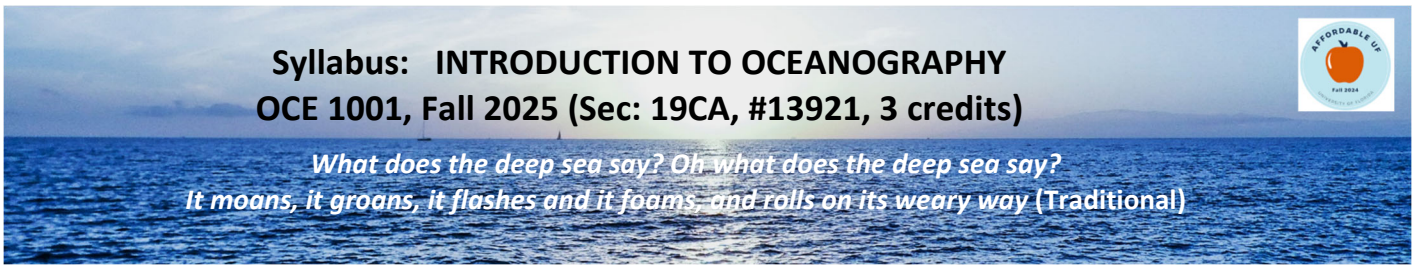

Syllabus: INTRODUCTION TO OCEANOGRAPHY
OCE 1001, Fall 2025 (Sec: 19CA, #13921, 3 credits)

What does the deep sea say? Oh what does the deep sea say?
It moans, it groans, it flashes and it foams, and rolls on its weary way (Traditional)

Meeting Time/Place: Mon./Wed./Fri., Period 5 (11:45 AM - 12:35 PM) in Williamson Hall 100

Instructor

Andrew R. Zimmerman, Ph.D.
Professor, Department of Geological Sciences, University of Florida, Office: (352) 392-0070
Office Hours: The 1 hour following each class, Williamson Hall 364 (or message me to set up another time)
e-mail: azimmer@ufl.edu (but generally use Canvas Messaging tool instead)
website: http://people.clas.ufl.edu/azimmer/

Teaching Assistant

Nishika Samarakoon, WM Hall 379
e-mail: tn.samarakoonmud@ufl.edu (you are welcome to make an appointment to visit)

Course Description

Using the scientific method, critical thinking skills, and data analysis, this course will examine the fundamental processes of the ocean system—composed of an atmosphere, hydrosphere, lithosphere, and biosphere—through time. The course will also explore interactions between these spheres, including critical analysis of scientific theories, and emphasize oceanic connections with humanity.

In this course you will:

- learn the major geological, physical and biological characteristics of Earth's marine realm.
- understand the role of the ocean in shaping the global Earth environment.
- develop an enhanced awareness of how the ocean influences human well-being and vice versa.
- realize the importance of science and how it can enhance our appreciation for the complexity and beauty of the world around us and solve real-world problems. Hopefully, this will translate into an eagerness to explore science-topics further and to vote and consume goods as a scientifically-educated citizen.

Course Website on Canvas

Go to http://lss.at.ufl.edu/ and click on the e-Learning in Canvas to Log In. You must have an active GatorLink ID to access the course website. If not, go to the GatorLink website (http://gatorlink.uf.edu) or call the help desk at 392-HELP for assistance.
The course site provides access to grades, announcements, downloadable lecture notes/outlines and discussion and exercise assignments. It is the student's responsibility to see that their grades are correctly recorded in the on-line gradebook. It is recommended that students adjust Canvas settings so that Announcements are sent to phone or email.

Recommended Textbook

No textbook is required for the course. Any introductory oceanography textbook that you may find, even an old one, is probably sufficient to serve as a secondary source of information that can provide you with additional information and alternative explanations of the material covered in the lecture and on the quizzes. I will place some textbooks on reserve in Marston Library.

Grading

3 Exams (in class, curved to 85% median)	72% total (28%, 28%, 16% for lowest exam score)
Group Discussions	10% total (5 on Canvas, 2% each)
Homework exercise	18% total (6 on Canvas, 3% each)

Final letter grade:
A = ≥93%, A- = 90-92.99, B+ = 87-89.99, B = 83-86.99, B- = 80-82.99, C+ = 77-79.99, C = 73-76.99, C- = 70-72.99, D+ = 67-69.99, D = 63-66.99, D- = 60-62.99, E < 60

There will be no 'rounding up' of grades so please do not ask. No Extra Credit will be offered in this course.

***Note:** An earned grade of 'C-' grade or below does not qualify for major, minor, Gen Ed, or college basic distribution credit. See UF grading policy.

Exams

Exams will be about 50-60 multiple choice questions (often the same or similar to those that appear as in-class Review Questions). Everything associated with the class is fair game on exams. However, the focus will be on material presented in lecture. Exam material is cumulative but *focuses on each third of the course*. I will offer pre-exam Q&A sessions. Make-ups for exams will only be given by pre-arrangement (before the exam) or under the event of illness or other unforeseen events that are expressed to your instructor with 24 hr after the exam (consistent with UF policy).

1st in-class exam	Mon. Sep 22
2nd in-class exam	Mon., Oct. 27
3rd exam (final exam)	Tues. Dec 9, 10-12 am

Exam grades will be curved to a median of 85% using a linear method described at: http://www.ats.amherst.edu/software/excel/excel-grading/excel-grades/#CurvingGrades. As a result, more than half the class will get at least a B on exams.

Group Discussions

Group Discussion will take place in the Discussion link section of the course Canvas website from Friday-through Monday (11:59 pm). Each student is required to make at least *one substantive comment addressing the posed question, as well as one response to another student's comment* (each is usually at least 2-3 sentences). The best comments will utilize knowledge and insights gained from the materials presented in lectures or other cited sources.

- justify your answers with facts (if not from our lectures, provide the source)
- stay on topic and address every part of the discussion question.
- don't wait until Monday night to comment: others in your group will need something to respond to earlier

Exercises

Six multiple choice exercises will be assigned during the semester (see schedule). All but one of them will be done on the Canvas class website (Assignment tab). Homework assignments can be turned in late, but only within one week of the due date and only for half credit.

Field Trip

There will be an **optional field trip Oct. 24 Seahorse Key Marine Lab, Cedar Key, FL**. Transportation will be provided from Gainesville leaving at 10:30 am and returning by 5:30 pm. We will explore the marine ecology of the area by doing a shipboard marine trawl and plankton tow, seine netting, and use the tanks and microscopes at the lab. More info will follow.

Extra Credit Opportunity

You will be provided with a number of options for a written assignment that may earn you extra credit of up to 2% increase to your final grade point total. It must be uploaded to the Canvas extra credit tab by the last day of classes. More details will be provided.

How to do well in this class

Skeleton notes for each lecture will be posted on the class website. Keep in mind that these are NOT complete notes. I recommend taking your notes on top of these. Everyone has his or her own study techniques, but here's my recommendation. The more frequently you are exposed to the material, the more likely you are to grasp the concepts and ideas presented. So, I recommend skimming the designated reading before lecture. After class, really read the text focusing on the material covered in lecture and concentrating on figures and illustrations. Make note of questions or concepts to have clarified by me or your TA later. Attend pre-exam review sessions with a list of questions for me to answer. Use the office hours provided for you to ask questions or just to come in and chat. Be responsible for your own education. If you miss a class, get the notes from a colleague before the next class. It is not my intention that you be forced to memorize many trivial facts. Instead, I think you can succeed by being very familiar with the visual images (figures, graphs etc. shown in lecture or textbook). If you really understand the pictures, then you really understand the concepts.

Miscellaneous

This is a large class, so small disturbances rapidly multiply into large disturbances. Creating a disturbance is rude to your classmates and to me. I consider the following to be rude:

- No use of computers other than viewing and taking class notes will be allowed during class.
- No eating or reading the newspaper will be allowed in class during class.
- Entering the class late or leaving early. If you are more than 10 minutes late, I would suggest you do not enter.
- Leaving your seat before class ends, even to go to the bathroom, should be an extremely rare occurrence (i.e. should not happen). Make prior arrangements in the event of an extenuating circumstance.
-Talking with other students during lectures. If you have questions during the lecture, please address them to me. Chances are others have questions as well. Your comments and feedback are welcome.

Policies

This course complies with all UF academic policies. For information on those polices and for resources for students, the direct link is https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/. These policies include:

- Attendance and make-up policies
- DRC information
- Assigning grade points
- Course Evaluations
- Honesty policy
- In-class recording
- Academic and wellness resources

Introduction to Oceanography OCE 1001 – Fall 2025
Prof. Andrew Zimmerman - Class Schedule

Week	Date	Topic	Optional Reading
		Background	*In Trujillo & Thurman (on Reserve)*
	Aug 22	Introduction to Course and Topic	
1	Aug 25	History and Methods of Oceanography	Ch 1
	Aug 27	History and Methods of Oceanography	Appendix 1, 2, 3 & 5
	Aug 29	Origins of Earth and Oceans	
2	Sep 1	**No class – Labor Day** Due Today	Exercise 1 & 2 and Discuss #1
		Marine Geology	
	Sep 3	Plate Tectonics	Ch 2
	Sep 5	Plate Tectonics	
3	Sep 8	Plate Tectonics	
	Sep 10	Physiography of the Seafloor	Ch 3
	Sep 12	Physiography of the Seafloor	
4	Sep 15	Physiography of the Seafloor Due Today	Exerc. #3 and Discussion #2
	Sep 17	Sediments	Ch 4
	Sep 17	Sediments	**Pre-Exam Q & A**
5	Sep 22	**1st In-Class Exam**	
		Marine Chemistry	
	Sep 24	Water Chemistry	Ch 5, Appendix IV
	Sep 26	Water Chemistry	
		Physical Oceanography	
6	Sep 29	Atmosphere Principles	Ch 6
	Oct 1	Atmospheric Circulation	
	Oct 3	Atmospheric Circulation	
7	Oct 6	Surface Ocean Circulation	Ch 7
	Oct 8	Surface Ocean Circulation	
	Oct 10	Deep Ocean Circulation Due Today	Discussion #3
8	Oct 13	Waves	Ch 8
	Oct 15	Waves Due Today	Exercise #4 turn in in class
	Oct 17	**No class - Homecoming**	
9	Oct 20	Coasts & Beaches	Ch 10

	Oct 22	Coasts & Beaches Due Today	Exercise 5
	Oct 24	Coasts & Beaches	Oct. 23 - optional FIELD TRIP
			Pre-Exam Q & A
10	Oct 27	**2nd In-Class Exam**	
	Oct 29	Climate Change – Evidence and Uncertainties	Ch 16
	Oct 31	Climate Change and Sea Level Rise Due Today	Discussion #4
		Biological Oceanography	
11	Nov 3	Life in the Ocean – Intro.	Ch 12
	Nov 5	Life in the Ocean – Ecology	
	Nov 7	Life in the Ocean – Primary Production	Ch 13
12	Nov 10	Life in the Ocean – Primary Production	
	Nov 12	Pelagic Organisms	
	Nov 14	Pelagic Organisms	Ch. 14
13	Nov 17	Pelagic Organisms	
	Nov 19	Biological Resources	
	Nov 21	Biological Resources	
14	Nov 24	No class - Thanksgiving	
	Nov 26	No class - Thanksgiving	Ch. 13 (p 438-450)
	Nov 28	No class - Thanksgiving Due Today	Exercise 6
		Due Today	Discussion #5
15	Dec 1	Benthic Communities	Ch 15
	Dec 3	Marine Pollution/Issues Extra Credit Due Today	Ch 11
	Dec 5	**No Class - Reading Period**	**Pre-Exam Q & A**
	Dec 9	**Scheduled Final Exam, Tuesday 10-12 am WM100**	

GENERAL EDUCATION DESCRIPTIONS AND STUDENT LEARNING OUTCOMES

General Education Core Course Student Learning Outcomes (SLOs)

- Students will use critical thinking to recognize the rigorous standards of scientific theories.
- Students will analyze and synthesize oceanographic data to draw scientifically valid conclusions.
- Students will recognize the different time scales associated with different ocean processes.
- Students will describe interactions between humans and the ocean realm.
- Students will apply their understanding of oceanographic principles to various marine issues.

General Education (Physical Sciences). See UF Gen Ed Objectives

Objectives (Physical Sciences)

Physical science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern physical systems. Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills

through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

Accomplishment of General Education Objectives (Physical Sciences)
The general education objectives will be accomplished through the presentation of major scientific developments in the major subdisciplines of oceanography as well as their implication for society. Then, in assigned discussions and activities throughout the semester, students will apply logical reasoning skills through scientific criticism and argument to critically evaluate a number of issues using those basic concepts, theories and terms presented.

General Education Student Learning Outcomes (Physical Sciences)
The general education student learning outcomes describe the knowledge, skills and attitudes that students are expected to acquire while completing a general education course at the University of Florida. The SLOs fall into three areas: content, communication and critical thinking.

CONTENT SLOS:
Students identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method within the subject area. Identify, describe, and explain the major scientific developments within the subject area and the impacts on society and the environment. Identify, describe, and explain relevant processes that govern biological and physical systems within the subject area.

AT THE END OF THE COURSE, STUDENTS WILL BE ABLE TO…
- Explain fundamental concepts relating to the scientific method, experimentation, and uncertainty.
- Explain the role the oceans have played in shaping the history of humans
- Identify and explain the general, but unique features of the marine physical, chemical and biological environment.
- Explain the major technological advancements that have led to advancement in our understanding of the marine physical, chemical and biological environment.
- Detail the major lines of evidence for, and uncertainties relating to, the theory of anthropogenic climate change and sea level rise.
- Outline the large number of ways that humans are affecting the ocean environment and policy options that should be considered for maintaining the health of the marine realm.
- Demonstrate the ability to recognize what is and is not science using critical thinking skills.
- Analyze and synthesize oceanographic data to draw scientifically valid conclusions.
- Recognize the different time scales associated with different ocean processes.
- Effectively communicate the importance of the interactions between humans and the ocean realm.

ACHIEVEMENT OF THIS LEARNING OUTCOME WILL BE ASSESSED THROUGH: weekly three exams as well as periodic on-line discussions and activities.

CRITICAL THINKING SLOS:
Students formulate empirically-testable hypotheses derived from the study of physical processes or living things within the subject area. Apply logical reasoning skills effectively through scientific criticism and argument within the subject area. Apply techniques of discovery and critical thinking effectively to solve experiments and to evaluate outcomes.

AT THE END OF THE COURSE, STUDENTS WILL BE ABLE TO…
- Apply the process of critical thinking and scientific inquiry in discovering, understanding, and addressing the challenges of maintaining the health of the marine environment.

ACHIEVEMENT OF THESE LEARNING OUTCOMES WILL BE ASSESSED THROUGH: completion of 5 on-line exercises and 5 on-line discussions.

COMMUNICATION SLOS:
Students communicate scientific findings clearly and effectively using oral, written and/or graphic forms. Write effectively in several forms, such as research papers and laboratory reports.

AT THE END OF THE COURSE, STUDENTS WILL BE ABLE TO….
- Effectively communicate, in written form, multi-disciplinary scientific challenges and strategies for addressing the issues of marine science.

ACHIEVEMENT OF THESE LEARNING OUTCOMES WILL BE ASSESSED THROUGH: completion of 5 on-line exercises and 5 on-line discussions