



A: Division: **Instructional Division**
B: Department/ **Science and Technology**
 Program Area:

Date: **May 2002**
 New Course Revision
 If Revision, Section(s) Revised: **G,H,L,O,P,Q,R**
 Date Last Revised: **08 January 1998**

C: Biology 300 D: Marine Biology E: 5

Subject & Course No. Descriptive Title Semester Credits

F: Calendar Description: This course examines the history of marine biology, the physical and chemical characteristics of the marine environment, the diversity of marine life, marine ecology, and the effects of humans on the marine environment.

G: Allocation of Contact Hours to Types of Instruction/Learning Settings

Primary Methods of Instructional Delivery and/or Learning Settings:

Lecture/Tutorial/Laboratory

Number of Contact Hours: (per week / semester for each descriptor)

Lecture: 2 hours/week
Tutorial: 2 hours/week
Laboratory: 3 hours/week

Number of Weeks per Semester:
14

H: Course Prerequisites:
 Biology 210 with a C- or better, or permission of instructor

I: Course Corequisites:
 None

J: Course for which this Course is a Prerequisite:
 None

K: Maximum Class Size:
 35

L: PLEASE INDICATE:

- Non-Credit
- College Credit Non-Transfer
- College Credit Transfer:

Requested Granted

SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bccat.bc.ca)

M: Course Objectives/Learning Outcomes

Upon completion of this course, the student should be able to:

1. Describe the history of marine biology as a field of study
2. Describe the basic divisions of the marine environment
3. Describe the properties of sea water
4. Explain the causes of water movement
5. Describe the taxonomy and characteristics of marine plants and animals
6. Explain ecological concepts and principles
7. Describe the physical and biological characteristics of the open ocean; the intertidal, estuaries salt marshes and coral reefs
8. Describe the use and over exploitation of marine resources by humans
9. Describe sources of marine pollution and their effects on the environment
10. Describe national and international efforts to combat pollution and to enhance the marine environment
11. Demonstrate an ability to conduct field research

N: Course Content

1. **Introduction to marine biology**
 - history of marine biology
 - ocean geography
 - divisions of the marine environment
 - modes of existence in the marine environment
 - marine resources
2. **Physical and chemical characteristics of the marine environment**
 - A. **Water properties:**
 - salinity
 - temperature
 - light
 - density
 - pressure
 - transparency
 - dissolved gases
 - B. **Water movement:**
 - a) horizontal movement:
 - wind patterns
 - surface current
 - waves
 - tides
 - b) vertical movement:
 - langmuir cells
 - upwelling
3. **The diversity of marine life**
 - classification, distribution and characteristics of:
 - Kingdom Monera
 - Division Cyanobacteria
 - Division Eubacteria
 - Kingdom Protista
 - Phylum Pyrrophyta
 - Phylum Chrysophyta
 - Phylum Sarcodina
 - Kingdom Fungi

- Kingdom Plantae
 - Division Chlorophyta
 - Division Phaeophyta
 - Division Rhodophyta
 - Division Anthophyta
- Kingdom Animalia
 - Phylum Porifera
 - Phylum Ctenophora
 - Phylum Cnidaria
 - Phylum Platyhelminthes
 - Phylum Nemertea
 - Phylum Mollusca
 - Phylum Annelida
 - Phylum Arthropoda
 - Phylum Echinodermata
 - Phylum Hemichordata
 - Phylum Chordata

4. Marine ecology

A. Ecological principles

- population growth and regulation
- community organization
- productivity
- energy flow
- biogeochemical cycles
- symbiotic relationships
- biological zonation

B. Marine ecosystems

- I) Open ocean (pelagic zone, benthic zone)
 - a) abiotic characteristics:
 - water movement
 - ocean sediments
 - b) biotic characteristics:
 - spatial distribution of organisms
 - trophic structure and energy flow
 - adaptations of organisms to the pelagic and benthic environment
- II) Intertidal (rocky shores, sandy shores, mud flats)
 - a) abiotic characteristics:
 - waves
 - tides
 - sediments
 - b) biotic characteristics:
 - spatial distribution
 - causes of intertidal zonation
 - energy flow
 - adaptations to the environment
- III) Estuaries and salt marshes
 - a) abiotic characteristics:
 - tides
 - water mixing
 - sediments

- b) biotic characteristics:
 - spatial distribution of flora and fauna
 - plankton - based food webs
 - detritus - based food webs
 - adaptations of organisms
- IV) Coral reefs
 - a) abiotic characteristics:
 - light
 - temperature
 - dissolved organic matter
 - b) biotic characteristics:
 - reef-building organisms
 - trophic structure and energy flow
 - species interactions

5. Effects of humans on the marine environment

- a) Marine resources:
 - fish
 - mariculture
 - chemical compounds
 - oil and gas
 - mining
 - fresh water source
 - energy
- b) Marine pollution
 - oil
 - halogenated hydrocarbons
 - metals
 - radioactive waste
 - thermal pollution
 - solid waste
- c) Protection and enhancement
 - research
 - legislation
 - habitat restoration

O: Methods of Instruction

This course involves four hours of lecture and tutorial/week and three hours of laboratory work. The information content is integrated with laboratory experiments, and textbook and scientific journal readings.

P: Textbooks and Materials to be Purchased by Students

Karleskint, G. Introduction to Marine Biology. Harcourt Brace.

Q: Means of Assessment

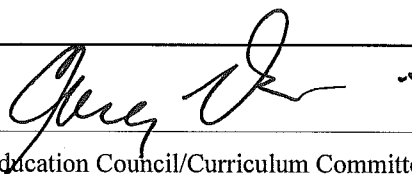
Class tests and assignments	10-20%
Lab/field trip reports	10-20%
Term project	10-20%
Midterm examinations	15-25%
Final examination	25-30%

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

There is no provision for PLAR, other than normally done by examining transcripts and comparing course outlines of biology courses taken within the last five years to the Biology 300 course outline.



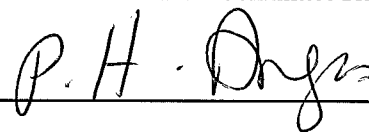
Course Designer(s)



Education Council/Curriculum Committee Representative



Dean/Director



Registrar