

Prepared by the Department of Natural Sciences & Life Fitness
Date of Departmental Approval: February 15, 2017
Date Approved by Curriculum and Programs: February 22, 2017

Effective: Fall 2017

1. **Course Number:** ESC105 / ESC105L
Course Title: Fundamentals of Oceanography / Fundamentals of Oceanography Laboratory
2. **Description:** This course is a general introduction to the scientific study of the ocean environment including the physical, chemical, geological and biological properties of the sea. Some field trips may be required. This course is intended for non-science majors.
3. **Student Learning Outcomes:** Upon successful completion of this course, students are able to do the following:
 - Discuss and identify the history of human interaction and involvement with the oceans and marine science and appraise the exploitation and pollution of marine resources.
 - Examine and translate the tectonic processes that have created the ocean basins, produced the sediments of the ocean floors, and influenced the physical and chemical properties of the seas.
 - Recall and summarize the physical and geological processes affecting coastal waters and shoreline systems.
 - Recognize and repeat the biology of benthic and pelagic environments, including biological productivity, and to appraise the exploitation and pollution of marine resources.
 - Demonstrate growth using intellectual skills, logical reasoning and critically thinking through written and oral presentations.
 - Use appropriate techniques in the laboratory, collect and analyze meaningful data, and present clearly and cogently written laboratory results (utilizing Standard American English).
 - Work cooperatively in a small group setting to complete various laboratory exercises, following the written instructions provided
 - Effectively utilize appropriate quantities and units to describe physical phenomena.
 - Use a variety of devices and instruments in taking laboratory measurements.
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 - Use word processing and spreadsheet software to prepare and present laboratory reports.
4. **Credits:** 4credits
5. **Satisfies General Education Requirement:** Natural or Physical Science
6. **Prerequisite:** MAT030 (Elementary Algebra) or MAT035 (Algebra for Non-STEM), ENL108 (Critical Reading & Thinking) or satisfactory basic skills assessment scores
7. **Semesters Offered:** Fall, Spring, Summer
8. **Suggested General Guidelines for Evaluation:** Student evaluations are primarily based on the results of quizzes, scheduled hour exams, laboratory grade, research report and a final examination.
9. **General Topical Outline:**

History and Beginnings	Seawater Composition and Dissolution Properties
Global Plate Tectonics and the Marine Environment	Geological Processes in Oceanography
Sea-Floor Spreading	Shoreline Systems
Marine Provinces and Sediments	Coastal Waters and Marginal Seas
Physical Oceanography	Biological Oceanography
The Hydrologic Cycle	The Marine Environment
Energy of Wind, Water and Waves	Biological Productivity and Energy Transfer
Tides and Ocean Circulation	The Benthic and Pelagic Environment
Chemical Oceanography	Exploitation and Pollution of Marine Resources
Salinity, Density and Temperature	