

BIOL 4630: Marine Ecology
California State University Stanislaus
Course Syllabus

Instructor: Dr. Ritin Bhaduri

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Office Hours: Monday: 10:00 AM – 12:00 PM, Tuesday: 8:00 – 9:00 AM, or by appointment.

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Lectures: MWF 9:00 - 9:50 AM in Rm. N221; Lab: M 2:00 – 4:50 PM in Rm N210

Text (optional): Marine Biology, 10th ed., (2016). By P. Castro and M. E. Huber. McGraw Hill.

Announcements:

This course will use Moodle for lecture slides, article links, grades, etc. You need to enroll yourself in our course by (1) logging into <http://moodle.csustan.edu> with your CSUS id name (“jbond” if your email address is “jbond@csustan.edu”) and password. (2) Then, click in the “Course Categories” menu to select the current term and then click on our course name. (3) Finally, you must supply an enrollment key to join the course. The enrollment key is **biol4630sp17**.

Course Description:

Study of marine communities with emphasis on local communities. Ecology and natural history of plants and animals, and their adaptation to marine environments will be discussed. Marine Ecology is a senior-level ecology course. It is a 4-unit lecture and laboratory course. It satisfies the ecology requirement for the Biology major, is an elective in Biology, and is one of the options under part c of the Ecology and Field Biology concentration.

Course Introduction:

The world’s oceans are incredibly important. About 71% of earth’s surface is covered by salt water. The oceans harbor the highest diversity of organisms on earth, and comprise the largest habitable environment on earth. Oceans interact with the atmosphere and affect the earth’s climate. Phytoplankton produce half or more of the world’s oxygen and are an enormous carbon reservoir. Every citizen of earth should know about oceans.

Teaching Philosophy:

My teaching philosophy is that I want to share as much knowledge and understanding of the subject with students as possible. My goal for this course is that all participants learn about the biological aspects of, and come to appreciate, marine environments. To see my students excel and become empowered with the newly acquired knowledge is what I feel teaching is all about.

Objectives:

This is a content-heavy course; the primary learning objective is therefore mainly to learn course content. You need to thoroughly learn the information presented in lecture and lab. Another learning

objective is for doing ecological research, how to analyze ecological data, and how to write research reports in scientific format. These will be accomplished through laboratory and field trip activities.

ASSESSMENT METHODS, GRADES and GRADING:

The best assessment measure for content-heavy courses is exams. Most of your grade will be based on lecture exams, one lab exam and lab/field trip reports.

Exams: There will be three regular exams and a final comprehensive exam. Exams will consist of definitions, comparisons, fill in the blanks, multiple-choice and short-answer questions. Request for early exams must be submitted *in writing* to the instructor prior to the scheduled exam. You will need to provide written (documented) evidence of hardship. **No makeup exams will be given after graded exams are returned to the class.**

Cheating and Plagiarism: Don't do it! Your work should reflect your own effort and words. Any verified instance of cheating and/or plagiarism will be unpleasant for all involved.

| Assessment | Percentage | Grading Scale |
|------------------------------|-------------|---|
| Exam 1 | 15 | A = 90% or higher (A- = 90-92.9, A = 93 and higher) B = 80 – 89% (B- = 80-82.9, B = 83-86, B+ = 87-89.9) C = 70 – 79% (C- = 70-72.9, C = 73-76, C+ = 77-79.9) D = 60 – 69% (D- = 60-62.9, D = 63-66, D+ = 67-69.9) F = below 60% Note: Grades: A – F; CR/NC is not an option in this course. The course may be graded plus/minus. |
| Exam 2 | 15 | |
| Exam 3 | 15 | |
| Exam 4 (Final-Comprehensive) | 20 | |
| Midterm Lab Exam | 15 | |
| Labs/field reports | 10 | |
| Research project | 10 | |
| Seminar (grads. only) | 5 | |
| Total | 100% | |
| | | |

Important Dates:

- Jan 27 – Classes Start
- Mar 20 – Mar 24: Spring break
- May 17 – Last day of classes

EXPECTATIONS OF STUDENTS

1. Attend all class meetings. Be on time to class and stay in lab until it is supposed to be over. If you must miss a class/lab meeting, it is your responsibility to make up any work missed and to obtain and learn all information you missed.
2. Participation on weekend field trips is required.
3. Students are expected to take exams on days and times announced by the instructor at least

1 week in advance. There are NO alternatives for lab exam. If you have a legitimate excuse to miss a lecture exam, the instructor needs to know, before the beginning of the exam time, and other arrangements need to be made prior to the exam time. Additionally, you should be prepared to provide documentation (doctor's note, etc.) for missing a lecture exam.

All exams will be held during the laboratory period. If you are tardy, you will not be given extra time to finish the exam. Once exam has started, you will not be allowed to leave the room until you have finished and turned in your exam.

4. Observe lab safety and cleanliness procedures. Please clean up after every lab. Remember to consult the lab safety manual. Here is the link to the entire safety manual:

http://biology.csustan.edu/images/resources/pdf/safety_manual.pdf

5. Cheating in any form is unacceptable in science, including in all biology classes. This includes Zoology 4440. It is the policy of the Department of Biological Sciences that anyone caught cheating will receive a grade of F for the course. The instructor reserves the right to request any student even suspected of cheating to take a second, different, exam from the rest of the class.

6. Participate fully and in a positive manner in all class activities.

7. Talking, whispering, and giggling among students during lectures is disruptive for both classmates and the instructor. It is expected that students will refrain from these activities while anyone is lecturing at any time during lecture or lab time. If this becomes a problem, students will be asked to leave class for the duration of these activities.

8. Cell phones must be turned off during lecture or lab time. Cell phones PDA's, head phones, palms, etc. must be turned off, and must be placed out of sight of any student in the class, during all lecture and lab exams. No caps or hats may be worn during lecture or lab exams. Potty breaks are not allowed during lecture or lab exams.

9. People learn best when they take responsibility for their own learning. You need to accept that responsibility.

It is my hope and expectation that we will all work together to make this course an outstanding experience for all involved.

Study Skills: The following suggestions may help you succeed in this and other classes.

1. **Read** the PowerPoint lecture before class and bring questions you have to class.
2. **Attend** class.
3. **Complete all assignments** and turn them in on time.
4. **Take notes** in a way that is intuitive to you, even if you have to use a lot of paper.
5. **Join a study group** with likeminded individuals. Students who study in groups tend to do better than those that study alone.

6. **Study** for the exams sooner than the night before or morning of the exam.

7. **Learn how you learn** and then stick with a style or process that is successful for you.

LECTURE, LAB, and FIELD TRIP SCHEDULE (Tentative)

| Week of | Topics | Chapters |
|--------------------|--|----------|
| Jan. 30 | Course Introduction, The Science of Marine Biology | 1 |
| Feb. 6 | The Sea Floor | 2 |
| Feb. 13 | Chemical & Physical Factors | 3 |
| Feb. 20 | The Microbial Life | 5 |
| Feb. 27 | Primary Producers: Seaweeds and Plants | 6 |
| Mar. 6 | Lecture Exam 1 ; Marine Invertebrates | 7 |
| Mar. 13 | Marine Fish, Reptiles, Birds, and Mammals | 8,9 |
| Mar. 27 | Introduction to Marine Ecology | 10 |
| Apr. 3 | Between the Tides | 11 |
| Apr. 10 | Lab Exam ; Estuaries: Where Rivers Meet the Sea | 12 |
| Apr. 17 | Lecture Exam 2 ; Estuaries continued | 12 |
| Apr. 24 | Life on the Continental Shelf | 13 |
| May 1 | Coral Reefs, Life Near the Surface | 14, 15 |
| May 8 | Research talks; Ocean Depths | 16 |
| May 15 | Lecture Exam 3 ; Course Review | |
| | Final Exam (Comprehensive) : Monday, May 22: 8:30 AM - 10:30 AM | |
| Field Trips | Required! We will depart CSU Stanislaus campus at 9:00 AM and return by 8 PM. | |
| Dates | Sites | |
| Mar. 11 | Rocky shore tide pools: LiMPETS activity (Low tide: 3:30 pm) | |
| Apr. 8 | Elkhorn Slough National Estuarine Research Reserve (11:30 am – 2 pm) Tide Pools for research project: (Low tide: 3:48 pm) | |

Schedule of Student Seminars & Guidelines (Optional)

Your seminar should have the following sections: Introduction (with pictures), Materials/Methods (outline), Data (graphs), and Discussion/Conclusion. Use bullet points on your PPT slides. Avoid reading, either from slides or note cards. Try your best to make your presentation as interesting as possible. Your presentation will be held during the laboratory period and should last for ~15 min, followed by 5 min for questions/discussions.

| BIOL 4630 Spring'17 | Seminar topics | Dates |
|----------------------------|---|--------------|
| | Seamounts | 2/27 |
| | Submerged aquatic vegetation | 2/27 |
| | Nutritional value of seaweeds | 3/13 |
| | Harmful algal blooms and eutrophication | 3/13 |
| | Anoxic zones | 3/27 |
| | Sharks decline and effects on marine ecosystems | 3/27 |
| | Habitat selection behavior | 3/27 |
| | Whale remains become an ecosystem | 5/1 |
| | Human trampling on rocky shore communities | 5/1 |
| | Marine commensalism | 5/1 |
| | Marine parasitism | 5/8 |
| | Acidification of oceans | 5/8 |
| | Cleaning symbiosis | 5/8 |
| | Endangered coral reefs | 5/8 |

Oral Presentation Evaluation Form

Presenter: _____

Seminar Title: _____ Total Points: ____/50

I. Style

_____ The talk fits the time limit. (Note: Presentations are 20 minutes (\pm 2 minutes) excluding questions. Presentations outside the target time lose 5 points.

_____ Enough time is spent on each slide to allow the audience to absorb the information.

_____ The visuals have large and concise text and are readable by all audience members. Use bullets.

_____ Information in tables and figures are readable by all audience members.

_____ The talk is **NOT** read. 5 – 10 points will be deducted if the talk is read.

_____ The flow, message, and length of the talk indicate the speaker practiced the talk.

_____ The presentation can be clearly heard by all audience members and there are no distracting mannerisms.

II. Content

_____ The guiding question/message of the talk is stated at the beginning. Include a title slide.

_____ Information presented is appropriate for a scientific audience.

_____ The introduction is brief in proportion to the length of the talk.

_____ Methods are shown in with sufficient detail to support the results.

_____ The format of each table/figure is described before focusing on the content.

_____ Relevant findings in figures and tables are adequately described.

_____ Clear and concise conclusions are stated at the end in a form to reinforce the message.

_____ The presenter appears to understand the material.

_____ The presenter handles questions well.

_____ The presenter appears to have more knowledge of subject (as evidenced by handling of questions) than given in presentation.

_____ The information from different articles (sources) is integrated. Include a bibliography slide.

Overall Comments:

Guidelines for Research Project

The purpose of this assignment is to provide you with an opportunity to do further investigation on a topic that particularly interests you in Marine Ecology. Such a project will provide you exposure to reference materials via library and web search, allow you to design and conduct experiments, gather data and test hypothesis, and present your findings in oral (seminar) and written form. These presentations should include an introduction, hypothesis tested, materials & methods, results, discussion, and bibliography.

Your chosen topic must be approved by your professor. There are numerous topics that can be explored. You may undertake a project with a field component, laboratory, or a combination of both. Examples include distribution, effects of any abiotic factor (e.g., salinity, temperature, pH, etc.) on certain behavioral aspect, survey of parasites, etc. of a specific organism that interests you. Simple projects are encouraged and data collection should be completed during field work on April 8, 2017.

You must work with your instructor all along when doing the project. I encourage creativity and welcome development of unique projects. It is my hope that you will view this project as a great learning experience rather than a mere fulfillment of a course requirement. It will be to your advantage to have a research experience of this nature under your belt, especially when you consider future professional opportunities.