

GEOL 18000-01
INTRODUCTION TO OCEANOGRAPHY
Mode of Instruction: HYBRID
Tuesdays and Fridays 2.10 pm to 3.25 pm
FALL 2021

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Office Hours: 1-2 pm on Tuesday or by appointment on Zoom
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COURSE DESCRIPTION

This course will offer an introduction to the subject of oceanography. We will discuss the physical, chemical, biological, geological, and human aspects of the oceans; learn about the structure and motion of the atmosphere and how it influences ocean circulation; and we will learn about waves, tides, and life in the ocean. We will examine critical issues such as coastal erosion, ocean acidification, variability of the meridional overturning circulation and sea level fluctuation in response to climate change.

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' diverse 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, GEOL-180 is a foundational course for Environmental Studies, Geography and BA/MA Earth Science Education majors.

INFORMED REGISTRATION STATEMENT

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

COURSE STRUCTURE

This course will be taught in the **hybrid** format with a combination of 50% online and 50% in-person lectures. All online lectures will be conducted on **Fridays** and will be via Blackboard collaborate. The **Hunter College Blackboard** site will have a **“Weekly coursework”** page. For each topic there will be folder labelled by date containing recommended reading, additional articles, and associated assignment and/or other materials. All students must register with **Pearson's My Mastering** through Blackboard to be able to do the Mastering assignments. Instructions for registration are posted on Blackboard.

This course will cover four big ideas:

- Marine Geology and its relationship to Plate Tectonic Theory

- Ocean chemistry and physics, and their relationship to climate
- Human impacts on the ocean
- The ocean's role in sustaining a habitable planet.

The course has been divided into four units, each with a corresponding “**BIG IDEA**” and **INTEGRATING CASE STUDY** designed to achieve the expected **LEARNING OUTCOMES** listed below.

- Unit 1-Marine Geology
- Unit 2-Ocean Chemistry
- Unit 3-Ocean Dynamics
- Unit 4-The Ocean Environment

EXPECTED LEARNING OUTCOMES

- Identify fundamental concepts in physics, chemistry, geology, biology, mathematics, and engineering technologies as they apply to the study of modern oceanography.
- Describe the common tools used in oceanography.
- Demonstrate knowledge of the ocean's role within the broader Earth System.
- Produce well-reasoned written arguments using evidence to support conclusions.

CASE STUDIES

To support Expected Learning Outcomes and Unit 4: The Ocean Environment:

- In addition to traditional instruction, each CASE STUDY will require students to **gather data** from several marine databases (NOAA, USGS, NASA), relevant journal articles and white papers. Through **class discussions** students will learn to **interpret** the collected data as they pertain to the specific process(es) or problem(s) presented and will be guided to assess the implications of the data being used.
- For each CASE STUDY a series of **analytical questions** (4-6) will be formulated, designed to highlight different perspectives or points of view that may be derived from the data. Students then will be required to provide a substantial answer to each question evaluating these perspectives.
- For each CASE STUDY students will be required to construct a **'position paper'** about any potential controversy surrounding the topic(s), and to show exactly (in the assigned chapters and journal articles, lectures, data) what supports their arguments. Guidelines for the position paper will be distributed separately.

REQUIRED TEXTBOOK

Modified Mastering Oceanography with Pearson EText -- Standalone Access Card -- for Essentials of Oceanography Trujillo, Alan P., Thurman, Harold V., 13 Edition
9780135486948

<http://hunter.textbookx.com/institutional/index.php?action=browse#books/2764296/>

Note: You must have access to **'Mastering Oceanography'**, but you may or may not choose to purchase the e-text with it. You have two options to buy Mastering Oceanography, one **with the e-text (\$79.99)** and one **without the e-text (\$44.99)**.

ASSESSMENT AND GRADING POLICY

Exams and assignments will be based on the material covered in class and in the textbook. See the syllabus for exam dates and information about which chapters will be covered. Grades will be based on class participation, homework assignments, two mid-term exams and one final exam.

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|-------------------------------|------------|
| Exams | 50% |
| Mastering Assignments: | 30% |
| Case studies | 10% |
| Class Participation | 10% |

- There will be a total of **four exams** given during the semester, worth a combined total of 50% of the final grade.
- Mastering Assignments are online assignments that will be completed through **Pearson's MyLab and Mastering** on Blackboard to reinforce material taught in class.

ATTENDANCE AND CLASS PARTICIPATION

Class participation constitutes 10% of the final grade. Attendance is strongly encouraged at all lectures.

CUNY GRADING POLICY:

- Your grades will be assigned based on the CUNY grading policy that can be found in the online undergraduate catalog that can be found at <http://catalog.hunter.cuny.edu/content.php?catoid=15&navoid=1433>
- 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 accumulate at least 50 points total in the course. Students on probation are ineligible. The Hunter credit/no credit policy is available at <http://catalog.hunter.cuny.edu/content.php?catoid=43&navoid=13649&hl=credit+no+credit&returnto=search>.
- For an **IN** to be awarded you must contact me about making up the exam and fill out the 'Contract to Resolve an Incomplete Grade' form **within 72 hours** of the day/time of the final exam. An unresolved IN becomes a FIN at the end of the following semester.
- Pursuant to CUNY policy, an **Unofficial Withdraw (WU)** is assigned to students who **attended a minimum of one class**. It is important to understand the definition of a WU and the difference between this grade and an **F** grade. The conditions for assigning the WU grade include:
 1. A student's enrollment has been verified by the course instructor, and
 2. The student has *severed all ties* with the course *at any time before the final exam week* and, consequently, has *failed to complete enough course work*, as specified in the course syllabus, to earn a letter grade, and
 3. The student has *not officially withdrawn* from the course by completing the process for a W grade, or made arrangements to receive an INC.

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.

INTEGRATING CASE STUDIES

Each case study highlights various content and themes within the discipline and is designed to promote the development of a citizen scientist, from describing fundamental concepts in oceanography, collecting, analyzing, and synthesizing data to articulating the empirical evidence that supports theories and points of view. Students will be responsible for constructing a position paper for each selected case study.

TIPS FOR GETTING GOOD GRADES

In general, the more time you put in, the better your grade will be. The following are useful tips to do well in this or any class:

- Attend class and take detailed notes.
- Actively participate in class discussions.
- Read the assigned material in the course textbook (or another textbook) *before* coming to class.
- Re-write your notes as soon as possible after class. This will allow you to fill in the details still fresh in your memory and prepare questions for the next time the class meets.
- Test yourself by answering the questions in the book and in class.
- Carefully study the diagrams and charts in the book and in the lectures

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. See the following report by the Hunter College Senate for more details:

<http://www.hunter.cuny.edu/senate/assets/Documents/Hunter%20College%20Policy%20on%20Academic%20Integrity.pdf>

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-based harassment retaliation against students, 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 also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary 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-links.pdf>

TENTATIVE SYLLABUS FOR FALL 2021

The color-shaded dates are online lectures that will be on Blackboard Collaborate

| Dates | Unit | Topic | Chapter |
|---------|--------------------------------------|--|---|
| F 8/27 | Marine Geology | Introduction to Planet Earth | 1 |
| T 8/31 | | The Origin of the Ocean | |
| F 9/10 | | Plate Tectonics and the Ocean Floor | 2 |
| T 9/14 | | Plate Tectonics and the Ocean Floor | |
| F 9/17 | | Marine Provinces | 3 |
| T 9/21 | | Marine Provinces CASE STUDY-1 | |
| F 9/24 | | Marine Sediments | 4 |
| T 9/28 | | Ocean Chemistry | Marine Sediments |
| F 10/1 | Exam-1 | | 1,2, 3,4 |
| T 10/5 | Water and Seawater | | 5 |
| F 10/8 | Water and Seawater | | |
| T 10/12 | Air-Sea interaction | | 6 |
| F 10/15 | Air-Sea interaction | | |
| T 10/19 | Ocean Dynamics | | Circulation of the Ocean |
| F 10/22 | | Circulation of the Ocean CASE STUDY-2 | |
| T 10/26 | | Exam-2 | 5,6,7 |
| F 10/29 | | Waves | 8 |
| T 11/2 | | Waves | |
| F 11/5 | | Tides | 9 |
| T 11/9 | | Tides | 9 |
| F 11/12 | | Ocean Environment | Beaches, Shoreline Processes and Coasts |
| T 11/16 | Coasts CASE STUDY-3 | | |
| F 11/19 | Exam-3 | | 8,9,10 |
| T 11/23 | Biological Productivity | | 13 |
| T 11/30 | Marine Pollution | | 11 |
| F 12/3 | Marine Pollution CASE STUDY-4 | | |
| T 12/7 | The Ocean and Climate Change | | 16 |
| F 12/10 | The Ocean and Climate Change | | |
| TBA | Exam-4 | | 11,13,16 |