

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY  
BIO 275 - MARINE ECOLOGY (4 CR.)

**Course Description**

Applies ecosystem concepts to marine habitats. Includes laboratory and field work. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

**General Course Purpose**

This is a one semester course designed to introduce the students to the basic principles and concepts of marine ecology. It serves as a lab science elective. It includes study of the interrelationships between marine organism and their physical environment. It also explores the interactions between organisms, especially within and among populations. The course will provide a basic understanding of the effects of human activities on coastal and oceanic environments.

**Course Prerequisites/Co-requisites**

Prerequisites are any two of the following courses: BIO 101, 102, 110, 120, or division approval.

**Course Objectives**

The basic objective of this course is to provide students with a basic knowledge of marine ecology and the response mechanisms to environmental changes that effect the marine environment. Students should be able to demonstrate through examinations, field work and laboratory experiments, their understanding of the interrelationships of marine organisms with their environment.

**Major Topics to be Covered**

**Lecture Topics**

- Description of the Marine Environment
- Principles of Oceanography
- Biogeography
- Biogeochemical Cycles
- Land-Ocean Interaction
- Marine Botany I: Microalgae
- Marine Botany II: Macroalgae
- Marine Botany III: Vascular plants
- Marine Zoology I: Marine Invertebrates
- Marine Zoology II: Fishes
- Marine Zoology III: Sea Turtles, Marine Mammals and Birds
- Energy in Ecological Systems
- Population Dynamics
- Intra-specific and Inter-specific Interactions
- Marine Ecosystem Management
- Natural Resources Management

**Laboratory Topics**

- Sampling design and data analysis
- Waves, Tides and Currents

- Water quality and chemistry
- Plankton
- Macroalgae
- Marine invertebrate anatomy and physiology
- Fish anatomy and physiology
- Sea turtles, marine mammals and birds anatomy and physiology
- Estuarine ecology
- Intertidal ecology
- Ecosystem Modeling

**Field Trips**

- National Aquarium Washington DC
- National Aquarium Baltimore MD
- Baltimore Harbor
- Wetlands/Estuaries in Fairfax County