Benthic Ecology

OCS 7001

Fall 2019 – M W 10:30 – 11:50 pm

Location TBA

Instructor:

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office hours: by appointment

The purpose of this course is to help you gain a foundation of knowledge in benthic ecology, as well as the skills that will help make you successful as a benthic ecologist. The course will give you the framework you need to develop a broad perspective of the field.

Course Learning Objectives

When you finish the course you should be able to understand and explain:

1) Major concepts in the field of marine benthos.
2) Key features of benthic habitats.
3) Taxonomic composition and ecology of benthic organisms.
4) Key ecological processes of the benthos.

You will also gain the following practical skills during this course:

1) Recognize and use equipment commonly used to sample coastal benthic habitats.
2) Use a taxonomic key to identify benthic organisms.
3) Critical review and discussion of scientific publications.
4) Writing and reviewing a research proposal.

Textbook: There is no textbook for this course. Selected readings will be assigned from various texts.

Grading:

Overview:

- Mid-term exam = 30%
- Final exam = 30%
- Proposal and Panel = 25% of your grade
- Class Discussions = 15% of your grade

Exams:

Exams will be take-home exams. You will have one week to complete the exam.

Proposal and Panel:

Marine scientists conduct research on how the ocean works. As in any field of science, however, the actual conduct of research is only one stage in a three-stage process: 1)

convincing someone (your thesis committee, your peers, a funding agency, etc.) that your problem is important and worth spending resources on, 2) the fun part, i.e., doing the research, and 3) communicating the results to others in the form of meeting presentations and, ultimately, peer-reviewed publications. Whether you work in government, the private sector, or academia, you will probably spend a substantial fraction of your time on 1 and 3.

The first of these stages entails writing a proposal. This can actually be fun too—this is the stage where you develop a plan for doing something nobody's done before, for breaking new ground! Writing a proposal is also very effective at making one think clearly and specifically about what one wants to do and why. Writing an excellent proposal is the first step in conducting excellent research. Your assignment is to write a research proposal, and submit it to our class for review. This proposal will be modeled on the proposals typically submitted to the National Science Foundation (NSF). You will also get the chance to review your classmate's proposals in a review panel at the end of the semester.

Class Discussions:
There will be several class paper discussions throughout the semester. Your instructor will choose the literature to discuss, but the discussions will be student-led. You will be expected to come prepared for class discussions with critical reviews of the literature we are discussing that day, as well as insights from class, your own research, and other relevant literature. Specific dates that each student will lead discussions will be determined on the first day of class.

Field Trips:
There will be one or two field trips over the course of the semester. The details will be discussed on the first day of class.

Class Schedule

Subject to change. Readings will be assigned at least 1 week before each class.

Class	Date	Topic	Reading
1	26-Aug	Introduction to Benthic Ecology	
2	28-Aug	Benthic Habitat	
-	2-Sep	No class- Labor Day	
3	4-Sep	Discussion	
4	9-Sep	Physiology and Adaptation	
5	11-Sep	Reproduction, Life History, and Recruitment	
6	16-Sep	Feeding and Nutrition	
7	18-Sep	Growth and Production	
8	23-Sep	Guest Lecture- Benthic Microbes	
9	25-Sep	Discussion	
10	30-Sep	Field Trip- Mud Flats	
11	2-Oct	Organism-Sediment-Fluid Interactions	
12	7-Oct	Benthic Communities Part I	
13	9-Oct	Benthic Communities Part II	
14	14-Oct	Discussion	
15	16-Oct	Benthic Ecology of Freshwater	
16	21-Oct	Field Trip- Freshwater Invertebrates	
17	23-Oct	Benthic Ecology of Shallow Water	
18	28-Oct	Benthic Ecology in the Gulf of Mexico	
19	30-Oct	Discussion	
-	4-Nov	No class	
-	6-Nov	No class	
20	11-Nov	Disturbance and Stressors Part I	
21	13-Nov	Disturbance and Stressors Part II	
22	18-Nov	Global Change	
23	20-Nov	Discussion	
24	25-Nov	Policy Applications Part I	
25	27-Nov	No class- Thanksgiving Break	
26	2-Dec	Discussion	
27	4-Dec	Proposal Review Panel	
-	11-Dec	Final Exam Due	