Marine Ecology BIOL 4436  
Department of Life Sciences  
Spring 2017

A. COURSE INFORMATION

Course number/section:  BIOL 4436.001 (lecture), BIOL 4436.101 & 4436.102 (lab)
Class meeting time:  T/R 9:00-10:15 (lecture), T 12:30-3:20 (lab)
Class location:  ECMS 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 1:20-3:00 or by appointment (let me know you are coming)
Telephone:  825-2041
E-mail:  Jennifer.pollack@tamucc.edu
TA:  Kelley Savage (ksavage1@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 – do not wait until the last minute!

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
SMTE-0091
E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

   **Required Textbook(s)**
   *Marine Ecology: Processes, Systems, and Impacts* by Kaiser et al. (2011). Lectures will cover material from the book and will be supplemented by the instructor with material from the primary literature.

   **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 writing exercises, and field/laboratory activities. Grading will be based on three exams, in class discussions (case studies), daily 10-minute papers, three lab reports, and overall participation.

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. **10 minute papers (10%).** This in-class activity will help develop your ability to synthesize and integrate information and ideas. This is incredibly important for scientists! We will spend the first 10 minutes of class each day on a structured writing assignment related to the day’s lecture topic. You will be asked to respond briefly (1/2 page) to some variation on the following two questions: “Describe the most important thing(s) you learned on this topic” and “What important question(s) remain unanswered?” Papers will be collected immediately following the exercise. Late papers (such as those handed in at the end of class) will not be accepted. Ten minute papers will be graded on content and completeness.

4. **Lab reports (3 @ 10% each).** 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>
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<tr>
<td>Daily 10 minute papers</td>
<td>10%</td>
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<tr>
<td>Case studies</td>
<td>10%</td>
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<tr>
<td>Lab reports (3 @ 10% each)</td>
<td>30%</td>
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<td>Overall participation</td>
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# COURSE CONTENT/SCHEDULE

## PART 1: MARINE ECOLOGY - PROCESSES

<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</th>
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<tbody>
<tr>
<td>1</td>
<td>1/19</td>
<td>Course introduction</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>1/24, 1/26</td>
<td>Patterns and processes</td>
<td>Primary production</td>
<td>Kaiser Ch. 1, 2; Brown &amp; Swearingen 1998</td>
<td>Marsh planting – meet at vans</td>
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<td>3</td>
<td>1/31, 2/2</td>
<td>Case study: iron fertilization</td>
<td>Case study materials</td>
<td></td>
<td>Tides</td>
<td>Marsh write-up due</td>
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<td>4</td>
<td>2/7, 2/9</td>
<td>Primary production 2</td>
<td>Microbial ecology</td>
<td>Kaiser Ch. 2, 3; Rozas &amp; Minello 1997</td>
<td>Diurnal prep</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2/14, 2/16</td>
<td>Secondary production</td>
<td>Case study: GoMx dead zone</td>
<td>Kaiser Ch. 4, Case study materials</td>
<td>24 hour Diurnal sampling (noon Feb 17 - noon Feb 18)</td>
<td>Tides lab due</td>
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<tr>
<td>6</td>
<td>2/21, 2/23</td>
<td>Exam review</td>
<td>Exam 1</td>
<td>Pechenik 2007</td>
<td>Graphs &amp; figures</td>
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## PART 2: MARINE ECOLOGY - SYSTEMS

<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</th>
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<tbody>
<tr>
<td>7</td>
<td>2/28, 3/2</td>
<td>Rocky &amp; sandy shores</td>
<td>Pelagic ecosystems</td>
<td>Kaiser Ch. 6, 7</td>
<td>Oyster sampling</td>
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<td>8</td>
<td>3/7, 3/9</td>
<td>Deep Sea</td>
<td>Case study: navigation and migration</td>
<td>Kaiser Ch. 9, Case study materials</td>
<td>In lab working day</td>
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## SPRING BREAK

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<th>WEEK</th>
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<th>TOPIC (Th)</th>
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<th>LAB TOPICS</th>
<th>LAB ASSIGNMENTS</th>
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<tbody>
<tr>
<td>9</td>
<td>3/21, 3/23</td>
<td>Mangroves &amp; seagrass</td>
<td>Oyster reefs</td>
<td>Kaiser Ch. 10, 12</td>
<td>Thermohaline circulation</td>
<td>Oyster lab due</td>
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<tr>
<td>10</td>
<td>3/28, 3/30</td>
<td>Coral reefs</td>
<td>Polar regions</td>
<td>Kaiser Ch. 11</td>
<td>In lab working day</td>
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<td>11</td>
<td>4/4, 4/6</td>
<td>Exam review</td>
<td>Exam 2</td>
<td></td>
<td>No lab</td>
<td>Thermohaline lab due</td>
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<tr>
<td>WEEK</td>
<td>DATES</td>
<td>TOPIC (T)</td>
<td>TOPIC (Th)</td>
<td>READINGS</td>
<td>LAB TOPICS</td>
<td>LAB ASSIGNMENTS</td>
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<td>12</td>
<td>4/11, 4/13</td>
<td>Case study: oysters in Chesapeake Bay</td>
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<td>Case study materials</td>
<td>Ocean trash lab</td>
<td>Diurnal lab due</td>
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**PART 3: MARINE ECOLOGY - IMPACTS**

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<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</th>
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<tbody>
<tr>
<td>13</td>
<td>4/18, 4/20</td>
<td>Aquaculture &amp; fisheries</td>
<td>Restoration &amp; mitigation</td>
<td>Kaiser Ch. 13, 14</td>
<td>In lab working day</td>
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<tr>
<td>14</td>
<td>4/25, 4/27</td>
<td>Case study: dredge restoration</td>
<td>Case study materials</td>
<td></td>
<td>In lab working day</td>
<td>Ocean trash lab due</td>
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<tr>
<td>15</td>
<td>5/2, 5/4</td>
<td>Exam review</td>
<td>Final exam 8:00-10:30 a.m.</td>
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<td>No lab</td>
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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)**

  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior. 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 grade of ‘F’ for the work and the offense will be reported to the student affairs office.

  See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

- **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.

- **Deadline for Dropping a Course with a Grade of W (University)**

  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. The grade of W will be assigned to any student officially dropping a course by Friday, April 7, 2017. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must be submitted (just stopping attendance and participation WILL NOT automatically result in your being dropped from the class). After April 7, 2017 a student will not be allowed 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.

**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.