**BIOL 482 Coastal Biology - Syllabus**

**Faculty Information**

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| --- | --- |
| Title  | Associate Professor |
| Instructor  | [Iliana Baums](http://www.bio.psu.edu/people/faculty/baums/Index.htm) |
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**Course Information**

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| --- | --- |
| Credits  | 3 |
| Course  | 482 |
| Section  | 001, 002 |
| Location  | Boucke Bldg 216 |
| Times  | Tues and Thurs, 10:35 am - 11:50 am |
| Start Date  | 14 Jan 2019  |
| Homepage  | http://www.baumslab.org |

**Required Text**

Jeffrey S Levinton, Marine Biology: Function, Biodiversity, Ecology.5th Edition. Oxford University Press. eISBN-13: 9780190681289

(earlier versions of this text book work as well and are cheaper)

**Reference Texts (not required)**

Bertness, Gaines and Hay: Marine Community Ecology. Sinauer Associates, Inc. ISBN 0-87893-057-4 . Library call number: QH541.5.S3M256 2001

Morrissey and Sumich: Biology of Marine Life. 9th edition. Jones and Bartlett Publishers.

Kaplan: Coral Reefs. Peterson Field Guide. Houghton Mifflin Company. ISBN 0-618-00211-1

Kaplan: Southeastern and Caribbean Seashores. Peterson Field Guide. Houghton Mifflin Company. ISBN-13 978-0-395-97516-9

Human: The Reef Set: Reef Fish, Reef Creature and Reef Coral (3 Volumes). New World Publications, Inc. ISBN 1-878348-32-9

Wisehart: A Photographic Atlas of Marine Biology. Morton Publishing Company. ISBN: 9780895827852. Library call number QH91.17.W57 2012

Trujillo and Thurman: Essentials of Oceanography, 10 edn. Prentice Hall. ISBN-13: 9780321668127. Library call number GC11.2.T49 2011

**Course Description**

Biol 482 is a combination lecture and intensive field course designed to introduce participants to the Caribbean coral reef biome and other near-shore environments such as rocky shores, mangroves and seagrass beds. Students will learn through theoretical and practical exercises how environmental and biological factors interact to sustain near-shore ecosystems. We will discover and describe the amazing diversity of coral reef systems, explore the physiological and behavioral adaptations that enable organisms to live in this environment and deduct the basic ecological principles that underlie the function of near-shore ecosystems. We will be reading primary literature throughout the course. Students may choose to focus on current issues in marine conservation science as part of their class projects/proposal. Topics may include but are not limited to connectivity among marine populations, metapopulations-dynamics, adaptation to climate change, and conservation genetics. The course requires strong participation and thus is most suited for highly motivated students. Three credit hours.

**Course Goals – Learning Objectives**

1. To introduce basic concepts of oceanography, biodiversity, ecology and evolution as they pertain to marine coastal environments.
2. To learn through theoretical and practical exercises how environmental and biological factors interact to sustain near-shore ecosystems.
3. To acquire field skills to study marine near-shore environments.
4. To improve discussion, analytical, presentation and writing skills.

**Tentative Schedule**

| **Date** | **Topics, Activities** | **Reading** | **Deadlines \*** |
| --- | --- | --- | --- |
| **Jan 8** | Overview of course requirements; Distribution and categories of coastal ecosystems  | Economist – Report on the sea |  |
| **Jan 10** | The ocean: topography, sea floor (Ch1,2), Hypothesis testing | Darwin 1850 |  |
| **Jan 15** | The ocean: topography, sea floor (Ch1,2) | Dollar 1982 |  |
| **Jan 17** | The ocean: circulation, coastal processes (Ch 2)  |  |  |
| **Jan 22** | Ecology and Evolution (Ch 3)  | Trussell and Smith 2000 |  |
| **Jan 24** | Ecology and Evolution (Ch 3)  | McKillup and McKillup 2000 | Homework 1 |
| **Jan 29** | Chemical and Physical Environment (Ch4) | Bologna and Steneck 83 |  |
| **Jan 31** | Life in a fluid medium (Ch 5) | Riffel And Zimmer 07, both |  |
| **Feb 5** | Midterm | All material through Jan 31  | Midterm |
| **Feb 7** | Benthic Life Habitats (Ch 13) |  |  |
| **Feb 12** | Ecology of Reefs (Ch 15) |  |  |
| **Feb 14** | Ecology of Reefs (Ch 15) |  |  |
| **Feb 19** | The tidelands: Soft Sediments and Salt Marshes (Ch 14) | Sillman et al 2005 |  |
| **Feb 21** | The tidelands: Mangroves (Ch 14) | Kadoya And Inoue 2015 |  |
| **Feb 26** | Seagrass Beds (Ch 15) | Lamb et al. 2017 |  |
| **Feb 28** | The tidelands: Intertidal Communities I (Ch 14) |  |  |
| **Mar 2 - 10** | Spring Break |  |  |
| **Mar 12** | Seagrass Beds (Chp 15)/ The Tidelands: Intertidal Communities (Ch 14)  | Given by K Vasquez |  |
| **Mar 14** | Midterm (material up to Mar 12) | Material up to Mar 12 | Midterm |
| **Mar 18** | Individual meetings to discuss proposal ideas this week |  | One paragraph proposal |
| **Mar 19** | Reproduction / Dispersal and Migration (Ch 6) |  |  |
| **Mar 21** | Plankton (Ch 9) | Hazen et al. 2013 |  |
| **Mar 26** | Productivity, food webs and global climate change (Ch 10) | Ware and Thomson 2005 |  |
| **Mar 27** |  |  | Pre-proposals due |
| **Mar 28** | Estuaries I (14) | Orth and Moore 1983 |  |
| **Apr 2** | Panel discussion | Assigned proposals | Present slide for proposal you lead |
| **Apr 4** | Panel discussion |  |  |
| **Apr 9** | No Class |  |  |
| **Apr 11** | Estuaries II (Ch 14) | Ellis and Elphick 2007 |  |
| **Apr 16** | Biodiversity and Conservation (Ch17) | Haas et al 2015 |  |
| **Apr 18** | Fisheries (Ch 18)  | Naylor et al 2000 | Final Research Proposal due |
| **Apr 23** | Environmental Impacts (CH 19) | Costello et al 2008 |  |
| **Apr 25** | Deep Sea Ecology and Evolution |  |  |
| **Apr 29-** | Final Exam week |  | Final Exam |
|  |  |  |  |

**\*homework will be due at various stages throughout the course.**

**Course Prerequisites**

BIOL 220 (or equivalent) is highly recommended. Students should be reading and writing at the college junior level, have a genuine interest in the biological sciences, and a willingness to learn about other cultures and biomes.

**Grading Policy**

The grading scale is as follows:

|  |  |
| --- | --- |
| **Grading Scale** | **%**  |
| **A** | 100 - 95  |
| **A-** | 94.9 - 90  |
| **B+** | 87.9 - 89.9  |
| **B** | 83.33 - 87.8  |
| **B-** | 80 - 83.32  |
| **C+** | 75 - 79.9  |
| **C** | 70 - 74.9  |
| **D** | 60 - 69/9  |
| **F** | 59.9 and below  |

The Class grade will be assigned based on the following items:

|  |  |  |
| --- | --- | --- |
| Grade components | Grade (%)  | Points |
| Homework | 10 | 30 |
| Classroom participation (including panels) | 15 | 100 |
| Midterm Exam 1 | 14 | 60 |
| Prelim Research proposal | 10 | 40 |
| Midterm Exam 2 | 14 | 60 |
| Final Research proposal | 25 | 220 |
| Final Exam | 12 | 60 |
| Total | 100 | 630 |

**Attendance Policy**

Students will be handing in "minute papers" either at the beginning or at the end of the class meetings. The purpose of the minute papers is to provide us with feedback on how you are doing with the material. A subset of papers will be graded each time and attendance in class will be noted for everyone via the minute papers. They cannot, under any circumstances, be made up. Handing in thoughtful minute papers is part of your class room participation grade.

Please refrain from using your phones during class. We will take breaks during which you can attend to urgent business. You are encouraged to attend all lectures and are responsible for all material that is missed during an absence. Please contact your fellow students for notes and announcements. At least 90% of the material on the exams will have been discussed in class, and some of this material will not be in any of the assigned readings. This means that ATTENDANCE IN CLASS IS HIGHLY CORRELATED WITH FINAL GRADES!!

**Handing in items late**

If you are submitting items to their online drop-boxes after the deadline (midnight on the due date), you will lose 10% of your points per day you are late (unless you have a legitimate excuse, see below). **Please NAME all your files beginning with your last name.**

**Research pre-proposal, Panel and Final Proposal**

All students are going to write a research pre-proposal. This provides the basis for the full proposals due at the end of class (all students). Writing research proposals is a skill you will be able to use no matter what profession you choose after college. Your goal is to persuade others that your idea (in this case science) is worthy of committing resources to. There will be a peer review panel made up of students that will discuss each pre-proposal (though the name of the student who wrote the proposal will not be known to the class). The panel will take place in class for all participants. The purpose of the panel is to give you feed-back on how well you were able to convey your ideas. Based on this feed-back you will then improve on your short pre-proposal to submit a longer and more complete one as your final project. There are detailed instructions on how to come up with a proposal idea, what resources are available to carry out the projects, how to format the pre-proposal and final proposals and how to evaluate them in panel on the course website. It is challenging to think of a topic for research that can be done in a short amount of time with limited resources in a place you have not been to before. Therefore, I will meet with each of you individually to discuss your proposal idea, tell you whether it is feasible and help you with resources. To initiate this discussion, you will hand in a one-paragraph research idea early in the semester (See Schedule).

**Examination Policy**

Lecture exams:

There will be two midterm exam and one final exam. The exams will include short answer, fill in the blank, true or false, multiple-choice, and short essay questions.

Exam attendance: Attendance at exams is mandatory and absence during the scheduled exam time will result in a grade of zero unless prior arrangements have been made or a legitimate and verifiable excuse is provided within 48 hours of the exam. The following are the only legitimate excuses accepted:

1. An illness that is documented by a doctor's letter or note and receipt (an appointment card from Ritenour is not acceptable). In addition, the student must provide her/his doctor with written authorization to disclose information to the Instructor should the Instructor require additional information in order to verify that the illness was significant enough to miss the exam.
2. A religious holiday, that is celebrated by the student AND that is officially recognized by the University.
3. A University-sponsored event (which must be documented by a letter from the sponsor or coach and given to the Instructor prior to the date of the exam that will be missed).
4. A death in the immediate family (which must be documented according to the Instructor's request).

Oversleeping is not an acceptable excuse for missing an exam.

Documentation of a legitimate excuse for missing an exam is required before the make-up exam will be administered. The Instructor may seek to verify the submitted documentation by talking to the person who signed or wrote the documentation. All requests for make-up exams must be submitted to the Instructor within 48 hours after the exam, written on paper (not sent via e-mail), and signed and dated by you.

**Course Links**

Using your student access account you can log onto the main course web site on Canvas and will find the syllabus, lecture and presentation schedules, assigned readings, assorted extra material, and announcements. You will also find the lectures in pdf format, the day before lecture. These will provide a framework for taking notes, and you will need to fill in details in class. This web page is intended for you and we are open to any suggestions that you might have for improving the site. Please contact me if you have any difficulties with the website or available files.

**Academic Integrity**

All Penn State policies regarding ethics and honorable behavior apply to this. Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. All University policies regarding academic integrity apply to this course. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. For any material or ideas obtained from other sources, such as the text or things you see on the web, in the library, etc., a source reference must be given. Direct quotes from any source must be identified as such. All exam answers must be your own, and you must not provide any assistance to other students during exams. Any instances of academic dishonesty WILL be pursued under the University and Eberly College of Science regulations concerning academic integrity.

**Disability Access Statement**

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) Web site provides contact information for every Penn State campus: [http://equity.psu.edu/sdr/disability-coordinator](http://equity.psu.edu/ods/disability-coordinator). For further information, please visit Student Disability Resources Web site: [http://equity.psu.edu/sdr](http://equity.psu.edu/ods).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: [http://equity.psu.edu/sdr/guidelines](http://equity.psu.edu/ods/guidelines). If the documentation supports your request for reasonable accommodations, your campus’s disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations. The field trip component of this class is being held in a third world country with very limited accommodation for physical disabilities

**Reporting Bias**

You may report any concerns about educational equity via this website: <http://equity.psu.edu/reportbias/statement>

**Counseling and Psychological Services (CAPS)**

CAPS provides group and individual counseling, crisis intervention, and psychological and psychiatric evaluations for undergraduate and graduate students, as well as prevention and consultation services for the University community. Please visit <http://studentaffairs.psu.edu/counseling/> for further information.

**Use of e-mail**:

E-mail is an effective way to handle brief communications, but is not effective to communicate concepts, major ideas, or to discuss a student's performance in the course.  Thus:

E-mail should be used to:

* Point out any errors or oversights made by the instructor during lectures.
* Set up an appointment to talk with the instructor if you cannot meet during regularly scheduled office hours.
* Ask questions about lecture material that can be answered in a brief sentence.

E-mail should NOT be used to:

* Ask for explanations about concepts, ideas, theories, processes, or any other information that requires more than a very short answer.  We will explain things and answer major questions much better by talking with you in person than via e-mail.
* Ask about your points or grade -- if you feel that a grading mistake has been made we can discuss your concerns in person.
* Provide final documentation for a missed exam or assignment.

Preparation and Participation **are very important to your success in this course!**

Your participation during lecture and the field trip is vitally important to your understanding the material. If you have a question or comment, please feel free to stop me during or after lecture.

The best thing that can be done to ensure success in this course is to be prepared when you come into lecture. So again, I strongly recommend reading the relevant material and reviewing the notes from previous lectures before lecture begins.