



AMERICAN UNIVERSITY OF BEIRUT
Faculty of Arts & Sciences
Department of Biology

Course: Marine Biology (BIOL 246; 3.3; 4cr.)

Instructor: Dr. Michel Bariche

Office: Room 105, Biology bldg.

Textbook: Castro P., Huber M.E., 2008. Marine Biology (8th edition). McGraw-Hill.

COURSE DESCRIPTION

A course that introduces the biology of life in the marine environment and the science that underpins it. The diversity of marine life is surveyed from the perspective of organismal biology, with an emphasis on functional morphology, ecological and physiological adaptations, and economic importance or other significance to humanity. The impact of humans on the marine environment is also covered.

COURSE CONTENTS

PART 1: PRINCIPLES OF MARINE SCIENCE

Introduction: The science of marine biology

The sea floor

Chemical and Physical features of seawater and the world ocean

PART 2: LIFE IN THE MARINE ENVIRONMENT

Some basics of biology

The microbial world: Prokaryotes

The microbial world: Unicellular algae

Seaweeds and plants

Sponges, Cnidarians and Combjellies

Flatworms, Ribbonworms and Nematodes

Segmented worms, Molluscs

Crustaceans

Arrow worms, Echinoderms

Fishes

Marine reptiles, marine birds

Marine mammals

PART 3: HUMANS AND THE SEA

The impact of humans on the marine environment

GENERAL INSTRUCTIONAL OBJECTIVE

Students will acquire knowledge about the marine environment and its organisms, with a special emphasis on the eastern Mediterranean region.

SPECIFIC LEARNING OUTCOMES

At the end of this course, students will be able to:

	Learning outcome	LO	Means of attainment	Means of assessment
1	Demonstrate knowledge concerning the science of marine biology and its history	14	T,P	WE,LE,LR,D
2	Describe the abiotic aspects of the marine environment	2,4,13	T,A,P,D,F	WE,LE,LR,D
3	Describe major taxa of marine organisms	5	T,A,P,D,L	WE,LE,LR,D
4	Understand functional morphology, ecological and physiological adaptations, and economic importance of various taxa.	5,14	T,A,P,D,L,F	WE,LE,LR,D
5	Describe major environments of the world ocean	2,5,6	T,A,P,D,F	WE,LE,LR,D
6	Explain ways in which human use and impact the marine environment	14	T,A,P,D,F	WE,LE,LR,D
7	Generate and analyze data from field work	8,9	A,D,L,F	LE,LR,D
8	Work safely and efficiently on the field and in the lab	8	A,P,D,L,F	LE,LR,D
9	Understand and use of proper vocabulary	1	T,A,P,D,L,F	WE,LE,LR,D

T= textbook/A=additional readings/P=PPT presentation/D=class discussion/L=lab session/F=field session/
WE=written exam/LE=lab exam/LR=lab report

LABORATORY & FIELD EXERCICES

Lab 1: Diversity and adaptations: marine phytoplankton

Lab 2: Diversity and adaptations: seaweeds and seagrasses

Lab 3: Diversity and adaptations: sponges and cnidarians

Lab 4: Diversity and adaptations: segmented worms (*Nereis*)

Lab 5: Diversity and adaptations: molluscs (Bivalves)

Lab 6: Diversity and adaptations: crustaceans (Crabs)

Lab 7: Fishes: identification and taxonomy

Lab 8: Field exercise: general characteristics of the rocky intertidal ecosystem

Lab 9: Field exercise: horizontal distribution and community structure in rocky shore communities

Lab 10: Research project

Lab 11: Presentation of the research project

Lab 12: Presentation of the research project

GRADING

Midterm Exam = 100 points

Final Exam = 100 points

Lab. report/presentation = 40 points

General assessment and participation = 10 points

Total = 250 points

IMPORTANT

Attendance is mandatory. You must have an approved university excuse for missing an exam otherwise you will be assigned a score of zero. Make-up exams are oral and will cover all the required chapters. Cheating will not be tolerated and will be dealt with severely. We all realize that grades are very important in a highly competitive pre-med environment, but please do not risk your grade, reputation, and career by falling prey to this temptation.

No cell phones and no programmable calculators are allowed in examination rooms.