

## SEMESTER AT SEA COURSE SYLLABUS

### Colorado State University, Academic Partner

<b>Voyage:</b>	Spring 2018
<b>Discipline:</b>	Natural Resources
<b>Course Number and Title:</b>	NR150 Oceanography (Section 3)
<b>Division:</b>	Lower
<b>Faculty Name:</b>	Deborah Beal
<b>Semester Credit Hours:</b>	3

**Prerequisites:** None

### COURSE DESCRIPTION

Oceanography is an interdisciplinary science, which explores the physical, chemical and biological processes on earth and the interaction of those processes. The oceans influence global climate and provide important resources and services for humans. In turn, humans are having a tremendous impact on the oceans through disruption of coastlines, pollution, overuse of marine resources, global warming and other anthropogenic effects.

Semester at Sea provides the unique opportunity to understand the function and structure of oceanic habitats and to compare the impact of humans across various cultures. Information from the text will be supplemented by case studies and first hand investigation into marine science issues.

### LEARNING OBJECTIVES:

In this course you will learn to:

- a) Describe the theories of the origin of the earth, atmosphere, and oceans;
- b) Describe the development of ocean knowledge from early voyages to modern times;
- c) Describe the theory and features of plate tectonics;
- d) Identify the major features of ocean basins;
- e) Recognize different ocean sediments, their characteristics and origins;
- f) Identify the chemical and physical characteristics of sea water;
- g) Explain how Earth's atmosphere oceans circulate and influence each other;
- h) Understand the formation and behavior of waves and tides;
- i) Describe the general characteristics of coastlines and coastal processes, oceanic winds, currents, heat fluxes, and water masses;
- j) Identify the factors that influence organisms and productivity in the ocean;
- k) Describe the general characteristics of life in the water;
- l) understand the role of human interaction with oceanic processes.

### REQUIRED TEXTBOOKS

AUTHOR: Tom Garrison  
TITLE: Oceanography: An Invitation to Marine Science  
PUBLISHER: Cengage Learning  
ISBN #: 10: 1305105168  
DATE/EDITION: 2016/ 9<sup>th</sup> edition

## TOPICAL OUTLINE OF COURSE

Depart Ensenada, Mexico – January 5

B1–January 8: Introduction and syllabus. Overview of voyage and ports as they relate to oceanography. Assign student groups to various ports for post port reviews.

B2–January 10: History of oceanography. Environmental issues and sustainability. (Chapter 1 &2) Preparation for Hawaii. Honolulu, Hawaii – January 12

B3–January 13: The Earth’s structure, plate tectonics and topography of the ocean floor. (Chapter 3).

B4–January 15: Debriefing Hawaii. Ocean Basin: The Great Pacific Garbage Patch Case Study (Chapters 4 & 6)

January 16–International Date Line crossing (Lost Day)

B5–January 18: The properties of seawater and sediments (Chapters 5 & 7)

Study Day – January 19

B6–January 21: Atmospheric circulation, Impact of wind, interaction of wind and waves. (Chapter 8)

B7–January 23: Exam 1 (10%). Preparation for Japan Kobe, Japan – January 24-28

B8–January 30: Debriefing Japan. Deep water circulation and its importance for climate. (Chapter 9). Preparation for China.

Shanghai, China – January 31 - February 1 In-Transit – February 2-3 Hong Kong, SAR – February 4-5

B9–February 7: Debriefing China. Surface and internal waves. Tsunamis (Chapter 10). Preparation for Vietnam.

Ho Chi Minh City, Vietnam – February 8-13

B10—February 15: Debriefing Vietnam. Tides (Chapter 11)

Study Day —February 16

B11—February 18: Tides continues (Chapter 11). Preparation for Myanmar.

Yangon, Myanmar — February 19-23

B12—February 25: The dynamic shoreline and tides (Chapter 11). Debriefing Myanmar

B13— February 27: Sea level rise and coasts (Chapter 12) Preparation for India

India — February 28 – March 5

Study Day - March 7

B14—March 8: Debriefing India.

B15—March 10: Coasts (Chapter 12). Preparation for Mauritius

Port Louis, Mauritius — March 11

B16—March 13: Life in the oceans. (Chapter 13& 15). Debriefing Mauritius.

B17—March 15: Ocean habitats and their biota. (Chapter 13 & 15 ).

B18—March 17: Ocean Productivity (Chapter 14). Preparation for South Africa

Cape Town, South Africa — March 18-23

B19—March 25: Marine Resources (Chapter 17). Debriefing South Africa.

B20—March 27: Exam 2 (10%)

B21—March 29: Global climate change and the oceans. (Chapter 18) Preparation for Ghana  
Tema,

Takoradi, Ghana — March 30 – March 31

Tema, Ghana — April 1-3

B22—April 5: Student presentations. Debriefing Ghana.

B23—April 7:

Study Day – April 8

B24– April 10: Preparation for Morocco. Student presentations. Casablanca, Morocco – April 11-14

B25–April 16: Final Exam (20%)

Arrive Bremerhaven, Germany – April 19

### **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 independent field assignments that span multiple countries.

**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 at least 20% of the contact hours for each course.

### **Field Class and Assignment**

The Field Class for this course will take place on **Sunday, 11 March, in Port Louis, Mauritius.**

Mauritius Oceanography Institute

- a) observe marine life and compare to physical conditions
- b) tour MOI
- c) snorkel in coral reef habitats
- d) observe, record and compare species from above and below the tideline

### **INDEPENDENT FIELD ASSIGNMENTS**

On ship log: Students in groups will maintain an Expedition Log for all days at sea. The log will include all available measurements and observations relevant for the course, e.g. weather, bottom depth, sea state, oceanographic parameters and marine wildlife sightings. A photo should be taken every day around noon to get an idea of the sea state and the color of the ocean. Also document how the ocean changes as we go from the open ocean across the continental shelf and into harbor at some ports or the reverse route. The second part of the entry should be descriptive or illustrative in nature, documenting the ‘at sea’ experience. Any experiences in port that add to the understanding of the marine environment are welcome in the log. Logs will be evaluated on the basis of completion (minority) and effort (majority).

Ports-of-call reports: Students in groups will be assigned two ports-of-calls countries. In the port and in the country, students should note anything they find relevant to our course, which could for example include coastal erosion; manmade structures to prevent erosion;

seafood consumption and seafood offered in stores and markets; aquaculture; fishing practices etc. Each group will prepare a 5-10 minute power point presentation for the two different ports, and turn in an essay (1-2 pages of text).

Plastics Photo log: Students will maintain a photo log with date, weather conditions and location of plastics spotted both in port and at sea. Students will summarize photo log and evaluate changes in plastics contamination throughout our journey.

**METHODS OF EVALUATION / GRADING SCALE** 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 SAS partner institution).

#### GRADE SCALE

97-100%: A+

93-96%: A

90-92%: A-

87-89%: B+

83-86%: B

80-82%: B-

77-79%: C+

70-76%: C

60-69%: D

Less than 60%: F

2 exams 20%

Observation log 10%

Photographic record 10%

Group presentations & papers 20%

Final Exam 20%

Field Class 20%

**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.

**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 the student's home institution verifying the accommodations received on their home campus (dated within the last three years) is required before any accommodation is provided on the ship. Students must submit this verification of accommodations to [academic@isevoyages.org](mailto:academic@isevoyages.org) as soon as possible, but no later than two months prior to the voyage.

**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** None

**FILM REQUEST:** None

**ELECTRONIC COURSE MATERIALS:** None

**ADDITIONAL RESOURCES** None