

GEOL 18000: INTRODUCTION TO OCEANOGRAPHY

HUNTER COLLEGE - Fall 2022

Lecture: Tuesday/Friday 8:30 – 9:45

Room: Hunter W511

Instructor: John Zayac

Email: john.zayac@hunter.cuny.edu

Office: Hunter North 1032, Department of Geography and Environmental Science

Office Hours: Tuesday 10:00 - 12:00, *or by appointment*

Note: I am at Hunter College on T/F this semester. Zoom meetings can also be scheduled.

COURSE DESCRIPTION

This course will offer an introduction to the subject of oceanography. We will discuss the physical, chemical, biological, and geological aspects of the oceans; learn about the structure and motion of the atmosphere and how they influence ocean circulation; and we will learn about waves, tides, and tsunamis. The ocean, comprising 71% of the Earth's surface, is a crucial component of the Earth's climate system and its dynamics determine the cycling of carbon and the production of oxygen throughout the planet. The oceans' extreme environments host unusual forms of life, which are sensitive to anthropogenic influences. It is an important source of energy and economically valuable materials. Accordingly, the ocean has a profound influence on humans and civilization. In addition to providing a good introduction to aspects of the scientific world, it is a foundational course for Environmental Studies, Geography and BA/MA Earth Science Education majors.

INFORMED REGISTRATION STATEMENT

This is a **3-hr, 3.0-credit**, science-based course, which meets the Scientific World requirement of the Hunter Common Core and the GER 2E General Education Requirement.

COURSE GOALS AND LEARNING OUTCOMES

The overall goal of this course is to help you, as students, learn to articulate and evaluate the evidence that forms the foundation of scientific inquiry and knowledge formation.

Specific Learning Outcomes:

By the end of the semester, students will be expected to:

1. Identify and apply the fundamental concepts of physics, chemistry, geology, biology, mathematics to the study of modern oceanography.
2. Gather, interpret, and assess information from a variety of sources and points of view.
3. Evaluate evidence and arguments critically and analytically.
4. Demonstrate knowledge of the oceans' role within the broader Earth system.

CLASS READINGS

Our main textbook for this class will be the freely available *Introduction to Oceanography* by Professor Paul Webb at Roger Williams University. The book in its entirety can be accessed and downloaded at this link: <https://www.oercommons.org/courses/introduction-to-oceanography/view>

Supplemental readings will be periodically uploaded to Blackboard.

GRADING

Course grades will be calculated based on the following proportions:

40% Case Studies (10% for each).

20% Midterm 1

20% Midterm 2

20% Final Exam

EXAMINATIONS

There will be two midterms and a final exam in this course. **Midterm 1 (Friday, October 7th)** will cover material up through week 6. **Midterm 2 (Tuesday, November 22nd)** will cover material from weeks 8 – 13. **The final exam (TBD)** will be cumulative, though more weight being given to the material in weeks 15 – 17.

The midterm exams will be given during the 75-minute class period on the dates above. The final exam will be two hours in length during the Hunter College scheduled period. During exams, *no electronic devices are permitted*. If you miss an exam due to an emergency or illness, you must contact me as soon as possible to work out arrangements.

CASE STUDIES

Over the course of the semester, you will be asked to complete four case studies in which you will apply concepts from lecture to explore current scientific topics and use openly available data to draw conclusions. This semester, our focus will be on topics that explore the connections between NYC and the oceans:

CS1: The Bathymetry of the Atlantic Ocean (due Sep. 23).

CS2: Oceanic Dead Zones: NYC and the Long Island Sound (due: Oct. 21)

CS3: Sea Level Change (due Nov. 18)

CS4: Sea Ice Volume and Climate Change (due Dec. 13)

Instructions for each case study will be posted. Submission of your completed work will be through Blackboard and will be expected by sunset on the due date.

CR/NCR POLICY

The CR/NCR option will be honored only if the conditions stated on the CR/NCR form are satisfied: all course work has been completed and you earned grades such that you accumulated at least 50 points total in the course. CR/NCR must be filled correctly and submitted BEFORE the final examination begins. Students on probation are ineligible. For more information about Hunter College's policy on CR/NCR go to: <http://www.hunter.cuny.edu/advising/howto/credit-no-credit-cr-nc>.

COVID (and other illness) POLICY

As we are beginning our third academic year of the pandemic it still imperative that we implement all the ways we can make our time together **safe** and **inclusive** for all. Though the CUNY system has decided to follow the lax masking guidance of the CDC, I will be and am asking each of you to please **wear a mask that covers your nose and mouth** in lecture. Our lecture classroom is a tight fit, so distancing is not an option. In addition, if you are experiencing symptoms of any communicable disease, or have tested positive after encountering an ill person, please do not attend class and email me to make arrangements.

HUNTER COLLEGE POLICY ON ACADEMIC INTEGRITY

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

SYLLABUS CHANGE POLICY

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Updates will be posted regularly on Blackboard.

ADA POLICY

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary academic accommodations. For further information and assistance, please call: (212) 772- 4857 or (212) 650-3230.

HUNTER COLLEGE POLICY ON SEXUAL MISCONDUCT

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College affirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-biased harassment retaliation against student, employees, or visitors, as well as certain intimate relationship. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

- A. ***Sexual violence***: students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444)
- B. ***All other forms of sexual misconduct***: Students are strongly encouraged to contact the College's Title IX Campus Coordinator, Dean Jean Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complementary services through the Counseling and Wellness services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link:

<http://www.cuny.edu/about/administration/offices/la/policy-on-sexual-misconduct-12-1-14-with-link.pdf>

TENTATIVE CLASS SCHEDULE*

Week	Date	Tuesday Lecture	Friday Lecture
1	22-Aug		Introduction to the Oceans
2	29-Aug	Origin of Earth and Geological Time	No Class
3	5-Sep	The Solid Earth	Plate Tectonics
4	12-Sep	The Ocean Basins	Chemical Oceanography - Water and Salinity
5	19-Sep	Chemical Oceanography - Dissolved gasses, pH, Nutrients	Physical Oceanography - Pressure, Temperature, Density
6	26-Sep	No Class	Physical Oceanography - Sound, Light...
7	3-Oct	No Class	MIDTERM EXAM
8	10-Oct	Primary Productivity and Energy Transfer	The Benthos and Hydrothermal Vents
9	17-Oct	Marine Ecosystems	The Atmosphere and Coriolis Effect
10	24-Oct	Ocean Circulation - Surface	Ocean Circulation - Deep
11	31-Oct	Tides	Waves
12	7-Nov	Ocean Sediments	Beaches
13	14-Nov	Longshore Processes	Coastal Landforms
14	21-Nov	MIDTERM EXAM	Sea Ice
15	28-Nov	Ocean-Atmosphere Interactions and the Greenhouse Effect	No Class
16	5-Dec	Paleoclimate	Climate Change
17	12-Dec	The Future of the Ocean	

**Subject to change as needed. All updates will be posted on Blackboard.*