



**Syllabus: INTRODUCTION TO OCEANOGRAPHY**  
**OCE 1001, Fall 2024 (Sec: 19CA, #14892, 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](mailto:azimmer@ufl.edu) (but generally use Canvas Messaging tool instead)

website: <http://people.clas.ufl.edu/azimmer/>

**Teaching Assistant**

Megan Black, WM Hall 379

e-mail: [meganmblack@ufl.edu](mailto:meganmblack@ufl.edu) (you are welcome to make an appointment to visit)

**Overall Course Objectives**

- 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 and Extra Credit**

No text book 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.

HOWEVER, use of the following textbook and its companion website (Mastering Oceanography) will provide you with an opportunity for extra credit points that can boost your final grade tally by up to 6% (more info below).

Textbook options info:

**Recommended (and needed for Extra Credit Assignments): Trujillo & Thurman: Essentials of Oceanography Plus Modified MasteringOceanography with eText --13/e**

**OPTIONS:**

- a. Modified Mastering Oceanography with Pearson eText: ISBN-13: 9780135486795; \$79.99
- c. Loose-leaf text only: #9780135204306; \$139.99 (bookstore)
- d. Paper text only: #9780134891521; \$206.65 (bookstore)

Whether you purchase the 'Modified Mastering' from within Canvas or elsewhere, to do the extra credit, you need to register it within Canvas. The process is described here:

<http://www.youtube.com/watch?v=NlbR6zpdKRQ>. If problems, students should contact Pearson tech support directly: <https://support.pearson.com/getsupport/s/>.

By the way, Mastering does not keep a record of students that go the route of using the short term free trial to get some points.

**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. The only extra credit that will be offered is **6%** final grade points for work done on *MasteringOceanography* and/or **2%** for going on the field trip (details below).

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

**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 extraordinary circumstances.

- 1st in-class exam      Mon. Sep 23
- 2nd in-class exam      Mon., Oct. 28
- 3rd exam (final exam)    Wed. Dec 11, 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 Thursday-through Sunday (11:59 pm) at the end of weeks 2, 4, 8, 10, 13 of the course. 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 and readings.

- 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 Sunday night to contribute: others in your group may need something to respond to earlier

### Exercises

Six exercises will be assigned during the semester. 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. You will receive in-class and e-mail reminders when these assignments are due.

### Extra Credit

There are 6 assignments on the MasteringOceanography website worth a possible 6% addition to your final grade. Two assignments should be completed before each of the three exams to receive full credit. Each one can be done in roughly 2 hours. Your score on a 'Mastering' lesson will represent the fraction of the 1% extra credit you will be awarded. For example, if you did only 2 lessons and got a 70% and a 90%, you would get  $0.7 + 0.9 = 1.6\%$  points and your grade might go from 89% or a B+, to 90.6%, an A-.

The 'Mastering' assignments are designed to help you learn the material and do better on exams (by letting you stop and consult the e-textbook, allowing partial credit for getting the answers on your second try or after providing a hint). Thus, full credit will be awarded only if assignments are completed before taking class exams on the corresponding material covered. Only half credit will be awarded for assignments completed before the final (third) exam. Mastering also has dynamic study modules for each chapter to help you study.

The only other potential extra credit opportunity (2% final grade increase) will be an **optional field trip on Thursday Oct. 17 OR 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.

### 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 arrangement 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.

### **Academic Honesty Policy**

Students must conform to UF's academic honesty policy regarding plagiarism and other forms of cheating. This means that on all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The university specifically prohibits cheating, plagiarism, misrepresentation, bribery, conspiracy, and fabrication. For more information about the definition of these terms and other aspects of the Honesty Guidelines, see <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>. All students found to have cheated, plagiarized, or otherwise violated the Honor Code in any assignment for this course will be prosecuted to the full extent of the university honor policy, including judicial action and the sanctions listed in paragraph XI of the Student Conduct Code. For serious violations, you will fail this course.

### **Accommodations for Students with Disabilities**

Students with disabilities who experience learning barriers and would like to request academic accommodations should see "Get Started With the DRC" webpage on the UF Disability Resource Center site. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### **Additional Resources**

Students facing difficulties completing the course or who are in need of counseling or urgent help may contact the Counseling and Wellness Center: <https://counseling.ufl.edu/>, 392-1575; or the University Police Department: 392-1111 or 9-1-1 for emergencies.

Other Resources available on-campus for students include:

- Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575
- U Matter, We Care: If you or someone you know is in distress, contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575
- Student Health Care Center: Call 352-392-1161
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.
- Teaching Center: 1317 Turlington Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

### **Course Evaluation**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>.

### **In-Class Recording**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal education use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

**Introduction to Oceanography OCE 1001 – Fall 2024**  
**Prof. Andrew Zimmerman - Class Schedule**

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>
		<b>Background</b>	<i>In Trujillo &amp; Thurman</i>
	Aug 23	Introduction to Course and Topic	
1	Aug 26	History and Methods of Oceanography	Ch 1
	Aug 28	History and Methods of Oceanography	Appendix 1, 2, 3 & 5
	Aug 30	Origins of Earth and Oceans	
2	Sep 2	<b>No class – Labor Day</b> <span style="float: right;">Due Today</span>	<b>Exercise 1 &amp; 2 and Discuss #1</b>
		<b>Marine Geology</b>	
	Sep 4	Plate Tectonics	Ch 2
	Sep 6	Plate Tectonics	
3	Sep 9	Plate Tectonics	
	Sep 11	Physiography of the Seafloor	Ch 3
	Sep 13	Physiography of the Seafloor	
4	Sep 16	Physiography of the Seafloor <span style="float: right;">Due Today</span>	<b>Exerc #3 and Discussion #2</b>
	Sep 18	Sediments	Ch 4
	Sep 20	Sediments	<b>Pre-Exam Q &amp; A</b>
5	Sep 23	<b>1<sup>st</sup> In-Class Exam</b>	
		<b>Marine Chemistry</b>	
	Sep 25	Water Chemistry	Ch 5, Appendix IV
	Sep 27	Water Chemistry	
		<b>Physical Oceanography</b>	
6	Sep 30	Atmosphere Principles	Ch 6
	Oct 2	Atmospheric Circulation	
	Oct 4	Atmospheric Circulation	
7	Oct 7	Surface Ocean Circulation	Ch 7
	Oct 9	Surface Ocean Circulation	
	Oct 11	Deep Ocean Circulation <span style="float: right;">Due Today</span>	<b>Discussion #3</b>
8	Oct 14	Waves	Ch 8
	Oct 16	Waves <span style="float: right;">Due Today</span>	<b>Exercise #4 turn in in class</b>
	Oct 18	<b>No class - Homecoming</b>	<b>Oct. 17 - FIELD TRIP (opt)</b>
9	Oct 21	Coasts & Beaches	Ch 10

	Oct 23	Coasts & Beaches	Due Today	Exercise 5
	Oct 25	Coasts & Beaches		Oct. 24 - FIELD TRIP (opt)
				Pre-Exam Q & A
10	Oct 28	2 <sup>nd</sup> In-Class Exam		
	Oct 30	Climate Change – Evidence and Uncertainties		Ch 16
	Nov 1	Climate Change and Sea Level Rise	Due Today	Discussion #4
		<b>Biological Oceanography</b>		
11	Nov 4	Life in the Ocean – Intro.		Ch 12
	Nov 6	Life in the Ocean – Ecology		
	Nov 8	Life in the Ocean – Primary Production		Ch 13
12	Nov 11	No class – Veterans Day		
	Nov 13	Life in the Ocean – Primary Production		
	Nov 15	Pelagic Organisms		Ch. 14
13	Nov 18	Pelagic Organisms		
	Nov 20	Pelagic Organisms		
	Nov 22	Biological Resources	Due Today	Discussion #5
14	Nov 25	No class - Thanksgiving	on-line lecture on	Biological Resources
	Nov 27	No class - Thanksgiving		Ch. 13 (p 438-450)
	Nov 29	No class - Thanksgiving	Due Today	Exercise 6
15	Dec 2	Benthic Communities		Ch 15
	Dec 4	Marine Pollution/Issues		Ch 11
	Dec 6	No Class - Reading Period		Pre-Exam Q & A
	Dec 11	Scheduled Final Exam, Wed. 10-12 am		

## GENERAL EDUCATION DESCRIPTIONS AND STUDENT LEARNING OUTCOMES

### General Education (Physical Sciences)

#### **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 sealevel 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