Syllabus

Marine Biology Z 352

Instructor: **Dr. Hany A. Abdel-Salam**

Office Hours: Sat, Mon, Wed 11-noon or by appointment

Department of Zoology, Faculty of Sciences, University of Benha, Benha, EGYPT

Text (available online):
An Introduction to: Marine Biology by Dr. Hany A. Abdel-Salam

Course Web Page: http://marinebenha.blogspot.com/

Course Description: Marine biology is the scientific study of the organisms that live in the ocean. The ocean is a vast realm that contains many strange and wonderful creatures. Marine biology is not really a separate science but rather the more general science of biology applied to the sea. Nearly all the disciplines of biology are represented in marine biology.

Grading: 24% Final Practical Exam

20% Power Point Pretention

8% in Class Discussion

48% final Exam

100% (total)

Courtesy: All cell phones must be turned off during class. Please be considerate of your classmates!

Honesty: In-class exercises will be done in groups. Group studying can be a very effective learning tool and students are encouraged to form study groups. However, exams, quizzes and outside assignments must be your own work. All sources for your written assignment must be identified, and all direct quotations must be attributed. Disciplinary action will be initiated in any suspected case of academic dishonesty.

Disability Accommodation: Any student, who may require an accommodation, should contact me privately as soon as possible as and no later than the end of the first week of class or as soon as he or she becomes aware of the need for accommodation.

Course Outline

WEEK 1 - Introduction to Marine Environment

- 1-Introduction to Marine Environment
- 2- Ecosystem
- 3- Marine Ecosystems and the World Oceans
- 4- Regions and depths of Oceans
- 5- The continental shelf
- 6- Plate Tectonics Theory and Formation of Ocean Floor
- 7- Mid Ocean Ridge
- 8- Formation of the Red Sea

WEEK 2 – Seawater

- 1-Properties of Water
- 2- The States of Water
- 3- Light in Oceans
- 4 - Sound in Oceans
- 5- Why is the Ocean Salty?
- 6- Thermohaline circulation

- 7- Temperature of Ocean Water
- 8- Thermocline
- 9- Types of Atlantic Ocean Water Masses

WEEK 3 - Oceanic Phenomena

- 1-Global Wind Patterns
- 2- Coriolis Effect
- 3- Oceans Gyres and Currents
- 4- Types of Ocean Currents
- 5- The Ekman spiral
- 6- Arabian Sea Upwelling
- 7- Tsunami
- 8- El Niño

WEEK 4 - Marine Biodiversity

- 1-Plankton
- 2- Phytoplankton
- 3- Measuring Primary Production
- 4- Red Tide

WEEK 5 – Zooplankton

- 1-Vertical Migration
- 2- Diel vertical migration
- 3- Intertidal Ecology
- 4- Challenges in the Intertidal Zone

WEEK 6 - Deep Sea Ecosystem

- 1-Physical Characteristics of the Deep Sea
- 2-Adaptations of deep-sea organisms
- 3-Deep sea bioluminescence
- 4-Hydrothermal Vents

WEEK 7 - Kelp Forests, Seagrass and Mangroves

- 1-Kelp – Characteristics
- 2-Kelp - Animal Life
- 3-Kelp -Humans & the Environment
- 4-Seagrass – Characteristics
- 5-Seagrass - Sea Life
- 6-Seagrass - Humans & the Environment
- 7-Ecology of Mangroves

WEEK 8 - Coral Reefs

- 1-Types of Coral Reefs
- 2-Distribution of Coral Reefs
- 3-Biology and life cycle of Coral Reefs

WEEK 9 - Nekton, Sea turtles and Seabirds

- 1-Fish Migration
- 2-Sea turtle
- 3- Sea turtle Conservation
- 4- Adaptations of to Seabirds life at sea

WEEK 10 - Marine Mammals and Symbiosis

- 1-Adaptations of Marine Mammals
- 2-Whale sounds or songs
- 3-Type of associations
- 4-Examples for Marine Symbiosis

WEEK 11 - Camouflage, Marine Pollution and Global Warming

- 1-Scorpionfish

- 2-Transparent shrimp
- 3-Pygmy seahorse
- 4-Marine Pollution
- 5-Oceans and Global Warming

Selected General Web Sites:

http://benhamarinebiology.blogspot.com/

http://benhahurghada.blogspot.com/

Aquarium of the Pacific in Long Beach, California
http://www.aquariumofpacific.org/
Birch Aquarium at Scripps http://aquarium.ucsd.edu/
Cabrillo Marine Aquarium, City of Los Angeles Recreation and Parks http://www.cabrillomarineaquarium.org/
Chula Vista Nature Center
http://www.chulavistanaturecenter.org/
Denver Museum of Nature and Science
http://www.dmns.org/
Denver Zoo http://www.denverzoo.org/
Downtown Aquarium (Denver, Colorado)
http://www.aquariumrestaurants.com/downtownaquariumdenver/default.asp
Ellie Schiller Homosassa Springs Wildlife Park
http://hswsp.com/main.html
Grand Cayman Islands Turtle Farm
http://www.caymanturtlefarm.com/
Hatfield Marine Science Center of Oregon State University
http://hmsc.oregonstate.edu/

J. N. "Ding" Darling National Wildlife Refuge (Sanibel Island, Florida) http://www.fws.gov/dingdarling/
Mandalay Bay Shark Reef Aquarium
http://www.mandalaybay.com/entertainment/

shark-reef-aquarium.aspx
Manatee Park, Lee County Parks & Recreation, Florida
http://www.leeparks.org/facility-info/facility-details.cfm?Project_Num=0088
Monterey Bay Aquarium
http://www.montereybayaquarium.org/
Oregon Coast Aquarium, Newport http://aquarium.org/
Oregon Zoo (Portland) http://www.oregonzoo.org/
San Diego Natural History Museum http://www.sdnhm.org/
San Diego River Park Foundation
http://www.sandiegoriver.org

Santa Monica Pier Aquarium
http://www.santamonicapier.org/fun/2010/8/30/santa-monica-pier-aquarium-general-information.html
Sea World San Diego
http://seaworldparks.com/seaworld-sandiego
Tijuana River National Estuarine Research Reserve
http://trnerr.org/ or http://www.parks.ca.gov/?page_id=669
Torrey Pines State Natural Reserve
http://www.torreypine.org
Ty Warner Sea Center at the Santa Barbara Museum of Natural History http://www.sbnature.org/twsc/2.html