



**COURSE OUTLINE : OCEAN 116**

**D Credit – Degree Applicable**

**COURSE ID 004032**

**Cyclical Review: July 2020**

**COURSE DISCIPLINE :** OCEAN  
**COURSE NUMBER :** 116  
**COURSE TITLE (FULL) :** Oceanography Laboratory  
**COURSE TITLE (SHORT) :** Oceanography Lab

**CATALOG DESCRIPTION**

OCEAN 116 is an introduction to the common laboratory practices and exercises on the physiochemical and geological aspects of oceanography. Laboratory 3 hours per week including 8 hours of supervised observations and data collection aboard an oceanographic research vessel.

Total Lecture Units: 0.00

Total Laboratory Units: 1.00

**Total Course Units: 1.00**

Total Lecture Hours: 0.00

Total Laboratory Hours: 54.00

Total Laboratory Hours To Be Arranged: 0.00

**Total Contact Hours: 54.00**

**Total Out-of-Class Hours: 0.00**

Prerequisite/Corequisite: OCEAN 115.



**ENTRY STANDARDS**

	<b>Subject</b>	<b>Number</b>	<b>Title</b>	<b>Description</b>	<b>Include</b>
1	OCEAN	115	Oceanography	Understand and appreciate the processes which continue to shape the Earth, especially the oceanic physical environment	Yes
2	OCEAN	115	Oceanography	analyze global oceanographic problems from a geological perspective.	Yes

**EXIT STANDARDS**

- 1 Use basic methods and techniques of data collection and analysis in physical oceanography.
- 2 Evaluate the results of a calculation from a data set and discuss its accuracy.
- 3 Read and interpret various types of nautical and bathymetric charts.
- 4 Locate position on a map or globe using latitude/longitude coordinates.
- 5 Draw and describe features of ocean basins and relate to plate tectonic theory.
- 6 Describe the types and distribution of rocks and sediments in the world ocean.
- 7 Discuss the factors that affect coastal habitat.
- 8 Demonstrate and discuss the differences between heat and temperature.
- 9 Apply physiochemical concepts to explain atmospheric and oceanic circulation patterns and their control on global climate.
- 10 Demonstrate an ability to communicate complex course concepts effectively in writing and diagrams.
- 11 Apply critical-thinking and problem-solving skills to make informed decisions.

**STUDENT LEARNING OUTCOMES**

- 1 demonstrate familiarity with the basic methods and techniques of data collection and analyses in physical oceanography
- 2 discuss the ocean as a major influence on weather and climate
- 3 describe the features and physiography of the ocean basin and relate to the processes that shaped them
- 4 diagram and describe the natural processes that affect coastal habitat and ways that human activities have impacted the coasts



**COURSE CONTENT WITH INSTRUCTIONAL HOURS**

	<b>Description</b>	<b>Lecture</b>	<b>Lab</b>	<b>Total Hours</b>
1	Laboratory Exercises <ul style="list-style-type: none"> <li>• Ocean charts, navigation, time-zones;</li> <li>• Ocean floor bathymetry and sonar and/or seismoacoustic profiles;</li> <li>• Sea floor spreading, ocean age, and plate tectonics;</li> <li>• Minerals, rocks, ocean bottom and beach sediments/materials;</li> <li>• Physiochemical properties of seawater;</li> <li>• Current, wave and tidal data analyses;</li> <li>• Analyses of surface and deep water temperature, salinity and density data and the concepts of thermocline, halocline and pycnocline, temperature-salinity diagrams;</li> <li>• Oceanic biological productivity, living environments and systems, energy and mineral resources</li> </ul>	0	46	46
2	Aboard the research vessel <ul style="list-style-type: none"> <li>• Familiarization with simple oceanographic operations, including:               <ul style="list-style-type: none"> <li>• Using the GPS locator</li> <li>• Sonar depth charts</li> <li>• Nansen bottle</li> <li>• Secci disk</li> <li>• Bathythermography</li> </ul> </li> <li>• Collection of these data and their interpretation off the Southern California coast</li> <li>• Familiarization with common marine life forms here.</li> </ul>	0	8	8
				<b>54</b>

**OUT OF CLASS ASSIGNMENTS**

- 1 Graph dataset, perform calculations, and make interpretations (e.g. plot and analyze data from a tide table or tide chart)
- 2 Field activities and reports (e.g. a written analytical report summarizing finding from our oceanographic voyage.)



**METHODS OF EVALUATION**

- 1 Laboratory reports
- 2 Student projects/presentation
- 3 Field reports and/or cruise logs
- 4 Practical lab examinations

**METHODS OF INSTRUCTION**

- Lecture
- Laboratory
- Studio
- Discussion
- Multimedia
- Tutorial
- Independent Study
- Collaboratory Learning
- Demonstration
- Field Activities (Trips)
- Guest Speakers
- Presentations

**TEXTBOOKS**

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Laboratory Exercises in Oceanography	Supplemental	Macmillan Learning	3	9780716737421	Pipkin, B. W.		2000