MRSC A100M: OCEANOGRAPHY LABORATORY HONORS

Item	Value
Curriculum Committee Approval Date	02/09/2022
Top Code	040100 - Biology, General
Units	1 Total Units
Hours	54 Total Hours (Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)
Associate Arts Local General Education (GE)	• OC Physical/Biological Sci - AA (OB)
Associate Science Local General Education (GE)	• OCC Physical/Biological Sci-AS (OSB)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5C Laboratory Activity (5C)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5C Laboratory Activity (5C)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B3 Laboratory Activity (B3)

Course Description

An orientation to marine science research process, techniques, equipment, institutions, and training/education centers. Investigations of physical and chemical properties of the sea, conditions of the air/sea/land interface, review of biological taxonomy and classification, study of longitude, latitude, ocean basin geography, and geology. Evaluation of the sea as a physical, chemical, biological, and recreational resource. Analysis of human efforts to control pollution, manage fisheries, and monitor the ocean world. Includes at least 3 class field trips. Enrollment Limitation: MRSC A100L; students who complete MRSC A100M may not enroll in or receive credit for MRSC A100M. PREREQUISITE: MRSC A100 or MRSC A100H or concurrent enrollment; If student drops from MRSC A100, the student, on their own initiative, must also drop MRSC A100M. ADVISORY: ENGL A098 or ESL A199. Transfer Credit: CSU; UC.

Course Level Student Learning Outcome(s)

1. Use the steps of the scientific method to accept or reject hypotheses.
2. Use a nautical chart, parallel rulers, and dividers to demonstrate the navigational principles of coordinates, longitude and latitude, and course heading.
3. Understand how the physical properties of water influence its unique characteristics.
4. Identify and describe the factors that influence water movement in the ocean.
5. Compare and contrast the internal and external characteristics of marine organisms and relate these characteristics to their function.

Course Objectives

- 1. Discuss the oceanic environment with direct hands-on laboratory and field experiences.
- 2. Name and describe functions of equipment and instruments used by oceanographers to sample and study ocean conditions.
- 3. Name and describe characteristics of major animal phyla and plant divisions of marine life and be able to identify unknown ocean organisms.
- 4. Discuss the oceanographic primary productivity study and evaluation of a near shore benthic ocean community.
- 5. Discuss the elements that make up a coastal estuary and its ecology.
- 6. Describe the components of a marine food chain.
- 7. Describe the specific adaptations and characteristics of several types of marine mammal and be able to discuss their significance to ocean ecology.

Lecture Content

This is a lab only course.

Lab Content

Marine Science Research Methods Marine Charts, Navigation, Longitude, Latitude, Sextant use, Coordinates. Bathymetry Marine Sediments Water Chemistry – Part I Water Chemistry – Part II Tide and Wave Prediction Plankton Field trip to the Long Beach Aquarium Marine Fish and Invertebrates Marine Biological Benthic Sampling and Oceanographic Research Cruise The Estuarine and Salt March Ecosystems and Field Trip to Upper Newport Bay Ecological Reserve and Peter and Mary Muth Interpretive Center Marine Mammals

Method(s) of Instruction

- Lab (04)

Instructional Techniques

Extensive class syllabus, short review lectures with power point presentations, in class demonstrations, prelab assignments, lab exercise assignments, in-class data collection and evaluation, in-class analysis of statistical significance of data, and summary essays. Three mandatory class field trips including an Oceanographic Research Cruise.

Reading Assignments

Read lab manual

Writing Assignments

Each week of the course the student will be demonstrates the students understanding of the connection of the course content with real world oceanographic study, knowledge, and research in the answers provided on their laboratory exercises. Written reports in scientific format due for each lab activity

Out-of-class Assignments

Complete prelabs based on reading the lab manual prior to coming into class.

Demonstration of Critical Thinking

Lab exercise assignments that include pre-lab questionnaire, lab exercise final written report that includes critical thinking questions connecting learning in each lab with the real world of oceanography, and 12-13 weekly quizzes. At least three class field trips with required attendance.

Required Writing, Problem Solving, Skills Demonstration

Each week of the course the student will be required demonstrates the students understanding of the connection of the course content with real world oceanographic study, knowledge, and research by answering brief response questions in the laboratory exercises.

Eligible Disciplines

Biological sciences: Masters degree in any biological science OR bachelors degree in any biological science AND masters degree in biochemistry, biophysics, or marine science OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Marine Science Department. Marine Science 100 Lab Manual, 23 ed. Digital: Blue Door/Top Hat, 2021