Marine Ecology BIOL 4436  
Department of Life Sciences  
Spring 2018

A. COURSE INFORMATION

Course number/section: BIOL 4436.001 (lecture), BIOL 4436.101 & 4436.102 (lab)  
Class meeting time: T/R 9:30-10:45 (lecture), T 12:30-3:20 (lab)  
Class location: ECMS 207/210 (lecture & lab)  
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION

Instructor: Dr. Jennifer Pollack  
Office location: Science Lab 2 (low tan building between Blucher Institute and boat barn)  
Office hours: T/Th/F 10:50-12:30 or by appointment (let me know you are coming)  
Telephone: 825-2041  
E-mail: Jennifer.pollack@tamucc.edu  
TA: Abe Margo (amargo@islander.tamucc.edu)  
Office hours: W 1:00-3:00 in NRC building – 1st floor main lobby area  
Appointments: Email us to schedule. If you have problems with the material or anything else that might influence your performance in the class, come see us as soon as possible.

C. COURSE DESCRIPTION

Catalog Course Description  
This course will introduce student to habitats and community structure in marine environments, and biotic and abiotic factors governing the distribution of marine organisms. Prerequisite: BIOL 3428. Safety training is required for continued participation in this course.

Extended Course Description  
This course will discuss topics ranging from marine ecological processes and systems to the ecological effects of human activities on the marine environment.

D. PREREQUISITES AND COREQUISITES

Prerequisites  
BIOL 3428

Corequisites  
None
E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

Lectures will cover material from the book and will be supplemented by the instructor with material from the primary literature and other sources, as appropriate.

Optional Textbook(s) or Other References

Supplemental material will be provided by the instructor.

Supplies

Each student is required to have a notebook to record data and observations from laboratory and field exercises. Students are also required to dress appropriately on field days (closed-toed shoes or boots, waders, hats, sunscreen, etc.). The diurnal sampling event occurs overnight and headlamps are strongly encouraged. The instructor will provide specific guidance in advance of each sampling event.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Describe fundamental concepts in marine ecology including the important processes, ecosystems, and habitats that shape the marine environment as well as current issues and future challenges.
2. Develop informed experimental hypotheses and design experiments and define experimental predictions that can be used to test them.
3. Collect, organize, analyze, and interpret field and laboratory data and summarize interpretations using equations, graphs, figures, and in writing.
4. Demonstrate critical thinking and communication skills through class discussions and critiques of articles from the primary literature.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Course topics will be covered in instructor-led lectures, class discussions, guided exercises, and field/laboratory activities. Grading will be based on three exams, in class discussions (case studies), creation of an infographic, lab reports, and overall participation.
We will be using the Top Hat (www.tophat.com) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

You can visit the Top Hat Overview (https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation was sent to you by email, but if you didn’t receive this email, you can register by simply visiting our course website: https://app.tophat.com/e/723071

Note: our Course Join Code is 723071

Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

Course Projects:

1. **Exams (3 @ 15% each).** We will have three closed-book, in-class exams during the semester. The exams will consist of three sections: basic concepts (T/F, definitions, multiple choice, fill-in-the-blank), short to medium length synthesis questions, and data interpretation (of tables and figures). Exam 1 will focus on marine ecological processes and will cover all material prior to exam day. Exam 2 focuses on marine ecological systems and covers all material presented after Exam 1. The final exam is comprehensive.

2. **Case studies (10%).** Throughout the semester, we will use different case studies to learn scientific concepts and content, while challenging your critical thinking skills. Many of these cases are based on contemporary science problems from the news. Each case study is different, but will involve classroom discussions and team work outside of class. Case studies will be graded based on engagement in the discussion, critical thinking, and completeness of assigned activities.

3. **Infographic (6%).** Infographics are visual representations of data. In this assignment, you will choose one of the frequently asked about topics related to marine ecology and create an infographic to clearly explain the concept to the public. Choose from one of the following topics: overfishing, climate change, ocean acidification, ocean dead zones, ocean pollution, aquaculture (or ask permission if you have a different topic in mind). Use an online infographic maker to create a graphic that effectively teaches about the topic.
Whatever you choose, check to make sure that you are able to save/print your infographic at the end! For inspiration, I encourage you to watch David McCandless’s TED talk “The beauty of data visualization”. Infographic rough drafts are due in class on Tuesday, February 13. Final drafts are due in class on Tuesday, March 6.

4. **Lab reports (34%)**. Critical thinking is an essential skill for ecologists—you must develop your critical thinking skills if you are going to be a successful scientist! I expect you to demonstrate a high standard of critical thinking on these assignments. You can work together with others, but you must create all figures and tables on your own and write the text of your lab reports independently. Identical written material, figures, or tables from multiple students will be considered plagiarism and will be dealt with severely (see section on “Academic Dishonesty”).

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Exams (3 @ 15% each)</td>
<td>45%</td>
</tr>
<tr>
<td>Lab (Diurnal @ 10%, 6 others @ 4%)</td>
<td>34%</td>
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<tr>
<td>Case studies (5 @ 2% each)</td>
<td>10%</td>
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<tr>
<td>Infographic</td>
<td>6%</td>
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<tr>
<td>Overall participation</td>
<td>5%</td>
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## I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPIC (T)</th>
<th>TOPIC (Th)</th>
<th>READINGS</th>
<th>LAB TOPICS</th>
<th>LAB ASSIGNMENTS (DUE TUESDAY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/16, 1/18</td>
<td>Course introduction / infographics</td>
<td>Principles of marine ecology</td>
<td>Ch. 1, 2</td>
<td>No lab</td>
<td></td>
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<tr>
<td>2</td>
<td>1/23, 1/25</td>
<td>Principles of marine ecology</td>
<td>Ch. 3, 4 (to pg 66)</td>
<td>Tides</td>
<td>Infographic idea due</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1/30, 2/1</td>
<td>Case study: iron fertilization</td>
<td>Case study materials</td>
<td>No lab</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>2/6, 2/8</td>
<td>Marine organisms: function and environment</td>
<td></td>
<td>Diurnal prep</td>
<td>Tides lab due</td>
<td></td>
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<tr>
<td>5</td>
<td>2/13, 2/15</td>
<td>Marine organisms: function and environment</td>
<td>Case study: GoMx dead zone</td>
<td>Ch. 6, 7</td>
<td>24 hour Diurnal sampling (noon Feb 16 - noon Feb 17)</td>
<td>Infographic drafts due</td>
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<tr>
<td>6</td>
<td>2/20, 2/22</td>
<td>Exam review</td>
<td>Exam 1</td>
<td>No lab</td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>2/27, 3/1</td>
<td>Marine organisms</td>
<td>Ch. 8, 10</td>
<td>Graphs &amp; figures</td>
<td></td>
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<tr>
<td>8</td>
<td>3/6, 3/8</td>
<td>Marine organisms</td>
<td>Case study: navigation and migration</td>
<td>Ch. 10</td>
<td>Thermohaline circulation</td>
<td>Infographic due</td>
</tr>
<tr>
<td>9</td>
<td>3/20, 3/22</td>
<td>Patterns and processes</td>
<td>Ch. 11, 12</td>
<td>Oyster sampling prep</td>
<td>Thermohaline lab due</td>
<td></td>
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<tr>
<td>10</td>
<td>3/27, 3/29</td>
<td>Coastal benthic environments</td>
<td>Ch. 16, 17</td>
<td>Oyster sampling</td>
<td></td>
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<tr>
<td>11</td>
<td>4/3, 4/5</td>
<td>Exam review</td>
<td>Exam 2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>WEEK</td>
<td>DATES</td>
<td>TOPIC (T)</td>
<td>TOPIC (Th)</td>
<td>READINGS</td>
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<td>LAB ASSIGNMENTS (DUE TUESDAY)</td>
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<tr>
<td>12</td>
<td>4/10, 4/12</td>
<td>From the shelf to the deep sea</td>
<td>Ch. 17, 19</td>
<td>Ocean trash lab prep</td>
<td></td>
<td>Oyster sampling report due</td>
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</tbody>
</table>

**PART 3: MARINE ECOLOGY - IMPACTS**

<table>
<thead>
<tr>
<th>13</th>
<th>4/17, 4/19</th>
<th>Aquaculture &amp; fisheries</th>
<th>Restoration &amp; mitigation</th>
<th>Ch. 21, Powers &amp; Boyer 2014</th>
<th>Ocean trash lab</th>
<th></th>
<th>Diurnal lab due</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>4/24, 4/26</td>
<td>Case study: dredge restoration</td>
<td>Case study materials</td>
<td>In lab working day</td>
<td></td>
<td>No lab</td>
<td>Ocean trash lab due</td>
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<tr>
<td>15</td>
<td>5/2</td>
<td>Exam review</td>
<td></td>
<td>No lab</td>
<td></td>
<td>No lab</td>
<td>Ocean trash lab due</td>
</tr>
</tbody>
</table>

Final exam: Thursday, May 10, 8:00-10:30 a.m.

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.
J. COURSE POLICIES

Attendance/Tardiness
Attendance is mandatory. Students are expected to attend all classes and labs. Should you miss a lecture session, it is your responsibility to find out what you missed, get notes, learn about changes in the syllabus, etc. There are no excused absences. A missed grade will result in a score of ‘0’ for that assignment. Students with a university approved scheduled absence (athletics, military duty, etc.) must contact the lecture instructor well in advance of a scheduled absence. Exams may be taken early in those specific cases. Students who do not arrange to take exams ahead of time will not be eligible for this special consideration. A written excuse from the university department involved is required. Daily 10 minute papers will be collected before lecture begins each day. Late papers (including those turned in at the end of class) will not be accepted.

Late Work
Assignments turned in late will incur a 10% penalty per day (including weekends). Assignments turned in on the due date but after the specified time will be considered 1 day late.

Extra Credit
There will be opportunities for extra credit throughout the semester. With prior permission from the instructor, students may choose to attend specific seminars or participate in approved marine ecology related activities for a maximum of 4 extra credit points on the semester grade.

Cell Phone Use
Cell phone use is not permitted during lectures or laboratory exercises.

Laptop Use
Laptop use is allowed during lectures and laboratory exercises but not during exams.

Food in Class
Not allowed during laboratory exercises.

Participation
This course has a large participation component, including classroom discussions and field activities. Your participation grade will be based on active participation in all class activities and discussions. Consistent absences and not taking an active role in classroom discussions and activities will have a negative effect on the participation grade.
K. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or
appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

  http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins.
Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.