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# FOREST AND RANGELAND STEWARDSHIP

NR150 - OCEANOGRAPHY – SPRING 2019

## INSTRUCTOR INFORMATION

Instructor: Dr. Ursula Quillmann

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Office Hours: By appointment

Website: <http://www.facebook.com/ColoOcean>

## ADDITIONAL CLASS SUPPORT

Lizzie Rose

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## TECHNICAL SUPPORT

Need technical assistance with your online course? Try the following:

- Visit the [Canvas Student Resources](#) for guides and videos.
- Visit [Central I.T. Technical Support Helpdesk](#) for technical support.
- Call 970-491-7276.
- Email [Help Desk Support](#).

## COURSE DESCRIPTION

The ocean is under greater pressure from anthropogenic influence than ever before, and therefore it is important that we try to understand the nature of oceanic processes. We will take an interdisciplinary approach by breaking oceanography into marine geology, chemistry, physics, and biology. In our geological oceanography component, we will explore how ocean basins and ocean floor features formed, such as ocean spreading ridges, trenches, and hydrothermal vents. Why is the ocean salty and where do the nutrients in the ocean come from? We will find out in our chemical oceanography component! The physical oceanography component addresses wave formation, tides, tsunamis, ocean surface and thermohaline circulation, and how these are constrained by ocean basins and ocean floor features. Lastly, we will discuss biological oceanography in the context of geological, chemical, and physical oceanography

to assess the complexity of marine life. We will study plankton, fishes, marine mammals, birds, and reptiles. Ecosystems like kelp forests, tidal pools, coral reefs, hydrothermal vents support an array of fascinating organisms. We will study how these organisms within an ecosystem interact with one another. Throughout the semester we will address the multiple threats the ocean is facing from human activities, including warming waters, plastic pollution, sand mining, ocean acidification, and sea level rise. We documented some of the consequences related to human activities during my Spring 2017 voyage with Semester at Sea. It gave me a deeper understanding of how pertinent it is to protect our ocean.

### **GT Pathways Natural & Physical Sciences**

Lecture Course without Required Laboratory (GT-SC2)

The Colorado Commission on Higher Education has approved NR150-OCEANOGRAPHY for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT-SC2 category. For transferring students, successful completion with a minimum C– grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to <http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html>.

The lecture content of a GT Pathways science course (GT-SC1 or GT-SC2) – students should be able to:

- a. Develop foundational knowledge in specific field(s) of science.
- b. Develop an understanding of the nature and process of science.
- c. Demonstrate the ability to use scientific methodologies.
- d. Examine quantitative approaches to study natural phenomena.

### ***Inquiry & Analysis***

Select or Develop a Design Process

- a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.

Analyze and Interpret Evidence

- a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
- b. Utilize multiple representations to interpret the data.

Draw Conclusions

- a. State a conclusion based on findings.

### ***Quantitative Literacy***

Interpret Information

- a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Represent Information

- a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

## **COURSE PREREQUISITES**

No prerequisites for the course.

## COURSE GOALS

Upon the completion of this course, you should be able to:

1. Explain formation of seafloor features and coastal landforms (Geological Oceanography)
2. Describe the chemical and physical properties of seawater and their influence on ocean chemistry and nutrients availability (Chemical Oceanography)
3. Describe ocean circulation and various kinds of waves (Physical Oceanography)
4. Deduce the distribution of organisms based on physical, chemical, and geological oceanographic factors (Biological Oceanography)
5. Argue for why the oceans matter for humans

## REQUIRED TEXTS

- “Oceanography: An Invitation to Marine Science, 9e” by Tom Garrison (and Robert Ellis)  
ISBN-13: 978-1305105164

## SYSTEM, MULTIMEDIA, AND SOFTWARE REQUIREMENTS

If you are having trouble with the multimedia in this course or with accessing Microsoft Office products, find solutions to a number of common problems at [System, Multimedia, and Software Requirements](#). Also, it is highly recommended that you access your course via a **high-speed Internet connection**.

Still having issues? Call the **CSU Help Desk at 970-491-7276** or [Email Help Desk Support](#).

You must have speakers installed and working properly on your computer before beginning the course. You will also need to use some kind of microphone and camera to make a video and to video conference with me (your instructor) twice during the semester; any basic microphone and camera installed on your phone or computer will be fine for this task. If you anticipate a problem accessing this software, please use the technical support services listed on page 1 of this syllabus, and if you continue having problems after that, contact me.

In addition to Canvas, you will also need to be able to use Microsoft Word. As an enrolled CSU student, you should be able to download Microsoft Office for free through [Academic Computing and Networking Services](#).

## COURSE PRESENTATION AND PROCEDURES

### LIBRARY AND RESOURCE HELP

The CSU Libraries Help Desk provides research and technical assistance either in person at Morgan Library or by phone at 970-491-1841. Jocelyn Boice is the librarian supporting this course. Contact her by email at [jocelyn.boice@colostate.edu](mailto:jocelyn.boice@colostate.edu) or by phone at 970-491-3882 to ask questions or set up an appointment for in-depth research help.

## GRADING

I'm committed to responding to your work in a timely manner. I will provide written feedback and grades on short creative assignments, rough drafts, and video presentations no more than two weeks after you have submitted them. (If, however, due to unforeseeable circumstances, the grading of your work takes longer, I will keep you informed of my progress and make every effort to return your work with feedback as soon as I can.)

I will not usually respond to every single post in discussions and workshops; rather, I will respond to the group, synthesize ideas, and ask questions. I will, however, read all posts and grade them for quality.

### Grade Distribution:

ASSIGNMENT	GRADE POINTS	GRADE PERCENTAGE
Midterms (3 @ 60)	180	30%
Worksheets (5 @ 18)	90	15%
Homework Assignments (20 @ 12)	240	40%
Final Exam	90	15%
Total	600	100%

Keep a backup copy of all work created for the course, including work submitted through Canvas. I highly recommend using a cloud system or flash drive to backup work.

## PROCTORING (EXAMS)

Exams are proctored. Students can choose from three options:

### ProctorU Auto

In order to use **ProctorU Auto**, you will need to have a Windows or Mac Operating System and a broadband internet connection; an internal or external webcam and microphone, and a government issued photo ID.

### INSTRUCTIONS FOR USING PROCTORU AUTO

1. Go to your EXAM in Canvas.
2. If you have not already downloaded the Google Chrome Extension, follow the prompt.
3. Make sure your webcam and microphone are installed.
4. Click the **Take the Quiz** button and follow the prompts.

Here are a few things to keep in mind:

- Mobile or other electronic devices are strictly prohibited during testing
- Make sure you are testing alone in a quiet, well-lit area
- Prior to your proctoring session, [Test Your Equipment](#)

- Proctoring expenses are included when enrolled in any Division of Continuing Education section (800) course. You may have to pay for other sections.

## ASSIGNMENTS OVERVIEW

Detailed instructions regarding how each assignment will be graded will be distributed throughout the semester. Here's an overview of what each of these assignments will involve:

**NOTE: Exams (midterms and final exam) are proctored. Details outlined above (before Course Schedule)**

a. Midterm Exams: 180 points

There will be three midterms. Each midterm is worth 60 points. Exams will be online. Exams will test students' understanding of oceanographic concepts and facts. Exams will be multiple choice, True/False, and fill-in-the-blank questions.

b. Final Exam: 90 points

The final is cumulative and cannot be dropped. Everyone must take the final. Failure to take the final exam will affect your semester grade; your overall grade will drop by one letter grade. Emphasis will be on the new material covered since the third midterm exam.

c. Homework: 240 points

There are 22 days when we offer homework. Homework days are marked <sup>HW</sup> on the course schedule. Students will be graded based on 20 homework assignments, 12 points each. If students choose to do all 22 homework assignments, points over 240 will count as extra credit.

The assignments will be done online on Canvas. Students have two attempts to do the homework and are not timed. Homework assignments are always due Sundays 11:59PM of the week the homework was assigned. If there are two homework assignments per week, both assignments are due Sundays at 11:59PM.

Late homework will be accepted only if arrangements with the instructor were made beforehand. Canvas keeps track of each attempt the student makes to do the homework and records the attempt when the assignment is opened. 'No computer' or 'no internet connection' problems are not valid excuses for late assignments. Do not wait until the last minute.

d. Worksheets: 90 points

Students will get prompted five times during the semester to watch a documentary and complete the associated worksheets. Each worksheet is worth 18 points.

## GRADE DESCRIPTION

Grade	Range	
A+	100 %	to 96.67%
A	< 96.67 %	to 93.33%
A-	< 93.33 %	to 90.0%
B+	< 90.0 %	to 86.67%
B	< 86.67 %	to 83.33%
B-	< 83.33 %	to 80.0%
C+	< 80.0 %	to 76.67%
C	< 76.67 %	to 70.0%
D	< 70.0 %	to 60.0%
F	< 60.0 %	to 0.0%

CSU's grading scale does not allow C-, D+, and D- for final grades.

## MAKE UP POLICY

There are no make-ups, unless students have an excused absence or made an arrangement with the instructor beforehand.

## COURTESY AND CONFIDENTIALITY

In creative nonfiction writing, especially personal essay and memoir, writers frequently disclose personal, private, and/or sensitive information about themselves. It is of the utmost importance that you DO NOT SHARE YOUR CLASSMATES' WORK WITH ANYONE OUTSIDE OF THIS CLASS unless you have the author's explicit permission to do so. It is also of vital importance that you approach your classmates' work respectfully. Remember that this is a writing workshop, not therapy; your job is to comment on the writing, not your classmates' personal lives.

## ACADEMIC INTEGRITY POLICY

This course will adhere to CSU's [Academic Integrity/Misconduct](#) policy as found in the General Catalog and the [Student Conduct Code](#).

Academic integrity is conceptualized as doing and taking credit for one's own work. Violations of the university's academic integrity standards include, but are not limited to:

- Cheating—includes using unauthorized sources of information and providing or receiving unauthorized assistance on any form of academic work or engaging in any behavior specifically prohibited by the faculty member.
- Plagiarism—includes the copying of language, structure, ideas, or thoughts of another, and representing them as one's own without proper acknowledgment.
- Unauthorized Possession or Disposition of Academic Materials—includes the unauthorized selling or purchasing of examinations or other academic work; stealing another student's work; unauthorized entry to or use of material in a computer file; and using information from or possessing exams that an instructor did not authorize for release to students.
- Falsification—includes any untruth, either verbal or written, in one's academic work.
- Facilitation—includes knowingly assisting another to commit an act of academic misconduct.

At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

## CSU HONOR PLEDGE

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you bear in mind the CSU Honor Pledge as part of completing your work in this course.

*"I have not given, received, or used any unauthorized assistance."*

Further information about academic integrity is available at CSU's [Academic Integrity Program](#).

## UNIVERSAL DESIGN FOR LEARNING

I am committed to the principle of universal learning. This means that I will work to ensure that our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you need accommodations in this class, please contact [Resources for Disabled Students](#), who can provide a confidential memo explaining your needs. In some cases, I may need to see this memo before I can provide accommodation. Don't hesitate to also contact me directly and explain your needs.

## THIRD-PARTY TOOLS/PRIVACY

Although I don't anticipate it, it's possible we may at some point need to use third-party tools (tools outside of the Canvas learning management system), such as Skype, Educreations, Google Hangouts and others. Some of these tools may collect and share information about their users. Because your privacy is important, you are encouraged to consult the privacy policies for any third-party tools in this course so that you are aware of how your personal information is collected, used and shared.

## COPYRIGHTED COURSE MATERIALS

Please do not share material from this course in online, print, or other media. Course material is the property of the instructor who developed the course. Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates both copyright law and the CSU Student Conduct Code. Students who share course content without the instructor's express permission, including with online sites that post materials to sell to other students, could face appropriate disciplinary or legal action.

## **SUGGESTED STUDY METHODS**

Online education requires skills and habits that may be less essential in traditional courses. In order to be successful in your online course you will need:

- Space—Establish a comfortable and well-organized physical workplace.
- Time management skills—Set personal study and "classroom" time as you would do for a traditional course.
- Organization skills—Print out all class material (modules, assignments, additional resources, and any work you generate) and keep everything in a single location. Maintain electronic backups of all class materials.
- Communication skills—Demonstrate a willingness to interact with your instructor and classmates through email, phone calls, discussion boards, and active participation in all class activities.
- Initiative—Seek help from your instructor and classmates, ask questions as they arise.
- Discipline—Pace yourself, complete all activities and assignments before the due date, follow through on all class requirements to completion.

The more closely you adhere to the recommendations above the greater your chances of having a successful semester and a rewarding online experience.



## Course Schedule

THIS CLASS SCHEDULE IS SUBJECT TO CHANGE. It is the students' responsibility to check Canvas for updates.

We will be following the textbook outline pretty closely. I highly recommend that students do the readings before the lectures. Doing the readings beforehand enhances the understanding of the material presented during the lectures. Students will be tested on the material covered in the narrated lectures, which may or may not be in the textbook.

Dates followed by <sup>HW</sup> denote dates when students have homework assignments.

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### Unit 1: Geological Oceanography

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Week 1: 01/22-01/27

Module 1<sup>HW</sup> Marine Resources; Readings: Chapter 17  
Module 2<sup>HW</sup> The Origin of the Ocean; Readings: Chapter 1

Week 2: 01/28-02/03

Module 3<sup>HW</sup> Earth Structure and Plate Tectonics, Part I; Rd: Ch: 3.1-3.4  
Module 3<sup>HW</sup> Earth Structure and Plate Tectonics, Part II; Rd: Ch 3.5-3.11

Week 3: 02/04-02/10

Module 4<sup>HW</sup> Ocean Basins; Readings: Chapter 4  
Documentary "Drain the Ocean" & Worksheet 1  
  
Exam 1 Student has to take Exam during Week 3

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### Unit 2\*: Humans, Chemical Oceanography, and Circulation of the Atmosphere and Ocean

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\*Student has to have taken the last unit exam before proceeding to this unit

Week 4: 02/11-02/17

Module 5<sup>HW</sup> History of Marine Science; Readings: Chapter 2

Week 5: 02/18-02/24

Module 6<sup>HW</sup> Water, Ocean Structure & Ocean Chemistry; Rd: Ch. 6 & 7  
Module 7<sup>HW</sup> Circulation of the Atmosphere; Readings: Chapter 8

Week 6: 02/25-03/03

Module 8<sup>HW</sup> Circulation of the Ocean; Readings: Chapter 9 (Topics 1-3)  
Module 8<sup>HW</sup> Circulation of the Ocean; Rd: Chapter 9 (Topics 4&5)

Week 7: 03/04-03/10

Documentary "Turtle: Incredible Journey" & Worksheet 2  
[Details in Module 8]  
Exam 2 Student has to take Exam during Week 7

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### Unit 3\*: Physical Oceanography & Marine Biology Part 1

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\*Student has to have taken the last unit exam before proceeding to this unit

Week 8: 03/11-03/17

Module 9<sup>HW</sup> Waves; Readings: Chapter 10

Module 10<sup>HW</sup> Tides; Readings: Chapter 11

SPRING RECESS

March 16-March 24

Week 9: 03/25-03/31

Module 11<sup>HW</sup> Coasts; Readings: Chapter 12

Documentary "Sand Wars" & Worksheet 3

Week 10: 04/01-04/07

Module 12<sup>HW</sup> Life in the Ocean; Readings: Chapter 13

Module 13<sup>HW</sup> Primary Producers; Readings: Chapter 14

Exam 3

Student has to take Exam during Week 11

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### Unit 4\*: Marine Biology Part II

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\*Student has to have taken the last unit exam before proceeding to this unit

Week 11: 04/08-04/14

Module 14<sup>HW</sup> Marine Animals Part I (Invertebrates I); Rd: Ch15.1-15.2

Week 12: 04/15-04/21

Module 14<sup>HW</sup> Marine Animals Part I (Invertebrates II); Rd: Ch. 15.3-15.5

Module 14<sup>HW</sup> Marine Animals Part II (Vertebrates I); Rd: Ch. 15.6-15.8

Week 13: 04/22-04/28

Module 14<sup>HW</sup> Marine Animals Part II (Vertebrates II); Rd: Ch. 15.9-15.11

Documentary "Luna" & Worksheet 4

Week 14: 04/29-05/05

Module 15<sup>HW</sup> Marine Communities Part I; Readings: Ch. 16.1-16.4

Module 15<sup>HW</sup> Marine Communities Part II; Readings: Ch. 16.5-16.7

Week 15: 05/06-05/12

Module 16<sup>HW</sup> The Ocean and the Environment; Readings: Ch. 18

Documentary "Chasing Ice" & Worksheet 5

Week 16

Final Exam