

COURSE INFORMATION

Course Title: Introduction to Physical Oceanography

Section Number: 4119

Units: 3

Prerequisite(s) or Advisories: None

Location: DRSCHR 205

Day and Time: Thursday 5:15-6:35PM (in-person lecture)
Asynchronous 1.5 hours per week

INSTRUCTOR INFORMATION

Instructor: Daniel Dauhajre, Ph.D.

Email: DAUHAJRE_DANIEL@smc.edu

Office Hours: Mondays 6PM-7PM (by zoom)

Zoom link:

<https://zoom.us/j/97701815749?pwd=Nk9rSEJpdnV0UU9VM3hFdkFDTEQ0dz09>

Pass code: X3ZuiV

Research Website: danieldauhajre.weebly.com

COURSE DESCRIPTION

This course provides the student with an understanding of the physical and geological aspect of oceanography. Lecture topics include the origin of the oceans, plate tectonics, seafloor topography, waves, beaches, estuaries, lagoons, and lakes. Completion of this course will give the student a greater knowledge of the fascinating and dynamic world of the oceans.

COURSE OBJECTIVES

Upon completion of this course, the student will be able to:

1. Demonstrate a greater awareness of the oceanic realm as illustrated by identifying the various types of breakers, beach erosional and depositional features, and differentiate a lagoon from an estuary.
2. Describe marine resources and explain public policy impacts on management of the marine environment.
3. Explain accurately oceanographic phenomena such as tsunamis and the worldwide climatic and economic impact of El Nino events.
4. Describe how ocean currents affect the climate of adjacent land masses

STUDENT & INSTITUTIONAL LEARNING OUTCOMES

1. Students will also gain an understanding of the Earth's coastal shorelines by developing the skills necessary to identify beach erosional and deposition features, coastal sand dunes, and

lagoons. In addition, students will recognize the interaction of waves and tides on a shoreline, and how the chemical and physical properties of seawater cause ocean currents.

2. Students will demonstrate an understanding of how the oceans and the ocean basins formed, the topography of the sea floor, and where sediments found on the seafloor come from.

TEXTBOOK

Required: Essentials of Oceanography 13th edition by Trujillo & Thurman, Prentice Hall ISBN-13: 978-0134891521. If you can find the 12th or 11th edition (it should be very inexpensive) you can use that instead.

As an additional reference, students can also use [this OER textbook](#)[Links to an external site.](#)

METHODS OF PRESENTATION

This is a **hybrid** class that involves **in-person lectures** and **asynchronous** work. The general flow of the class will involve **in-person lectures once a week** that cover oceanographic concepts. The lectures will generally cover one chapter in the textbook. Students will apply the conceptual frameworks discussed in lecture to answer questions during lecture (**Lecture Questions**) as well as in **Asynchronous Assignments**. **Midterms** will cover 4 lectures each.

A running theme in this class will be **applying gained conceptual knowledge to interpret oceanographic data** (this is what professional oceanographers do day-to-day). To aid students in data interpretation, I will make **Data Tutorial Videos** (posted on Canvas) that provide students with step-by-step guides for approaching and interpreting certain types of oceanographic data.

Additionally, this class involves reading and learning about the diverse set of ocean scientists working in the world today (**Scientist Spotlights**). I will also invite some of my research colleagues share their experiences with you via pre-recorded videos. Finally, there is a **Group Research Project** that will run the entire semester and culminate in student groups presenting a research proposal to their peers in class (detailed below). This will give students practical experience in the creative aspect of the scientific process (devising a research methodology) and scientific communication.

The details on the various styles of presentation for this course are as follows:

Lectures: These will be given in person on Thursdays (5:15PM-6:35PM). Slides will be made available before the lecture. Lectures are recorded and posted on Canvas.

Lecture Questions: Questions will be posed to the class during lecture. Typically they will relate to some oceanic data. Participation credit will be given for turning in answers to those questions during the lecture. Full credit will be given regardless if the answer is correct or incorrect. What matters is that you made an effort to answer.

Students can miss up to 2 lectures, no questions asked. If you have already missed 2 lectures, and cannot make a lecture due to illness or hardship, please let me know and we can make arrangements so that you still receive credit.

Data Tutorial videos: These are 5-20 min. videos that provide step-by-step guidance on applying certain concepts to real data (e.g., how to read a cross-section of measured ocean temperature). These videos will be made available on Canvas and will serve as additional material to reference for assignments and midterms (detailed below).

Asynchronous Assignments: These will be related to topics covered in lecture and reading. They will generally involve answering questions related to the reading, giving an interpretation of data related to key concepts, and discussing concepts with your peers on Canvas. These assignments will be posted on Thursdays and due the next Thursday. They will be turned in via Canvas and/or in person depending on the assignment.

Scientist spotlight: These assignments help us gain an appreciation for a diverse set of scientists working in the world today. I will highlight scientists that you would not typically see in your textbooks. We will read interviews, watch videos/ Ted Talks, and then you will be asked what you thought and what resonated with you. Your grade is based solely on reaching the word count asked for (300 words).

Midterms: These will be in class or take-home and cover 4 lectures each. In-class midterms will be open note.

For in class midterms, students are allowed to bring **1 double sided page (or 2 single sided pages), handwritten or typed page of notes** for the midterm. No computers/tablets/phones.

If you are unable to make a midterm due to illness or hardship, we can arrange a remote version or schedule another in person time.

Group Research Project: Students can work in groups of 3-4 (4 maximum) to develop a plan for a research project for any topic of their choosing. The main idea is to pose an oceanographic question (e.g., how does wastewater runoff impact water quality in Santa Monica Bay), motivate the reasons for answering it, provide a hypothesis, and propose a research plan to answer the question utilizing observational and/or modeling techniques (Lecture 5). This project will involve giving 2 progress reports on Canvas and a final 5-10 min. presentation in class. Students will be given credit for their own work (progress reports + presentation) and commenting on other group progress reports on Canvas. **There is a guide for the project on Canvas. I will make myself available every week to talk with each group for ~20 min on their progress and offer guidance.**

SCHEDULE

| Week | Lecture Date | Lecture Activity | Reading | Due (<i>by start of lecture</i>) |
|------|--------------|---|-------------------------|--|
| 1 | Feb. 16 | L1: Data Interpretation and Types of Oceanography | Chp 1, Appendix III | |
| 2 | Feb. 23 | L2: Marine Provinces | Chp. 2,3 | Assignment 1 |
| 3 | March 2 | L3: Water and Seawater | Chp. 5 | Assignment 2 |
| 4 | March 9 | L4: Air-Sea Interaction | Chp. 6 | Assignment 3 Scientist spotlight 1 Research groups finalized |
| 5 | March 16 | NO CLASS | | Assignment 4 |
| 6 | March 23 | L5: Observations and Modeling (**remote by zoom) | Posted on Canvas Module | Research Progress Report #1 |
| 7 | March 30 | L6: Ocean Circulation | Chp. 7 (skip ENSO) | Assignment 5 (Canvas) Midterm #1 (take home) |
| 8 | April 6 | L7: Primary Productivity | Chp 13 | Assignment 6 |
| 9 | April 20 | L8: Eddies and the California Current System | Posted on Canvas Module | Assignment 7 Scientist spotlight 2 |
| 10 | April 27 | MIDTERM #2 (L5-8) | | Assignment 8 |
| 11 | May 4 | L9: Waves (**remote by zoom) | Chp. 8 | Research progress report #2 |
| 12 | May 11 | L10: Tides | Chp. 9 | Assignment 9 |
| 13 | May 18 | L11: Coastal Processes | Chp. 10 | Assignment 10 |
| 15 | May 25 | L12: Oceans and Climate Change | Chp. 16 | Assignment 11 Scientist spotlight 3 |
| 15 | June 1 | Group Presentations | | Assignment 12 |
| 16 | June 8 | MIDTERM #3 (L9-12) | | |

GRADING

A (89.5-100); B (79.5-89.4); C (69.5-79.4); D (59.5-69.4); F (0-59.4)

1. Midterms – 26.67 % (3 total, 10% each, 80 pts total)
2. Assignments - 25% (12 total, 6.25 pts each)
3. Lecture Questions - 15 % (10 total; 12 lectures, students can miss up to 2 lectures, no questions asked, 4.5 pts each)
4. Scientist Spotlight Discussions 10% (3 total, 10 pts each)
5. Group Research Project 23.33%
 1. Progress reports (2 total, 15 pts each) 10%
 2. Email Check-ins (5 total, 2 pts each) 3.33%
 3. Presentation (1 total, 30 pts) 10%

Total possible points: 300 points

ATTENDANCE, DROPS, AND WITHDRAWALS

You are responsible for maintaining your own enrollment status. You may drop the course with a withdrawal through the twelfth week in a regular semester. It is NOT possible to drop the class after the twelfth week of the semester. You should check your Corsair Connect for specific drop dates for each of your courses. General information regarding drop dates, withdrawals, refunds, and other enrollment matters may also be found at the [Admissions](#) section of the SMC website. See [Admissions Dates and Deadlines](#) for the complete semester schedule including short term courses.

MISSED AND LATE WORK

If you are unable to turn in an assignment, show up to lecture, or take a midterm due to illness or hardship, we can make arrangements. There will be no penalty for these cases.

You can always email me a photos of hand-written assignments if you were not able to turn it in physically in class.

Students can have 2 ‘free passes’ on late assignments. If you turn in an assignment late (that is not one of these 2 ‘free passes’), there will be a 10% deduction for each week the assignment is late. That is, there is a 1 week ‘grace period’ to turn in the assignment before having points deducted. For example, if an assignment was due on Thursday 3/9 and you turn it in before 3/16, you will not have points deducted.

ACCOMMODATIONS FOR DISABILITIES

I encourage students requesting disability-related accommodations to contact the Center for Students with Disabilities as soon as possible. I will work with you and the Center for Students with Disabilities to provide appropriate and reasonable accommodations. An early notification of your request for test-taking and/or other accommodations is necessary to ensure that your disability-related needs are addressed appropriately; testing accommodations cannot be applied retroactively.

The Center for Students with Disabilities is located on the first floor of the Student Services Center, and the phone number is (310) 434-4265 or email at dsps@smc.edu. Additional Contact Information can be found at the [Center for Students with Disabilities](#) website.

TITLE IX (SEX DISCRIMINATION)

Title IX is a comprehensive federal law that prohibits discrimination on the basis of sex in any federally funded education program or activity: No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance.

Those interested in the details should view [the Title IX Legal Manual](#).

Students who have experienced some form of sexual misconduct or discrimination are encouraged to talk to someone about their experience, so they can get the support they need. You can learn more about available support at the [Student Services Title IX webpage](#).

DISCLAIMER

Some elements of the syllabus may be changed at the instructor's discretion. Students will be given at least 48 hours notice of changes whenever possible. If there is any aspect of this syllabus which you do not understand, or to which you take exception, please let the instructor know within the first week of class. Your continued attendance in this course constitutes an acknowledgement and acceptance of the requirements delineated in this syllabus.