

# Marine Biology



## Comparative Communities

### IN THIS SYLLABUS

Course Overview	1
Learning/Course Objectives	1
Project Overviews	2
Lab Overview	2
Lecture Schedule	3
Academic Honesty	3
Course Policy	4
Grading Policy	4
Resources	4

Over 75% of the earth we live on is covered by water. Just as animals on land have evolved and adapted to their environments, the numerous aquatic environments, likewise, require specific adaptations to accommodate life in each niche. This course will study the

fauna of the oceans through the lens of different marine environments. Studying the ocean and its role as a habitat for marine animals and the adaptations and compensations they must make to survive and flourish in each distinct marine community. Just as

an underwater ecosystem is dependant on many different parts, So humans are also tied to the inhabitants of the big Blue.

## Learning Objectives

At the end of this course you will be able to:

- Identify common marine organisms and their habitat
- Describe characteristics of the physical environment and conditions that present problems to organisms.
- Identify major adaptations of organisms to distinct environments to overcome these obstacles
- Discuss interactions between marine life, environments, and human society

## Course Objectives

During this course you will:

- Identify defining characteristics of the ocean, distinct marine habitats, and marine life forms
- Create a system to classify organisms using classical taxonomy methods
- Inspect and evaluate marine environments using scientific observation
- Research possible future goals and design a plan to accomplish key aspects of these goals

### Coral Reefs



### Seagrass Beds



**The Deep****Estuaries****The Arctic****Keys****RITZs**

## Projects

### Adaptations

In this course we focus on distinct marine environments and how these different environments expose animals to new risks. Through adaptations, both genetic and behavioral, animals are more suited to each individual location.

Give an oral presentation on the adaptations a specific animal has acquired to survive and prosper in its environment. Include specifics about the animal and environment. Discuss how these adaptations may have developed.

## Labs

Labs will be done through independent surveys, both on land as well as SCUBA and/or snorkeling. You must explore each environment, making note of physical characteristics, animals typical of the environment, sketches and descriptions of animals you see. Also include a short reflection on each environment comparing and contrasting it to other marine habitats. You will need a dedicated notebook for recording observations and sketches.

### The Ocean

Diagram the ocean, make a model with the different layers and identify each zone, and habitat.

This will be a helpful tool for you throughout the course to keep in mind the big picture even as we focus on each environment individually. This project should give a foundation of the details and spaces dealt with in this course.

### Taxonomy

Make a dichotomous key with marine microorganisms. This project will help you familiarize yourself with

marine microbiota while learning biological taxonomy and gaining an understanding of the order and connections between species.

### Marine Careers

Research careers and resources in marine biology. List and develop in a short paper general accomplishments and goals to succeed in a marine biology career.

This project is designed for you to anticipate what will be in your future and to give you the tools to succeed in any field you choose to pursue.

### Lab locations to explore:

- Deep dive
- Coral reef dive
- sea grass snorkel
- RITZs
- Beaches
- Aquarium trip



## Lecture Schedule

	<b>Lectures</b>	<b>Assignments</b>
Week 1	<b>Intro to the Ocean:</b> 1) syllabus and ocean in the world 2) ocean regions 3) history of marine biology	
Week 2	<b>Taxonomy and Life:</b> 1) taxonomies/phylogenies 2) marine microbioto 3) algae and plankton	The Ocean project due
Week 3	<b>The Deep:</b> 1) water pressures 2) deep sea exploration 3) deep sea organisms	Taxonomy project due
Week 4	<b>Hydrothermal Vents:</b> 1) plate tectonics 2) vent organisms 3) life requirements	
Week 5	<b>The Arctic:</b> 1) polar environments 2) adapted behaviors 3) organisms and biology	
Week 6	<b>EXAM 1, Costal Zones:</b> 1) Characteristics 2) Estuaries	
Week 7	<b>RITZs:</b> 1) waves and tides 2) RITZ zones 3) organisms	Marine careers project due
Week 8	<b>Coral Reefs:</b> 1) reef formation 2) living together 3) organisms	
Week 9	<b>Sea Grass Beds, Mangroves, and Estuaries:</b> 1) the quiet life 2) fish nurseries 3) habitat and organisms	
Week 10	<b>Keys:</b> 1) habitat 2) birds 3) island life	
Week 11	<b>EXAM 2 Marine Mammals:</b> 1) Mammals and the ocean 2) Organisms and habitat	
Week 12	<b>Eco-tourism:</b> 1) industry 2) ecology 3) lasting effectiveness	Adaptations project due
Week 13	<b>Conservation:</b> 1) why conserve? 2) conservation efforts 3) the oceans as a resource	
Week 14	<b>Communities:</b> 1) types of communities 2) niches 3) community members	
Week 15	<b>Marine myths:</b> 1) the ocean as fantasy 2) mermaids and monsters 3) review <b>FINAL</b>	Lab notebooks due

### Academic Honesty

Students must adhere to the highest standards of academic integrity. Students are entrusted to be honest in every phase of their academic life and to present as their own work only that which is genuinely theirs. Cheating, plagiarism, violation of test conditions, complicity in dishonest behavior, or other falsification of academic work is a serious breach of honesty.

Plagiarism is defined as any attempt to represent the work of another as one's own original work. More specifically, plagiarism is the direct appropriation of the language, thoughts, or ideas of another—either literally or in paraphrase—without appropriate notation on the source and in such fashion as to imply that the work is one's own original work.

Adapted from Flagler College

## Grading

Exams (2)	100points each
Final	150points
Labs (5)	20points each
Quizzes (5)	10points each
<u>Projects/Homeworks (5)</u>	<u>20points each</u>
Total	600points

### Eco-tourism



### Conservation



### Marine Myths



### Marine Mammals



## Resources

Websites:

<http://www.marinebiologynetwork.com/>

<http://marinebio.org/>

## Course Policy

This course will be taught through listening to lectures on podcasts, reviewing the accompanied powerpoint slides, and completing assigned labs, projects, homeworks, and exams.

You are required to listen to each lecture and encouraged to participate through projects, email and phone discussions.