

**MARINE SCIENCE 210  
OCEANS AND SOCIETY**

**BULLETIN INFORMATION**

MSCI 210 - Oceans and Society (3 credit hours)

**Course Description:**

A nontechnical introduction to human interactions with the marine environment: marine organisms, marine systems, and the physical and chemical characteristics of oceans and estuaries. Not available for marine science major credit.

**SAMPLE COURSE OVERVIEW**

Oceans and Society provides students with an opportunity to explore the world of oceanography, marine biology, and conservation. As you will discover, oceanography is an interdisciplinary subject comprised of concepts and ideas from biology, ecology, meteorology, geology, chemistry, physics, cultural anthropology, economics, political science, environmental law, and many other disciplines. Of the total water resources available, more than nine-tenths is composed of the oceans. We use the oceans for food, energy and materials, and oceans play a major role in controlling climate. Understanding and applying the information and principles that we cover in this course is vitally important for the future of humanity and all other life on our planet. By the end of this course, you will: 1) have learned the basic principles, concepts, and terms of oceanography, 2) understand the scientific method and how hypotheses, experimentation and observations are used to explore and explain how marine systems work, and 3) have learned how science can be used to manage our oceans and our planet so as to provide a more pleasant and safe environment for ourselves and future generations.

**ITEMIZED LEARNING OUTCOMES**

**Upon successful completion of Marine Science 210, students will be able to:**

1. Compare current scientific theories concerning the origin of the Earth and the waters that cover its surface
2. Identify the features of the ocean basins and relate the structures observed to the scientific theories of their origin
3. Demonstrate understanding of basic chemical oceanography in terms of properties of water, salts, and gases and how these properties control life in the oceans
4. Describe motions in the sea in terms of their causes, interactions, and effects on marine and shoreline environments, and influence on human activities
5. Identify key features, interconnectedness, and understand importance of marine organism groups such as protists, zooplankton, sharks, and mammals
6. Demonstrate understanding of the basic ecosystem structure of different marine environments and relate the physical properties of oceanic environments to these ecosystems.

7. Identify the causes of marine pollution and environmental degradation, and understand the problems associated with containment and alleviation
8. Demonstrate understanding of how past evidence of ocean and climate history is obtained and how this information is interpreted in the modern ocean using basic oceanographic principles and first order testable hypotheses
9. Evaluate the scientific evidence for both natural and human-induced climate change and evaluate the pros and cons of climate change on ocean systems with respect to society

### **SAMPLE REQUIRED TEXTS/SUGGESTED READINGS/MATERIALS**

1. *Essentials of Oceanography*, 6<sup>th</sup> ed., Tom Garrison, Thompson Learning, Inc., Belmont, Calif. (can also use 5<sup>th</sup> edition—available used online).

### **SAMPLE ASSIGNMENTS AND/OR EXAM**

This course includes the following four means of evaluating student performance and comprehension of the material:

1. **Exams:** There are three lecture exams and one final exam. Exams consist of multiple choice questions designed to evaluate student understanding of basic terminology, key concepts and scientific principles covered in lecture
2. **Quizzes & Participation:** In-class attendance quizzes will be used to evaluate student comprehension of key concepts and theories in oceanography presented in prior weeks' lectures and are designed so that students not only demonstrate their knowledge, but interpret results of the information/data provided.
3. **Four Critical Thinking/Writing Assignments:** These short assignments will require students to reflect on a documentary/video or topic discussed in class that focuses on the interface between oceans and society (e.g., the Pacific Garbage Patch, deep ocean oil drilling, whaling, etc.). The paper should present the underlying evidence and theories for the basis of the discussion, discuss misconceptions (if any) and present possible solutions. These assignments are to be typed and turned in on Blackboard.
4. **Extra Credit/Bonus points:** These points may come from extra credit on quizzes and additional extra credit opportunities that will be provided throughout the course, (e.g. evaluate the correct and incorrect scientific underpinnings of a movie such as "The Day After Tomorrow").

### **SAMPLE COURSE OUTLINE WITH TIMELINE OF TOPICS, READINGS/ASSIGNMENTS, EXAMS/PROJECTS**

- Class 1:        First day of classes  
                       Introduction to class/objectives  
                       Course Syllabus
- Class 2:        Blue Planet Documentary: Ocean World

Writing Assignment 1

Class 3: The Scientific Method  
History of the Earth and Ocean  
Chapter 1

Class 4: History of Marine Science  
Chapter 2

Class 5: Earth Structure and Plate Tectonics  
Chapter 3  
Writing Assignment 1 DUE

Class 6: Earth Structure and Plate Tectonics, cont.  
Ocean Basins  
Chapter 3, 4

Class 7: Ocean Basins, cont.  
Chapter 4

Class 8: Ocean Sediments  
Exam 1 Review  
Chapter 5

Class 9: **EXAM 1**

Class 10: Water  
Chapter 6

Class 11: Blue Planet Documentary: Tidal Seas  
Writing Assignment 2

Class 12: Water, Cont.  
Atmospheric Circulation  
Chapter 6, 7

Class 13: Atmospheric Circulation, cont.  
Ocean Circulation  
Chapter 7, 8

Class 14: Ocean Circulation, cont.  
Chapter 8  
Writing Assignment 2 DUE

- Class 15: Waves  
Exam 2 Review  
Chapter 9
- Class 16: **EXAM 2**
- Class 17: “Mutual Expectations”  
Tides  
Chapter 10  
Feedback “Quiz”
- Class 18: Blue Planet Documentary: Seasonal Seas
- Class 19: Tides, cont.  
Chapter 10
- Class 20: Coasts  
Chapter 11
- Class 21: Life in the Ocean  
Chapter 12  
Writing Assignment 3 – Food Webs
- Class 22: Life in the Ocean, cont.  
Pelagic Communities  
Chapter 12, 13
- Class 23: **EXAM 3**
- Class 24: Pelagic Communities, cont. – Zooplankton  
Chapter 13  
Writing Assignment 3 DUE
- Class 25: Pelagic Communities, cont. – Fishes and Mammals  
Chapter 13
- Class 26: Benthic Communities  
Chapter 14
- Class 27: Benthic Communities, cont. – Coral Reefs, Hydrothermal Vents, Deep Sea  
Chapter 14
- Class 28: Uses and Abuses of the Ocean  
Climate Change

Final Review Info  
Chapter 15  
Assigned reading  
Writing Assignment 4

**FINAL (EXAM 4) according to University exam schedule**