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

Instructor: Michael Moses

Office: MH 111

Email: mosesm@linnbenton.edu

Office phone: 541-917-4980

Office hours: M 10:00 – 11:00, W 10:00 – 12:00 at the Help Desk, or by appointment

CRN: 24545

Class meeting times: Monday & Wednesday 12:00-1:20, Friday 12:00-1:50, in Madrone Hall 114

**Welcome to Oceanography!**

Oceanography is an incredibly 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, and 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 to 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 seafloor; physical and chemical properties of seawater, 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:** NO REQUIRED TEXTBOOK. Course will be operating from Essentials of Oceanography by Trujillo and Thompson (12th edition, but older edition is OK!), Pearson publishing. A copy is available at the LBCC library for 2-hour checkout. I HIGHLY recommend using this text as a resource to understand course content more deeply.
* **GS108 Course packet**, by Deron Carter. Please bring to class with you every day.
* **Moodle.** This is our online class hub: you will check grades, review syllabus and Powerpoints, access readings and other resources such as videos, 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.

**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
* Quizzes (10 points each) = 60 points
* Homework (10 points each) = 50 points
* Reflection/Discussion Questions (1 point each) = 15 points

**Total = 390 points**

**Grading Scale**

A = 100-90% (390-351 points)

B = 89-80% (350-312 points)

C = 79-70% (311-273 points)

D = 69-60% (272-234 points)

F = 59% and below (233 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 Friday. 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 November 22nd 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. Date is subject to change.

**Quizzes.** You will have short weekly quizzes on non-exam weeks, that will be due on Mondays. These quizzes will be administered through Moodle, and any course content is up for grabs. Much of class will be devoted to discussion and active learning. To make this work, everyone must be prepared when coming to class, so it is important that everyone read the assigned readings before we discuss them. You may not use your books or class notes on the quizzes. There are no make ups, but your lowest quiz is dropped.

**Homework.** On Wednesdays, you will have a short homework assignment due either in class or submitted through Moodle. These assignments give you an opportunity to interact with oceanography outside of class. All assignments are posted in Moodle. These assignments are graded on a completion basis, and late assignments are not accepted, but your lowest homework is dropped.

**Reflection/Discussion Questions.** Once per week you will be presented with a reflection or discussion question to answer either in class or in Moodle. The goal is to help you reflect on what you have learned, and address parts of the material that are still “muddy” to you and discuss it with your classmates. Each is worth 1 point.

### Campus Resources

Many resources such as the Library, Student Help Desk (for computers and software) Learning Center, the Writing Desk, and Family Connections, are available to you as a student. They are described on the LBCC website.

Any student who has difficulty affording groceries or food, or who lacks a safe and stable place to live, is urged to contact a **Student Resource Navigator in the Single Stop Office (T-112):** Amanda Stanley, stanlea@linnbenton.edu, 541-917-4877. The navigator can connect students to resources. Furthermore, please talk with your instructor if you are comfortable doing so. This will enable them to provide any resources that they may have.

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the **Center for Accessibility Resources (CFAR)** and would like to use your accommodations in this class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodation but are not yet registered with CFAR, please visit the CFAR website at www.linnbenton.edu/cfar for steps on how to apply for services or call 541-917-4789.

**Statement of Inclusion**

To promote academic excellence and learning environments that encourage multiple perspectives and the free exchange of ideas, all courses at LBCC will provide students the opportunity to interact with values, opinions, and/or beliefs different than their own in safe, positive and nurturing learning environments. LBCC is committed to producing culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce. LBCC is an equal opportunity educator and employer.

**Your responsibilities:**

1. A huge amount of the learning in this course happens in real time, during class. Come ready to participate and work. Long lectures will be rare occurrences in this class, so you should be prepared to be active throughout the class.

2. If you absolutely MUST be absent, please let me know ahead of time. You may or may not be able to make up the work done in class.

3. I expect you to check the Moodle website regularly to stay updated with current class information and due dates.

4. Respect your instructors and your classmates. Respect includes creating an environment conducive to learning, which means being on time, staying for the entire class, putting away cell phones, listening, and contributing.

5. **Honor Code Considerations:** This class is highly collaborative; however, there are expectations for individual work as well. If it is ever unclear to you, please ask. Any cheating, plagiarism, etc., may result in a zero and possible recommendation to the administration for further consequences.

**My responsibility:**

I am here to help you learn. I want each and every student to succeed in this class. Only you can do the learning, but expect me to be available for help during class and office hours and to facilitate the learning process.

***A FINAL NOTE:*** I sincerely believe that each of us can be a resource in this course. I hope you will ask questions, initiate discussion, and take an active part in the class and your learning. In this way, I think we will all learn more! ***Thanks, Moses***

COURSE SCHEDULE (subject to change):

**Due dates are indicated by bold typeface.**

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| Week  | Monday | Wednesday | Friday |
| 1 | Course IntroductionScience and Oceanography  | Formation of the Earth and the oceans | **Lab 1**: Maps |
| 2 | **Quiz 1**Plate tectonics and the seafloor | **Homework 1**Marine provinces | **Lab 2**: Geology of the seafloor |
| 3 | **Quiz 2**Marine sediments pt. 1 | **Homework 2**Marine sediments pt. 2 | **Lab 3**: Marine sediments |
| 4 | **EXAM 1**Covers weeks 1 - 3 | Water and seawater | **Lab 4**: Water properties |
| 5 | **Quiz 3**Air-sea interaction pt. 1 | **Homework 3**Air-sea interaction pt. 2 | **Lab 5**: Heat Transfer and Hurricanes |
| 6 | **Quiz 4**Ocean circulation pt. 1 | **Homework 4**Ocean circulation pt. 2 | **Lab 6**: Ocean circulation |
| 7 | NO CLASS – VETERAN’S DAY | **Homework 5**Waves and water dynamicsCoastal processes | **Lab 7**: Tsunami |
| 8 | **EXAM 2** Covers weeks 1-7 | Primary productivity | **Field Trip to OSU Marine Geology Repository** |
| 9 | **Quiz 6**Climate change and ocean acidification | **Field Trip Reflection** **Lab 8**: Primary productivity | NO CLASS – THANKSGIVING HOLIDAY |
| 10 | **Quiz 7**Biogeochemistry | **Homework 6**Marine ecosystems | **Lab 9**: Ocean acidification |
| 11Finals |  | **FINAL EXAM (12/12)****Covers weeks 1-10**1:00-2:50 pmMH 114 |  |