BIO 220 Marine Biology

Instructor: Brianna Zuber

Added text

Course Description:

This course will cover the history of marine biology across many societies, cultural, equitable, and sustainable uses of resources from the sea, biological oceanography, natural history, taxonomy, and the ecology of the world's oceans with an emphasis on the Northern California coast.

Assignments:

Students ~~must~~ will analyze scientific research ~~papers~~ and ~~compile a well organized scientific research book to record~~ summarize and discuss their conclusions.

Writing Assignment:

Students ~~are required to write a research paper.~~ will analyze and summarize scientific research topics of interest related to marine biology.

Reading Assignment:

Students will ~~be required to~~ read and study assigned chapters in the textbook and read~~. at least five articles from an approved list of periodicals~~. articles of interest related to Marine Biology from scientific journals. ~~Examples of appropriate recommended reading are: Scientific American; Science; and Oceanus.~~

Outside Assignments:

It is recommended that six hours of independent work ~~must~~ be completed outside of class each week. This work includes studying lecture discussions ~~and answering questions presented in class.,~~ reading from the textbook, and reading and analyzing scientific research.

Methods of Evaluation:

- Exams/Tests
- ~~Home Work~~
- Class discussions ~~Oral Presentation~~
- ~~Papers~~
- Research paper and presentations~~, Class Work, Group Projects~~
- Class work and group projects
- ~~Other~~

Textbooks:

Author	Title	Publisher	Date
Castro, P	Marine Biology	McGraw Hill	2010

Learning Outcomes and Objectives

Course Objectives:

- Become familiar with marine organisms of importance that are studied in laboratory and field situations.
- Develop a broad understanding of the fundamental principles of marine life.
- Develop an understanding of critical environmental issues important to ocean ecosystems.
- Demonstrate an understanding of global issues related to sustainable and equitable access to ocean resources.
- Develop critical thinking skills by using the scientific method of problem solving.

CSLOs:

- Design, analyze and interpret scientific experiments and field studies using the scientific method of problem solving.
- Compare the phylogeny of the major groups of marine organisms.
- Analyze the critical environmental issues of the ~~biosphere including accelerated extinction, stability of ecosystems and energy flow.~~ the world's oceans.
- Analyze issues related to sustainable and equitable access to ocean resources.
- Summarize the major metabolic processes ~~(e.g. cell respiration, photosynthesis, gas exchange, transport systems, homeostasis, reproduction and osmotic balance)~~ in marine organisms.

Course Outline:

1. ~~The World's Oceans~~ History of Marine Biology

2. Chemical Properties of Sea Water

   a. Water

   b. Salinity

   ~~c. Ratio of oxygen to carbon dioxide~~

   d. Heat

3. Geological Features

a. ~~Bathymetry~~ The Ocean Floor

b. Continental shelf

c. Mid Ocean Ridges

d. Trenches

e. Plate tectonics

4. Physical Processes of the Ocean

a. Waves and beaches

b. Currents

c. Upwelling

d. Thermoclines

5. ~~Major Marine~~ Taxonomy of Marine Animals

a. ~~Divisions~~ Major Phyla

b. Phyla

6. ~~Macrophytes~~ Seaweeds and Plants

a. ~~I.D.~~ Identification

b. Biology

c. Ecological importance

7. Primary Production

a. Photic zone

~~b. Compensation depth~~

c. Blooms

8. Zooplankton

~~a. Meroplankton~~

~~b. Holoplankton~~

9. ~~Nekton~~ Fishes and Marine Mammals

a. ~~Shark~~ Biology~~/ecology~~

b. ~~Fish biology/~~Ecology

c. Marine mammal biology/ecology

10. Special Marine Habitats

a. Intertidal

b. Estuaries

c. Coral reefs

d. Polar seas

11. Migrations

a. Whales

b. Turtles

c. Fish

12. Global Resources from the Ocean

a. Fishing and Sustainable Fisheries

b. Mariculture

c. Equitable Access to Ocean Resources

13. Pollution

a. Direct & Indirect

b. ~~Indirect~~ Social Justice and Ocean Equity

14. Climate Change