

on

Date: 08 January 1998

A: Division: Instructional Division

x

B: Dept.: Science & Technology

New Course:

Program:

Revision of Course
Information form:

1993

Dated: 02 March

C:

Biology 300

D:

Microbiology

1992-1993

No. Textbooks and materials to be purchased by students

(Use Bibliographic Form):

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Complete Form with Entries in Student's Textbook

Course Content:

R.

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

- light
- density
- pressure
- transparency
- dissolved gases

B. Water movement:

a) horizontal movement:

- wind patterns
- surface currents

waves
tides

b) vertical movement:

- langmuir cells
- upwelling

3. The diversity of marine life

Classification, distribution and characteristics of:

Kingdom Monera

Cyanobacteria

- Division Eubacteria

Phylum Pyrrophyta

Phylum Chrysophyta

Kingdom Fungi

Kingdom Plantae

- Division Chlorophyta

- Division Phaeophyta

- Division Rhodophyta

- Division Anthophyta

- Kingdom Animalia
- Phylum Porifera
- Phylum Ctenophora
- Phylum Cnidaria

Platyhelminthes

Phylum

- 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

1) Open ocean (pelagic zone, benthic zone)

a) abiotic characteristics:

- water movement
- ocean sediments

b) biotic characteristics:

distribution of organisms

spatial

zonation

- adaptations of organisms to the pelagic and benthic environment

II. Intertidal (rocky shore, sandy shore, mudflats)

a) abiotic characteristics:

- waves
- tides
- sediments

b) biotic characteristics:

- spatial distribution of flora and fauna

energy flow

energy flow

IV) Coral reefs

a) abiotic characteristics:

- light
- temperature
- dissolved organic matter

b) biotic characteristics:

reef-building organisms
- trophic structure and

species interactions

humans on the marine environment

marine resources:

- fish
- mariculture
- chemical compounds

5. Effects of

a) Ma

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

Q. Method of Instruction

There will be a weekly lecture and laboratory period. Marine history themes will be introduced in the lecture period and current marine issues will be discussed.

In the laboratory period, students will examine the flora and fauna of the environment, determine the physical and chemical characteristics of the environment, and carry out field observations.

R. Course Evaluation

Evaluation will be carried out in accordance with Douglas College's policy.

The instructor will present a written course outline with specific evaluation criteria at the beginning of the semester.

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|----------------------|--------|---|
| Weekly quizzes | 10-20% | 1 |
| Laboratory reports | 10-20% | 2 |
| Term project/Seminar | 10-20% | 3 |
| Midterm examination | 20-25% | 4 |
| 5. Final examination | 25-30% | |