

## SEMESTER AT SEA COURSE SYLLABUS

Colorado State University, Academic Partner

<b>Voyage:</b>	Spring 23
<b>Discipline:</b>	Natural Resources
<b>Course Number and Title:</b>	NR 150 Oceanography (Section 1 and 2)
<b>Division:</b>	Lower
<b>Faculty Name:</b>	Ed Boyer
<b>Semester Credit Hours:</b>	3

**Prerequisites:** None

### COURSE DESCRIPTION

Oceanography will provide an introductory examination of the Earth's oceans from physical and marine geologic perspectives. Through class presentations, lectures, discussions, lab exercises and field experiences we will ponder the geologic origin of the oceans and familiarize ourselves with global geography. With an eye towards understanding the oceanic realm and the dominant role it plays in regulating global climate, we will study the physical and chemical properties of sea water and the techniques for measuring these properties. We will examine global oceanic circulation patterns and the causes of currents, waves, tides and upwelling. The preceding topics will be examined globally and examples from the sea around us and field sites at various ports of call will be used extensively to provide students with first-hand understanding of this important discipline.

### LEARNING OBJECTIVES

The goals are for students:

- to understand the ocean processes and the magnitude that oceans play in shaping our planet and our climate
- to appreciate the interdisciplinary links between geological, physical, chemical, and biological systems
- to recognize the changes and impacts due to human activities in the oceans
- to become acquainted with methods and tools oceanographers use
- to become motivated to investigate current issues in oceanography outside the classroom
- to understanding observable sea surface features and characteristics
- to have a basic understanding of the diversity of marine life and marine ecology

## REQUIRED TEXTBOOKS

AUTHOR: Tom Garrison and Robert Ellis  
TITLE: Oceanography: An Invitation to Marine Science  
PUBLISHER: Cengage  
ISBN: 978 1 305 105164  
DATE/EDITION: 2016 9<sup>th</sup> ed

Additional readings and resources will be announced on the first day of class  
Students can access course material and required readings on the intranet.

Required material:

- a waterproof field notes book (Rite in the Rain)
- Field/Lab journal notebook
- pencils, colored pencils, eraser, sharpener,
- one pair of plastic gloves (puncture proof).
- One 3-ring binder (2") and page dividers.

## TOPICAL OUTLINE OF COURSE

### Embarkation Day – January 5

- 1:** Introduction to course and each other;  
Syllabus and Itinerary overview;  
Looking at Maps;  
What you need to know right now to get started  
Classroom environment and agreements  
(READING = Ch. 1, 2)
- 2:** Ocean Explorations history; field observing, notes, and journaling  
(READING = Ch. 1, 2)
- 3:** Structure of the earth and seafloor features  
(READING = Ch. 3)
- 4:** Continental Drift and the theory of Plate Tectonics  
(READING = Ch. 3, 4)
- 5:** Ocean basins, sediments, and topography  
(READING = CH 4,5)
- 6:** Water as a substance; the origin of ocean waters  
(READING = CH 1, 6)  
EXAM REVIEW
- 7:** EXAM #1

- 8:** Temperature structure of the oceans  
(READING = CH6)
- 9:** Sea water chemistry, gases, nutrients, depth profiles  
(READING = CH 7)
- 10:** Water Movement: Atmospheric circulation and Ocean Currents  
(READING = Ch. 8, 9)
- 11:** Waves  
(READING = CH. 10)
- 12:** Tides  
(READING = CH. 11)
- 13:** Marine Environments and Life Zones  
(READING = CH 13)
- 14:** Coastal Zones  
(READING = CH 12)
- 15:** Rocky Shores, Sandy Beaches, and Estuaries
- 16:** EXAM REVIEW Marine Life – Plankton  
(READING = CH 14)
- 17:** EXAM #2
- 18:** Marine Life – Sea Birds  
(READING = CH 15)
- 19:** Marine Life – Nekton (Fish, Marine Mammals and more)  
(READING = CH 15)
- 20:** Marine Ecology; Productivity, Photosynthesis and Chemosynthesis  
(READING = CH 16)
- 21:** Marine Resources and Human Impacts  
(READING = CH 17)
- 22:** Marine Environmental Issues – Fisheries, Ocean Warming and etc  
(READING = CH 18)  
Student Presentations
- 23:** Student Presentations  
Exam Review

24: FINAL EXAM

25: FINAL CLASS:

WRAP UP

Reflections on the course

Disembarkation Day – April 20

## FIELD WORK

Semester at Sea® field experiences allow for an unparalleled opportunity to compare, contrast, and synthesize the different cultures and countries encountered over the course of the voyage. In addition to the one field class, students will complete a Comparative Experiential Project that span multiple countries.

### Field Class & Assignment

**STUDENTS: Field Class proposals listed below are not finalized.** Confirmed ports, dates, and times will be posted to the [Spring 23 Courses and Field Class page](#) when available.

**Field Class attendance is mandatory for all students enrolled in this course. Do not book individual travel plans or a Semester at Sea sponsored trip on the day of your field class.**

Field Classes constitute 20% of the contact hours for each course.

Field Class Title: Physical oceanography of onshore vs nearshore environments

### Outcomes:

- Observe nearshore and onshore coastal environments and record those observations in field notes
- Describe the coast of the region in oceanographic terms including; coastal landforms and topography, nearshore bathymetry, tides, currents, and other features
- Identify common marine and coastal species of algae, plants, mangroves, and intertidal animals
- Compare undisturbed coastline and nearshore waters with similar areas that have been developed and altered by human activity.
- Assess ecosystem health of nearshore waters and coasts noting key threats to those areas and any ongoing or planned measures to counter those threats (for example: beach erosion, sea-level rise, tsunami, habitat destruction)
- Compare similar types of coasts, such as desert coastlines, from different regions in terms of topography, ecology, and human use

### Activities:

- Explore the coastal areas in port (developed areas) as well as in the surrounding region (natural areas) by coach or small boat, and natural history walks
- Visit nearby maritime museums, aquaria, parks or reserves and visitor centers relevant to oceanography of the region
- Spend time in intertidal zones including sand beaches, mudflats, estuaries, and rocky shores observing and noting their physical and biological oceanographic aspects
- Snorkel in coral reefs and/or mangrove or sea grass lagoons.

### Assessment:

- Participation in the field class
- Field notes and field journal write up
- Summary report about the field class visit including notes and reflections
- Due by SECOND CLASS MEETING AFTER PORT
- The field class will be worth 20% of the course grade

### **Comparative Experiential Project**

The CEP is the required comparative assignment that span multiple countries. The Comparative Experiential Project constitutes at least 5% of the grade for each course.

Students in groups will be assigned 2 pairs of ports-of-calls countries. Each pair of port countries will represent an oceanographic region such as temperate, subtropical, tropical, desert, open ocean, or enclosed gulf waters. Within each region 2 ports will be studied, allowing us to compare different regions as well as individual port countries. Basic geographic and oceanographic features of each port will be noted and students should also note anything they deem relevant to our course, which could include coastal erosion or development; made structures to combat tsunamis, sea level change etc.; seafood consumption and markets; aquaculture; fishing practices – just to name some examples. More detailed guidelines will be given on the first day of class.

Groups will prepare 5-minute power point presentations, including photos and sketches, and turn in a summary report. The students will be graded on their creativeness and ability to apply concepts we covered in class to their observations; quality of their essays and PPP.

### **METHODS OF EVALUATION**

20%	Field Class & Field Class Assignment
10%	Comparative Experiential Project
10%	Class Participation
20%	Midterm Exams
20%	Final Exam
10%	In Class group assignments
10%	Ship Voyage Log

## GRADING SCALE

The following Grading Scale is utilized for student evaluation. Pass/Fail is not an option for Semester at Sea® coursework. Note that C-, D+ and D- grades are also not assigned on Semester at Sea® in accordance with the grading system at Colorado State University (the academic partner institution).

Pluses and minuses are awarded as follows on a 100% scale:

<u>Excellent</u>	<u>Good</u>	<u>Satisfactory/Poor</u>	<u>Failing</u>
97-100%: A+	87-89%: B+	77-79%: C+	Less than 60%: F
93-96%: A	83-86%: B	70-76%: C	
90-92%: A-	80-82%: B-	60-69%: D	

## ATTENDANCE/ENGAGEMENT IN THE ACADEMIC PROGRAM

Attendance in all Semester at Sea® classes, including the Field Class, is mandatory. Students must inform their instructors prior to any unanticipated absence and take the initiative to make up missed work in a timely fashion. Instructors must make reasonable efforts to enable students to make up work which must be accomplished under the instructor's supervision (e.g., examinations, laboratories). In the event of a conflict in regard to this policy, individuals may appeal using established CSU procedures.

## CLASSROOM CLIMATE

Semester at Sea® is committed to the Voyage Community Values. Consequently, the classroom environment is founded on mutual respect, community, and an aim toward equity. The Voyage Community Values support the creation of a collaborative and vibrant community. Our community is the foundation of our learning, critical inquiry, and discovery. Each member of this course has a responsibility to uphold these values when engaging with one another.

With that, please review the following Voyage Community Values:

- **Well-Being:** We commit to the health, safety and well-being of ourselves, all members of our voyage community, *and* members of the communities we will visit.
- **Interconnectedness:** We understand our actions and attitudes have an impact locally and globally. We always seek to positively affect the planet and the people around us near and far.
- **Respect:** We honor the inherent dignity of *all people* with an abiding commitment to freedom of expression, scholarly discourse and the advancement of knowledge. We have the right to be treated, and the responsibility to treat others, with fairness and equity.
- **Inclusion:** We ensure inclusive environments that welcome, value, affirm and embrace *all people* within the shipboard community and in each country we visit.

- **Integrity:** We are honest and ethical in all of our interactions, including our academic work. We hold ourselves accountable for our actions.
- **Excellence:** We model the highest academic standards of preparation, inquiry and knowledge and consistently seek to understand complex issues and express informed opinions with courage and conviction.

## LEARNING ACCOMMODATIONS

Semester at Sea® provides academic accommodations for students with diagnosed learning disabilities, in accordance with ADA guidelines. Students who will need accommodations in a class, should contact ISE to discuss their individual needs. Any accommodation must be discussed in a timely manner prior to implementation.

A letter from students' home institutions verifying the accommodations received on their home campuses (dated within the last three years) is required before any accommodation is provided on the ship. Students must submit verification of accommodations to their Student Services advisor as soon as possible, but no later than two months prior to the voyage. More details can be found within the **Course Registration Packet**, posted to the student portal prior to registration.

## STUDENT CONDUCT CODE

The foundation of a university is truth and knowledge, each of which relies in a fundamental manner upon academic integrity and is diminished significantly by academic misconduct. Academic integrity is conceptualized as doing and taking credit for one's own work. A pervasive attitude promoting academic integrity enhances the sense of community and adds value to the educational process. All within the University are affected by the cooperative commitment to academic integrity. All Semester at Sea® courses adhere to this Academic Integrity Policy and Student Conduct Code.

Depending on the nature of the assignment or exam, the faculty member may require a written declaration of the following honor pledge: "I have not given, received, or used any unauthorized assistance on this exam/assignment."

## RESERVE BOOKS FOR THE LIBRARY

TBA

## FILMS

TBA

## ELECTRONIC COURSE MATERIALS

TBA