



# EESC 1030 920 Oceanography

SHORELINE FEATURES

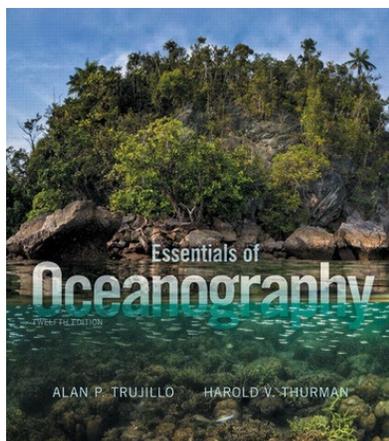
## Course Description

The oceans cover over 2/3 of the Earth's surface. This course introduces you to basic oceanographic concepts such as plate tectonics, marine sediments, physical and chemical properties of seawater, ocean circulation, air-sea interactions, waves, tides, nutrient cycles in the ocean, biology of the oceans, and environmental issues related to the marine environment.

## Class Format

This course consists of recorded lectures, videos, quizzes, readings, and homework assignments. The lectures are designed to organize and synthesize material from your readings in your primary text, *Essentials of Oceanography* to

help you understand the Physical and Chemical properties of the Ocean.



Trujillo, A. P. and Thurman, H.V., 2019. *Essentials of Oceanography*, 13<sup>th</sup> ed., Pearson, 595pp. ISBN-13:9780135204306

[Pearson](#) or [Amazon](#).

Weekly readings refer to this text.

General Education Curriculum		Major	Free Electives
Foundational Approaches Policies Governing All Foundational Approaches	Sectors Policies	List of Major Policies	Description Policies
Communication	I. Society	Finding a Major Policies	
Writing	II. History & Tradition		
Foreign Language	III. Arts & Letters		
Analysis	IV. Humanities & Social Sciences		
Quantitative Data Analysis	V. Living World		
Formal Reasoning and Analysis	VI. Physical World		
Perspectives	VII. Natural Sciences & Mathematics		
Cross-Cultural Analysis			
Cultural Diversity in the U.S.			

This course fulfills the Sector VI Physical World and Quantitative Data Analysis Requirements for all College and LPS Undergraduates.

## Instructor Information

bordeaux@sas.upenn.edu

Live Office Hours will be posted on Canvas.

# Course Topics

## Week 1: June 30-July 7

### *Plate Tectonics*

Why do we have ocean trenches, ridges and continental shelves?

How do tsunamis form?

**Read Chapter 2**

### *Marine Provinces (What's down there?)*

Did you know there were flat-topped mountains, volcanoes and vast mud-covered plains on the ocean floor?

**Read Chapter 3**

### *Marine Sediments*

Why do we have sandy beaches?

**Read Chapter 4**

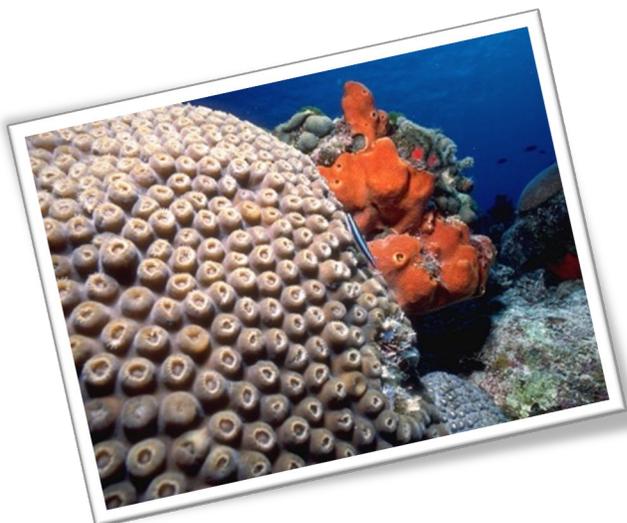
**Complete Online Quiz**

## Week 2: July 7-14

### *Seawater (Physics & Chemistry)*

What is "salt" in seawater?

Does the salinity of the ocean change over time?



Where does the salt in the ocean come from?

**Read Chapter 5**

### *Air & Sea (Weather & Climate)*

Why do we have global wind belts and how did this affect early trade routes?

How is our weather and climate affected by the oceans?

What is the ocean's role in hurricane formation?

**Read Chapter 6**

### *Oceans & Climate*

How do oceans affect climate?

How is Global Climate change affecting the oceans?

What happens if the Great Conveyor Belt shuts down?

**Read Chapter 16**

**Complete All Online Quizzes**

**Homework Assignment 1:  
Due July 14<sup>th</sup> @8:59am est**

## Week 3: July 14-21

### *Ocean Circulation*

Why are some regions of the world warmer than others?

**Read Chapter 7**

### *Waves & Water Dynamics*

A second look at tsunamis

How can waves be harnessed for clean energy?

**Read Chapter 8**

### *Tides*

How can tides impact the effects of storms?

Why do some areas have 2 high tides/day while others only have one?

**Read Chapter 9**

**Complete All Online Quizzes**

**Homework Assignments 2 & 3:  
Due July 21<sup>st</sup> @8:59am est**

#### DID YOU KNOW?

There is a stream in the Atlantic ocean that flows past the east coast of the United States.

## Week 4 July 21-28

### *Shorelines (Reefs, Atolls, Deltas, Barrier Islands, and Estuaries)*

Why are many atolls disappearing?

Why is building on a Barrier Island a bad idea?

How do reefs form and why are they in danger?

Is it safe to live on a barrier island?

Why do most fishermen work near the coast rather than the middle of the ocean?

**Read Chapter 10**

**Complete All Online Quizzes**

**Homework Assignment 4: Due July 28<sup>th</sup>@8:59am est**



## Week 5 July 28-August 5

### *Marine Life and the Marine Environment*

What conditions must organisms deal with in this special 3-D environment?

What are the special challenges of living in a salty environment?

**Read Chapter 12**

### *Benthic & Pelagic*

#### *Organisms*

How do floating organism avoid predators?

Why do few organisms live on the sandy ocean floor?

What are the benefits of living in the sediment?

**Read Chapter 14 & 15**

## Grades

Your Grade is calculated as follows:

Topic	Points
4 Homework Assignments @ 25 pts each	100
Weekly Quizzes	100
Midterm Exam (Week 3)	100
Final Exam (Week 5)	100
<b>Total Points=</b>	<b>400</b>

## GRADE POLICY

This is an accelerated course and each week builds on the previous week's material. It is imperative that students submit all assignments on time. **No late assignments** will be accepted (this includes **no partial credit for assignments submitted past the due date**). There is **no extra credit** for this course.

### *Ocean Pollution*

Is there really a plastic garbage patch the size of Rhode Island in the Pacific Ocean?

How does ocean trash affect organisms?

How can a balloon released in the air in Philadelphia affect a sea turtle off the coast of Europe?

**Read Chapter 11**



# Important Course Information

## DID YOU KNOW?

269,000 tons of plastic trash float on the surface of the ocean, while some four billion plastic microfibers per square kilometer litter the deep sea

## Academic Integrity

Since the University is an academic community, its fundamental purpose is the pursuit of knowledge. Essential to the success of this educational mission is a commitment to the principles of academic integrity. Every member of the University community is responsible for upholding the highest standards of honesty at all times. Students, as members of the community, are also responsible for adhering to the principles and spirit of the Penn Code of Academic Integrity. More details about this policy can be found online at

<https://catalog.upenn.edu/pennbook/code-of-academic-integrity/>

## Penn Libraries

Students can access all online resources available at the University of Pennsylvania by using the website

<https://www.library.upenn.edu/>

Log in with PennKey and password. An in person visit to the library to borrow books may be limited due to COVID-19 restrictions.

## Student Disability Services (SDS)

Although the self-identification process is confidential and completely voluntary, it is required for those requesting accommodation. Student Disability Services (SDS) can be reached by phone at 215.573.9235, by TDD at 215.746.6320 or online:

[https://www.vpul.upenn.edu/lrc/sds/contact\\_us.php](https://www.vpul.upenn.edu/lrc/sds/contact_us.php)

## Add/Drop Period

Students may drop this class with no financial obligation through 5pm EDT July 7, 2022 by using Path@Penn. Please see the LPS Academic Calendar for relevant dates and links:

<https://www.sas.upenn.edu/lps/about/academic-calendar>

Failure to participate in a course does not automatically result in being dropped from the course.

Courses that are dropped will no longer appear on a student's transcript.

## Withdrawing from a course

Students may withdraw from a course through 5pm EDT July 29 by meeting with an advisor and completing a form with the permission of the instructor.

<https://www.sas.upenn.edu/lps/students/current/forms-handbooks>

## Online Learning Team

There is 24/7 technical support available. If you encounter technical difficulties and need immediate assistance, please call 1-833-283-2987. You can access the Knowledge Base- Penn LPS Online Helpdesk to try troubleshooting on your own or live chat with a technical support staff member.

<https://sas-lps.freshdesk.com/support/home>

In addition, you can reach out via email at

[online-learning-help@sas.upenn.edu](mailto:online-learning-help@sas.upenn.edu)

They will respond to you within 24 hours.

