

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: Oceanography 100 — Oceanography Lecture

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS:

Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: None

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

An introductory course designed to acquaint the student with general oceanography. Topics treated include the history and scope of oceanography, properties of sea water, ocean currents, ocean waves and tides, submarine morphology and geology, marine sediments, life in the sea, and the significance of the oceans to man. *Not open to students with prior credit in OCN 101.*

SPECIFIC COURSE OBJECTIVES:

The successful student will be able to:

1. Describe the process of scientific inquiry, commonly called the scientific method, and be able to apply the method as it pertains to oceanographic phenomena.
2. Describe the current hypotheses related to the origin of Earth and development of the atmosphere, oceans, and life.
3. Understand the dynamic processes involved in tectonic plate motions, including the characteristic processes and landforms associated with tectonic plate boundaries.
4. Identify the principal types of physiographic features on the sea floor and discuss their origin relative to tectonic plate processes.
5. Understand the origin of the four major types of marine sedimentary materials and be able to predict the distribution of the types of sediments on the sea floor.
6. Describe the influence of the hydrologic cycle, atmospheric processes, and marine life on the chemical characteristics of seawater.

7. Understand how temperature, salinity, and density characteristics determine the physical structure of the ocean.
8. Discuss Earth's heat budget and the influence of oceanic and atmospheric processes in distributing heat.
9. Explain the Coriolis effect and characterize its role in the dynamics of ocean and atmospheric circulation.
10. Draw and discuss the idealized global wind system and its affect on global climate patterns and global ocean circulation.
11. Describe the characteristics, formation and dynamics of wind-driven waves.
12. Explain the motions of the Earth-moon-sun system and the resulting ideal monthly tidal cycle.
13. Compare differences between erosional and depositional shoreline processes and their affect on the development of coastal landforms.
14. Provide examples of how man-made coastal structures affect shoreline processes.
15. Describe the impact of the tectonic setting of major US coastlines on the general types of coastal features present.
16. List and describe several types of ocean pollutants that especially affect the water quality of coastal zones.
17. Compare the physical characteristics of pelagic and benthic marine environments.
18. Discuss several ways in which marine organisms are specifically adapted to the physical parameters of the marine environment.
19. Understand the global distribution of primary productivity and its relationship to the physical dynamics of ocean circulation.
20. Discuss the characteristics of several marine pelagic and benthic ecosystems and the adaptations of and niches of organisms within those ecosystems.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Introduction to marine science, geography of oceans
- II. Origins of earth, oceans, and atmosphere
- III. Earth structure and plate tectonics
- IV. Features of the sea floor
- V. Marine sediments
- VI. Chemical and physical properties of seawater
- VII. Ocean-atmosphere interactions
- VIII. Ocean circulation
- IX. Waves and water dynamics
- X. Tides
- XI. Coastal oceanography
- XII. Biological productivity
- XIII. Marine ecosystems
- XIV. Marine resources
- XV. Marine pollution

REQUIRED READING:

Thurman, Harold V. and Alan P. Trujillo. Essentials of Oceanography. Upper Saddle River, NJ: Prentice Hall Publishers, 2002 (or most current edition).

SUGGESTED READING:

Any pertinent articles that may appear in the daily and/or weekly public press that relate to oceanographic phenomena. A list of publications for further study is included at the end of each chapter in the text.

REQUIRED WRITING:

Writings in the form of 1-paragraph to 1-page descriptive explanations in response to a question or definitions of selected concepts will be either given with tests or as Internet assignments.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Outside assignments include but are not limited to:

1. reading the text
2. studying lecture notes
3. practicing skills
4. the textbook's Companion Web Site

In addition, one or more of the following will be required, all of which will require additional outside research on an oceanographic concept:

1. a multi-page research paper.
2. a poster session, including oral presentation.
3. the production of a video/slide presentation.
4. 2-4 pages written review of 3 or more oceanographic journal articles.
5. oral presentation of a journal article
6. computer/Internet-related exercises
7. other assignments as appropriate

The minimum bibliography for all of these assignments will require the student to work outside of the class and textbook.

An instructor may also offer as supplementary credit:

1. use of computer software/Internet to investigate oceanographic topics
2. field trip to local oceanographic-related institutions/facilities
3. field trip to local beach/coastal area

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
 laboratory
 lecture-laboratory combination
 directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply:

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
 Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)

- _____ Two-Way Video Conferencing (Two-way interactive video and audio)
- _____ One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
- _____ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

Grades in this course are based upon the following:

1. Objective tests, each covering a preassigned block of textbook chapters and lecture material.
 - a. Tests (not including the final exam) to account for 40-60% of grade.
2. Outside assignments.
 - a. Outside assignments to account for 10-30% of grade.
3. Comprehensive final exam.
 - a. Final exam to account for 20-25% of grade.

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes _____ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON:

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SIGNATURES ON FILE: