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

Instructor: Jeremy Randolph-Flagg

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Office hours: W 9:30-11:00, or by appointment

CRN: 23730

Class meeting times: M11:30-1:50, W 11:30-1:50

Classroom: BC 207

**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.
* **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 some 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 Exams (50 points each)= 100 points
* Comprehensive Final Exam = 75 points
* Labs (including field trip)(10 points each) = 90 points
* Homework (10 points each) = 70 points
* Quizzes (10 Points each) = 60 points
* In-class reflections (1 point each) = 15 points

**Total = 410 points**

**Grading Scale**

A = 100-90% (410-369 points)

B = 89-80% (368-328 points)

C = 79-70% (327-287 points)

D = 69-60% (286-246 points)

F = 59% and below (245 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 85% for the "solo" effort and 15% 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 Wednesday. 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 11/27 lab session,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.

**Reflections.** On non-lab and exam 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.

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| **Dates** | **Week and Reading** | **Monday** | **Wednesday** |
| 9/30 & 10/2 | 1. Syllabus | Class Introduction  HW 1 | Maps and Navigation  **Lab 1 - Maps** |
| 10/7 & 10/9 | 2. | Quiz 1  Earth Forming,  Tectonics  HW 2 | Plate boundaries  **Lab 2 - Geology of the Seafloor** |
| 10/14 & 10/16 | 3. | Quiz 2  Seafloor Features & Hydrothermal Vents  HW 3 | **Lab 3 - Marine Sediments** |
| 10/21 & 10/23 | 4. | **Exam #1**  Water and seawater | **Lab 4 - Water Properties** |
| 10/28 & 10/30 | 5. | Quiz 3  Atmospheric Circulation  HW 4 | Coriolis Effect  **Lab 5 - Heat Transfer and Hurricanes** |
| 11/4 & 11/6 | 6. | Quiz 4  Ocean Circulation  HW 5 | El Niño  **Lab 6 - Ocean Circulation** |
| 11/11 & 11/13 | 7. | No School | Coasts Waves and Tides  **Lab 7- Tsunami** |
| 11/18 & 11/20 | 8. | Coasts Waves & Tides continued  **Exam 2 -** covers weeks 1 -7 | Marine life and productivity  **Lab 8 - Primary Productivity** |
| 11/25 & 11/27 | 9. | **Field Trip to OSU Marine Geology Repository** | Quiz 5  Climate change and ocean acidification  HW 6 |
| 12/2 & 12/4 | 10. | Quiz 6  Coral reefs, food webs, and energy transfer  HW 7 | Pressures on marine ecosystems  **Lab 9 - Ocean Acidification** |
| 12/9 | 11. | **Final Exam** 10:00 am - 11:50 am |  |