

INTRODUCTION TO OCEANOGRAPHY

11:628:120:90

Fall 2023

Asynchronous, online

INSTRUCTORS:

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Teaching Assistants:

TBD

Office hours: To Be Determined, via zoom

COURSE DESCRIPTION:

The goal of this course is to enhance 'ocean literacy' among students with diverse backgrounds by introducing and acquainting students with essential concepts in oceanography. It also strives to enhance the students understanding of the 'scientific process' by interpreting scientific principles, hypotheses, and data. Due to oceanography's interdisciplinary nature, we will examine geological, physical, chemical, and biological disciplines as they apply to ocean-related processes. With this foundation, students will comprehend a variety of oceanographic terms and concepts, including: how ocean systems work, how they are studied, how the ocean influences Earth's biosphere and atmosphere, how the oceans support living ecosystems, how the ocean impacts their daily lives, and the critical issues facing the fate of oceans and their coastlines (among many others). This course is asynchronous online, with grades generated from three online exams and six assignments. For those students seeking additional help with the assignments, an *optional* in person session will be offered prior to the assignment due date

LEARNING GOALS and OBJECTIVES:

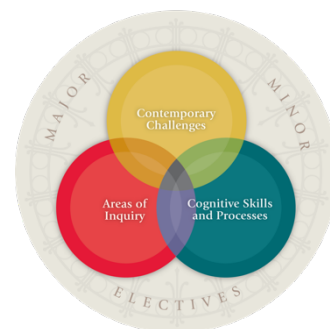
The content and activities of this course satisfy several SAS & SEBS core-curriculum learning goals, including:

21st century Challenges

- b. Analyze a contemporary global issue from a multidisciplinary perspective
- c. Analyze the relationship that science and technology have to a contemporary social issue

Areas of Inquiry: Natural Sciences (NS)

- e. Understand and apply basic principles and concepts in the physical or biological sciences
- f. Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in scientific analysis



READING MATERIAL AND OTHER RESOURCE INFO:

There will be different source materials for content in this class.

First, we will use our class Canvas website (<https://canvas.rutgers.edu>) for online communication and academic content, such as general class information, syllabus, announcements, reading assignments (lectures are provided as reading assignments), grades, and current content (newspaper articles, websites, etc.). Students will have access to all of these materials. Canvas will also be used as platform to disseminate and exercises and exams.

Second, we recommend obtaining a copy of 'Essentials of Oceanography (13th edition), Trujillo and Thurman' for access to core content for the class. This book is an excellent resource for the broad range of topics in the area of oceanography that we will be covering and is very useful to augment your learning in the

class. Please note that it is also possible to use an earlier edition of the textbook, as most of the material is the same. For different buying options, including eBook check out the book's website (<https://www.pearson.com/us/higher-education/program/Trujillo-Essentials-of-Oceanography-Plus-Mastering-Oceanography-with-Pearson-e-Text-Access-Card-Package-13th-Edition/PGM1938154.html>). For used copies check www.amazon.com. While the course will follow the textbook fairly closely, there will be additional material covered in class.

ONLINE STRUCTURE and CONTENT:

The course is entirely online, meaning that there is some flexibility in when and where you do the course work. That flexibility means that you are solely responsible for keeping on schedule and making sure you complete all assignments on time (a full schedule is provided below). Links to additional learning materials, such as pages with animations and videos to illustrate concepts, are embedded in the lecture reading material. You should follow these links and consider the linked content part of the course. These links will show up as colored text and provide additional information relevant to the course.

GRADING:

There will be three exams spread throughout the semester. These exams will cover material from the class (see class schedule) and will be disseminated via Canvas. They will be open-book, take-home format and you will have to complete each on the assigned day (no make-ups or early exams). Completed exams will be submitted via Canvas. Exam1 and Exam2 will each be 20% of the grade; Exam3 will contain some questions that build on a 'cumulative' understanding of concepts in the class and will be 25% of the grade. Material covered in the reading and supplementary material will be emphasized on exams.

There will also be periodic (approximately six in total) exercises throughout the semester to solve problems, answer questions, and understand concepts using different types of oceanographic data. These exercises will cumulatively total 35% of the final grade, so PLEASE take these seriously. It is critical that you keep up with these exercises by coming to 'class' (meaning visiting the course website) regularly. My advice - put time each week dedicated to this course in your calendar to keep up with the lecture readings and exercises. Assignment due dates will be set as the course progresses and all assignments can be completed entirely online. For those students seeking additional help for each of the assignments, an *optional* in person session will be held on occasional Tuesdays (10:20 to 11:30 am) prior to the assignment due date.

SPECIAL NEEDS:

Students requesting accommodations must follow the procedures outlined at the Office of Disability Services <https://ods.rutgers.edu/>. Please see me immediately so that we may make any necessary arrangements to support a successful learning experience. Please note that all exams will be take-home (online) and you will have flexibility in the time to complete it on the exam day, so time should not be an issue.

ATTENDANCE:

Treat this course like a class that you have to 'attend' by putting each one on your calendar and reading the assigned material *on time*. Likewise, keep up with exercises through the semester. The course is asynchronous, so you can pick the times of each day/week that work for you to get the course work done. It is up to you to ensure you don't fall behind, but know that I also monitor your activity on the course website and will know when you fail to 'attend' class.

ACADEMIC INTEGRITY POLICY:

The rules are simple: don't cheat, don't plagiarize. Plagiarism, cheating, or any other manner of academic fraud will not be tolerated. It is your responsibility to read the Rutgers University Academic Integrity Policy, on the web at <http://academicintegrity.rutgers.edu/>. Also all should be warned, I use all available plagiarism software, so if you cheat, you unfortunately will be caught. The consequences are not good, so be proud of your thoughts and use your own words. Please see me if you have any questions or concerns.

STUDENT-WELLNESS SERVICES:

Do something to help - Share a concern

health.rutgers.edu/wp-content/uploads/sites/57/2015/01/concerned.html

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884; 17 Senior Street, New Brunswick, NJ 08901 / www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181; 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800; Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

2023 Lecture Reading & Exam Schedule
Bold Blue text notes the major dates for exams

DATE	Focus
September 5, 2023	Class Introduction & Navigation
September 7, 2023	Ocean Origins
September 12, 2023	Plate Tectonics & the Ocean Floor
September 14, 2023	Ocean Boundaries
September 19, 2023	Marine Provinces
September 21, 2023	Deep Ocean Basins
September 26, 2023	Marine Sediments - 1
September 28, 2023	Marine Sediments - 2
October 3, 2023	Exam 1
October 5, 2023	Properties of (Sea)water
October 10, 2023	Salinity
October 12, 2023	Density
October 17, 2023	Ocean Acidity & Light
October 19, 2023	Air-Sea Interactions
October 24, 2023	More Air-Sea Interactions
October 26, 2023	Ocean Circulation
October 31, 2023	Ocean Life – Productivity
November 2, 2023	Ocean Life – Plankton & Nekton
November 7, 2023	Ocean Life – Mammals and Birds
November 9, 2023	<i>Study Break</i>
November 14, 2023	Exam 2
November 16, 2023	Ocean Life – Benthos and Invertebrates
November 21, 2023	Hypoxia: Ocean Dead Zones
November 28, 2023	Fisheries & Aquaculture
November 30, 2023	Climate Change in the Ocean
December 5, 2023	The Law of the Sea
December 7, 2023	Sea Level Rise
December 13, 2023	<i>Study Break</i>
December 15, 2023	Exam 3