#### General Science 108: Oceanography (4 credits), Spring 2019

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Office hours: MWF 9-10

CRN: 31072

Class meeting times: T & Th 1:00-3:20

**Welcome to Oceanography!**

Oceanography is a diverse field with roots in chemistry, physics, geoscience, and biology. This course will give you an oceanic perspective of Earth and help you understand the role the oceans play in affecting humans the role humans play in affecting the oceans.

Course Goals:

* To better understand the natural world. The knowledge you build in this course will encourage you to become more curious about how the Earth works.
* To have a general knowledge of science so you can make more informed decisions as a contributing member of society.
* To develop and improve life-long skills such as problem solving, critical thinking, oral communication, and group work. I hope that the skills you learn and refine in this class will carry over into your other classes and your personal life.

**Course Description**

Introductory lab science course that examines the four major categories of oceanographic study: geological, physical, chemical and biological. Emphasizes the geological and geophysical aspects of the sea floor; physical and chemical properties of sea-water, waves, tides, ocean circulation and currents; marine ecosystems; and ocean utilization. Prerequisite: Math 75. Counts as Physical Science Perspective for AS/OSU and Science with Lab for AAOT. The course articulates to OSU as OC 201 and counts *as a Physical Science Perspective at OSU and the Science/Math requirement for AAOT.*

**Course Learning Outcomes**

* Describe key events in the history of science, with particular emphasis on oceanography, and their impact on society
* Describe and apply the process of scientific inquiry
* Solve scientific problems using quantitative methods
* Describe the geological characteristics of the seafloor
* Explain interactions between the physical, chemical, and biological ocean systems

**Learning Resources**

* **Textbook:** Essentials of Oceanography by Trujillo and Thompson (12th edition, but other edition is OK!), Pearson publishing. A copy is available at the LBCC library for 2-hour checkout.
  + Note Textbook is recommended not required
* **GS108 Course packet**, by Deron Carter. Please bring to class with you everyday.
* **Moodle.** This is our online class hub: you will check grades, review syllabus and powerpoints, and submit assignments.
* **Calculator.** Any type will do for this class, but only non-graphing calculators (no phones) can be used on exams. I will provide a set for exams.

**Bring to Class**

* **Notebook**
* **Pencils** (pens optional)
* **GS108 Course Packet**
* **Water**

**Grading (subject to change)**

* 2 Tests (50 points each)= 100 points
* Comprehensive Final Exam = 75 points
* Labs (including field trip)(10 points each) = 90 points
* Homework (10 points each) = 90 points
* Quizzes (10 Points each) = 60 points
* In-class reflections (1 point each) = 15 points

**Total = 430 points**

**Grading Scale**

A = 100-90% (430-383 points)

B = 89-80% (344-382 points)

C = 79-70% (301-343 points)

D = 69-60% (258-300 points)

F = 59% and below (257 points and below)

**Exams:** The two exams will be administered as a 2-stage “pyramid” tests. You will have a set period of time to take the exam, turn it in, then retake the exam with a group of students in the class (graded 80% for the "solo" effort and 20% for the "group" effort). Your group score cannot lower your grade. If you know you will be absent on an exam day let me know ahead of time to schedule a make up. Once exams are returned they cannot be made up.

**Final Exam**: This exam is comprehensive and will be completed individually; no “pyramid” format.

**Lab exercises:** Labs take place on Thursday. Please be sure to bring your lab manual with you. Labs are designed to be completed in groups, but you must submit your answers in your own words, numbers, etc. Late assignments are not accepted, but your lowest lab score is dropped.

**Field Trip**: On the we will have a field trip during class time on to the OSU Marine Geology Repository to view sediment cores collected from around the world. The facility is located in Corvallis, and you will need to arrange transportation to it. You will write and submit a short reflection about your experience there.

**Homework.** On non-lab days you will have a short homework assignment due at the end of the day. These assignments give you an opportunity to interact with oceanography outside of class. All assignments “Quizzes” on Moodle that come with supplementary educational videos. You will have two attempts on the quizzes. I’ll drop your lowest homework score from the term.

**Reflections.** On non exam non lab days we will use the last five minutes of class for you to reflect on what you have learned, and address parts of the material that are still “muddy” to you. You will record these reflections on an index card or piece of paper. Each is worth 1 point. If you miss class you will receive a zero for the days reflection.

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| **Dates** | **Week and Reading** | **Tuesday** | **Thursday** |
| 1/7 & 1/9 | 1. Syllabus | Class Introduction  HW 1 | Earth Forming,  Maps and Navigation  **Lab 1 - Maps** |
| 1/14 & 1/16 | 2. | Quiz 1  Tectonics  HW 2 | Plate boundaries  **Lab 2 - Geology of the Seafloor** |
| 1/21 & 1/23 | 3. | Quiz 2  Seafloor Features & Hydrothermal Vents  HW 3 | **Lab 3 - Marine Sediments** |
| 1/28 & 1/30 | 4. | **Test #1**  Water and seawater | **Lab 4 - Water Properties** |
| 2/4 & 2/6 | 5. | Quiz 3  Atmospheric Circulation  HW 4 | Coriolis Effect  **Lab 5 - Heat Transfer and Hurricanes** |
| 2/11 & 2/13 | 6. | Quiz 4  Ocean Circulation  HW 5 | El Niño  **Lab 6 - Ocean Circulation** |
| 2/18 & 2/20 | 7. | Quiz 5  Coasts Waves & Tides  HW 6 | Coasts Waves and Tides  continued  **Lab 7- Tsunami** |
| 2/25 & 2/27 | 8. | Marine life and productivity  **Test #2 -** covers weeks 1 -7 | Climate change and ocean acidification  **Lab 8 - Primary Productivity** |
| 3/3 & 3/5 | 9. |  |  |
| 3/10 & 3/12 | 10. | Quiz 6  Coral reefs, food webs, and energy transfer  HW 7 | Pressures on marine ecosystems  **Lab 9 - Ocean Acidification** |
|  | 11. | **Final Exam** |  |