

## COLLEGE OF THE CANYONS

### GENERAL COURSE INFORMATION

1. **Subject Code:** [GEOL](#)
2. **Course Number:** [218](#)
3. **Course Title:** [Introduction to Oceanography](#)
4. **Effective Date:**
5. **Discipline:**

[Earth Science - Masters](#)

6. **Semester of First Offering:**

### SECTION D

**Articulation Information:** (Required for Transferable courses only)

1.

- CSU Transferable.
- UC Transferable.
- CSU/UC major requirement.  
If CSU/UC major requirement, list campus and major.

2. List one community college and its comparable course. If requesting CSU and/or UC transferability also list a CSU/UC campus and comparable lower division course.

[Los Angeles Valley College](#)  
[Oceanography 1 and Oceanography 10 \(lab\)](#)  
[Cal Poly, San Luis Obispo](#)  
[Physical Science 201--Oceanography](#)  
[UCLA](#)  
[San Diego Mesa - Biology 110](#)  
[Earth & Space Science 15](#)

### SECTION E

#### Resources:

Please consider the identified concerns below:

1. **Library:** Please identify the implications to the library

[Students will be completing a term-paper assignment and the library will support students in documenting and researching, and computer access.](#)

2. **Computer Support Services:** Please identify the implications to Computer Support Services:

[Computer Support Services will be asked to maintain hardware and network connections, and to offer technical assistance to the Instructional Computer Lab Technician in the Biology Computer Laboratory located in L-211. Optional lab facilities and support services could include use of the existing GIS lab, with the appropriate lab technician. Students will be accessing the Internet, using word processing, and data analysis programs available on the computers. Students concurrently enrolled in BioSci 050 and BioSci 218 will also utilize the Biology Computer Laboratory resources.](#)

**3. TLC Lab :** What are the implications to the TLC lab of this course being offered?

As this is a non-majors course, there will be no implications for the TLC to hire course tutors. The TLC will be asked to support students with computer access and alternate locations for course assessment tools.

**SECTION H****General Course Information****1. Units:** 4.0

Variable units n/a

(\*Units of credit are based on: 1 unit of credit per one hour of lecture (plus 2 hours of outside class independent study); 1 unit of credit per three hours of activity or lab.)

**2. This Course is:**

Associate Degree Applicable - CSU transferable

**3. Cross-List:**

Bio Sci 218

**Course Format and Duration****4. Maximum Contact Hrs per Term**

Lecture/Discussion: 54

Lab: 54

Activity:

By Arrangement:

**Total Maximum Contact Hrs per Term** 108 - 0**5. Short Term Total Hrs**

Lecture/Discussion:

Lab:

Activity:

By Arrangement:

**Total Hrs****Methods of Instruction****6. Check all instructional methods used to present course content.**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Lecture | <input type="checkbox"/> Activity                                 |
| <input type="checkbox"/> Discussion Seminar | <input type="checkbox"/> Distance Ed (requires supplemental form) |
| <input checked="" type="checkbox"/> Lab     | <input type="checkbox"/> Work Experience                          |
| <input type="checkbox"/> Directed Study     | <input type="checkbox"/> Tutoring                                 |

Other:

**Course Preparation – (Supplemental forms required)**

**7a. Prerequisite(s):** (Course and/or other preparation/experience that is REQUIRED to be completed previous to enrollment in this course.)

None

**7b. Co-requisite(s):** (Courses and/or other preparation that is REQUIRED to be taken concurrently with this course.)

None

**7c. Recommended:** (Minimum preparation RECOMMENDED in order to be successful in this

course. Also known as "Course Advisory".)

None

### Catalog Description And Other Catalog Information

#### 8. Repeatability:

Not Repeatable

Please Note: 8. (Repeatability) does not refer to repeating courses because of substandard grades or a lapse of time since the student took the course. A course may be repeated only if the course content differs each time it is offered and the student who repeats it is gaining an expanded educational experience as stipulated in *Title V*.

- Skills or proficiencies are enhanced by supervised repetition and practice within class periods.
- Active participatory experience in individual study or group assignments is the basic means by which learning objectives are attained.
- Course content differs each time it is offered.

Explanation for above repeatability selection:

#### 9a. Catalog Description:

A study of the history of oceanography, geological, chemical, biological and physical oceanography. Laboratories will include both in-class and required field studies—which may include times outside of assigned laboratory times.

**9b. Class Schedule Description:** (One or two sentences describing course content for the prospective student. Does not require as much detail as the Catalog description.)

A study of the history of oceanography, geological, chemical, biological and physical oceanography. Laboratories will include both in-class and required field studies—which may include times outside of assigned laboratory times.

**9c. Grading Option:** LR - Letter Grade Only

### Course Outline Information

**10. Student Learning Outcomes:** (Outcomes for **all** credit courses must indicate that students will learn critical thinking and will be able to apply concepts at college level. Outcomes must be related to Catalog Description, Course Content, and Objectives.)

**The student will be able to:**

Lecture SLO:

Analyze various aspects of the marine ecosystem, including chemical, physical, geological and biological components .

Laboratory SLO:

1. Differentiate among marine ecosystems, analyze the physical, chemical and biological factors which control each system, evaluate the importance of each to the biosphere, and design and perform research methods for monitoring each system (estuarine, rocky intertidal, sandy beach, coral reefs, near shore and off shore pelagic realms).

**Objectives:**

Lecture Objectives:

1. Compare and contrast the historical construct and methodologies used in oceanography.
2. Explain the major work done by scientists in oceanography.
3. Distinguish, compare and categorize oceanic environments, chemically, physically and biologically.
4. Distinguish, compare and categorize oceanic processes including tides and currents.
5. Describe the vertical stratification of water in the ocean.
6. Describe el Nino and la Nina events.
7. Characterize the bottom topography of the ocean and describe their origins.
8. Describe the actions of plate tectonics.
9. Describe the components of sea water.
10. Distinguish between the major ocean provinces.
11. Distinguish, compare and categorize marine animals from all major phyla.
12. Correlate factors affecting distribution of physical, chemical and biological aspects of the ocean.

#### Laboratory Objectives:

1. Construct a scientific laboratory report in which: Data has been collected, compiled, organized and presented, and inferences made and justified by analysis of the data, and conclusions have been drawn that are supported by the data.
2. Determine the salinity, temperature and density of sea water.
3. Determine the identity of water masses in an ocean model.
4. Use sonar to map bottom topography.
5. Navigate using a compass and nautical charts.
6. Use a water quality testing kit to identify nutrients and pollutants in sea water.
7. Identify representatives of the major seaweed and animal groups using dichotomous keys.
8. Distinguish between animal morphologies from different habitats.
9. Characterize waves, currents and tides.
10. Model a wave system.
11. Identify various marine fossils and rock types.
12. Analyze and evaluate the effects of human interaction in the ocean.
13. Observe and examine plankton through the effective use of the microscope, and discuss the importance of this group of organisms.
14. Demonstrate proficiency at the use of laboratory and field equipment and techniques.

**11. Course Content Outline:** (Provides a comprehensive, sequential outline of the course content, including all major subject matter and the specific body of knowledge covered.)

#### Lecture:

- I. Introduction to Oceanography
- II. History of Oceanography
- III. Instruments & Equipment of Oceanography
  - A. Navigation
  - B. Submersibles
  - C. Weather satellites
- IV. Geological Oceanography
  - A. Earth's interior
  - B. Sea floor spreading
  - C. Ocean morphology
  - D. Plate tectonics
  - E. Earliest earth forms
  - F. Sediments
- V. Physical Oceanography
  - A. Ocean currents
  - B. Waves
  - C. Ocean circulation
  - D. Tides
  - E. Tidal currents
  - F. Climate

- G. Global changes
- VI. Chemical Oceanography
  - A. Water properties
  - B. Chemical processes
  - C. Research
  - D. Pollution
  - E. Tools and factors affecting ocean composition
- VII. Biological Oceanography
  - A. Evolution of universe, earth, seas and organisms
  - B. Adaptations of marine organisms
  - C. Environments/communities
  - D. Plankton/nekton
  - E. Plants
  - F. Animals
- VIII. Marine Resources
  - A. Current and future uses
  - B. Energy
  - C. Tourism
  - D. Distillation and waste management
  - E. Role of humans in oceans

Lab:

- Units and Graphs
- Bathymetric Contours and Profiles.
- Navigational charts
- Plate Tectonics
- Identification of Coastal Sands
- Physical and Chemical properties of Seawater
- Atmospheric Winds and Global Climate
- Ocean Circulation
- Basic oceanographic instruments [boat cruise]
- Ocean Waves
- Ocean Tides
- Coastal Features
- Satellite Images
- Marine Pollution
- Global Issues

**12. Methods of Evaluating Student Achievement:** (All courses must provide for measurement of student performance in terms of stated student performance objects, Area 10, and culminate in a formal recorded grade based on uniform standards. Submit at least 2 examples.)

- Essay Exams or Other Equivalent Writing Assignments
- Short Answer Tests
- Problem Solving
- Skill Demonstration
- Laboratory Notebook Evaluation

**13. Typical Assignments:** (Credit courses **require** two hours of independent work outside of class per unit of credit for each lecture hour. List types of assignments, including library assignments.)

**a. Reading Assignments:** (Submit at least 2 examples)

- Lecture text
- Weekly journal articles
- Laboratory textbook
- Handouts

**b. Writing, Problem Solving or Performance:** (Submit at least 2 examples)

Written laboratory reports  
Equipment performance  
Inquiry based laboratories

**c. Other** (Terms projects, research papers, portfolios, etc.)

One term paper/research paper, laboratory summary and notebook  
Field work may be required.  
Bathymetric analysis and mapping exercises.

**14. Required Materials:**

**a. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.**

Book 1:

Author: Ronald E.E. Johnson  
Title: Oceanography Laboratory Manual  
Publisher: Kendall Hunt  
Date of Publication: 2003  
Edition: 5th

Book 2:

Author: Benjamin A. Pierce  
Title: Genetics: A Conceptual Approach  
Publisher: W.H. Freeman and Company  
Date of Publication: 2005  
Edition: 2nd

Book 3:

Author: Douglas A. Segar  
Title: Introduction to Ocean Sciences  
Publisher: W.W. Norton and Company  
Date of Publication: 2007  
Edition: 2nd

Book 4:

Author: Alan P. Trujillo & Harold V. Thurman  
Title: Essentials of Oceanography  
Publisher: Prentice Hall  
Date of Publication: 2008  
Edition: 9th