Marine Ecology BIOL 4436
Department of Life Sciences
Spring 2015

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 12:30-2:20 (lab)
Class location: CS 115 (lecture), CS 240 (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 1-3:00 or by appointment (it’s best to let me know you are coming)
Telephone: 825-2041
E-mail: Jennifer.pollack@tamucc.edu
TA: Patrick Graham (Patrick.graham@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 given during a laboratory meeting early in the semester 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)

*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 field notebook to record data (e.g., date and time, water quality, sampling site descriptions, weather conditions) and species collected/identified during each field and laboratory exercise. Students are also required to dress appropriately on field days (closed-toed shoes or boots, waders, hats, sunscreen, etc.). In addition, 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, and guided writing exercises. Grading will be based on two regular exams, one final exam, participation in class
discussions (case studies), daily ten minute papers, participation in laboratory activities, and
three lab reports.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Course Projects:

1. Case studies (5%). 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, and often contentious, 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.

2. 10 minute papers (15%). This in-class activity will help develop your ability to
synthesize and integrate information and ideas. We will spend the first 10 minutes of
class each day on a structured writing assignment related to the day’s lecture topic. In
general, 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?” Ten minute papers will be graded
on content and completeness.

3. Three lab reports (25%). All written assignments must be typed in 12 pt font, Times
New Roman, 1 inch margins. Due dates for each are listed on the schedule. All lab
reports should include the following 8 sections, presented in the order shown:

- Title and Author(s)
- Abstract
- Introduction
- Methods
- Results
- Discussion
- Literature Cited
- Tables and/or figures

Details on the expected formatting and structure of the lab reports will be discussed in lab as part
of the “Scientific Writing” lesson. Lab reports will be checked for plagiarism! References are
limited to primary literature (i.e., no internet sources). I expect you to demonstrate a high
standard of scientific writing ability. The single biggest problem students have is not having
someone else read it before it is due. These reports should be 5-6 pages and must contain at least
6 references from the primary literature (NOT internet or Wikipedia!) References must be cited
in the text using standard scientific notation used in journals.
The nutrient enrichment lab report and the Aransas Bay field trip report should be written individually. Identical written material from multiple students will be considered plagiarism and will be dealt with severely (see section on “Academic Dishonesty”).

The diurnal lab report will be written in teams (i.e. your assigned diurnal team) – you will write and turn in only one report per team, with all students getting the same grade. Team members will complete a form evaluating the contribution of other members of the group; those who do not contribute will be penalized. There is a 5 point penalty for each day late.

<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>15%</td>
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<tr>
<td>Case studies</td>
<td>10%</td>
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<tr>
<td>Lab Reports</td>
<td>25%</td>
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<tr>
<td>Participation</td>
<td>5%</td>
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I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPICS</th>
<th>READINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART 1: PROCESSES</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1/22</td>
<td>Course introduction</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1/27, 1/29</td>
<td>Patterns and processes Primary production</td>
<td>Kaiser Ch. 1</td>
</tr>
<tr>
<td>3</td>
<td>2/3, 2/5</td>
<td><em>Case study: iron fertilization (2 days)</em></td>
<td>Case study materials</td>
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<tr>
<td>4</td>
<td>2/10, 2/12</td>
<td>Primary production 2 Microbial ecology</td>
<td>Kaiser Ch. 2 Kaiser Ch. 3</td>
</tr>
<tr>
<td>5</td>
<td>2/17, 2/19</td>
<td>Secondary production <em>Case study: GoMx dead zone</em></td>
<td>Kaiser Ch. 4 Case study materials</td>
</tr>
<tr>
<td>6</td>
<td>2/24, 2/26</td>
<td>Exam review Exam 1</td>
<td></td>
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<tr>
<td><strong>PART 2: SYSTEMS</strong></td>
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<tr>
<td>7</td>
<td>3/3, 3/5</td>
<td>Rocky &amp; sandy shores Pelagic ecosystems</td>
<td>Kaiser Ch. 6 Kaiser Ch. 7</td>
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<tr>
<td><strong>SPRING BREAK</strong></td>
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<tr>
<td>8</td>
<td>3/17, 3/19</td>
<td>Deep Sea <em>Case study: navigation and migration</em></td>
<td>Kaiser Ch. 9 Case study materials</td>
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<tr>
<td>9</td>
<td>3/24, 3/26</td>
<td>Mangroves &amp; seagrass <em>Case study: fish as fertilizer</em></td>
<td>Kaiser Ch. 10 Case study materials</td>
</tr>
<tr>
<td>10</td>
<td>3/31, 4/2</td>
<td>Coral reefs <em>Case study: marine nutrients</em></td>
<td>Kaiser Ch. 11 Case study materials</td>
</tr>
<tr>
<td>11</td>
<td>4/7, 4/9</td>
<td>Oyster reefs Polar regions</td>
<td>Kaiser Ch. 12</td>
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<tr>
<td>12</td>
<td>4/14, 4/16</td>
<td>Exam review Exam 2</td>
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<td><strong>PART 3: IMPACTS</strong></td>
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<tr>
<td>13</td>
<td>4/21, 4/23</td>
<td>Aquaculture &amp; fisheries Restoration &amp; mitigation</td>
<td>Kaiser Ch. 13 Kaiser Ch. 14</td>
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<tr>
<td>14</td>
<td>4/28, 4/30</td>
<td><em>Case study: dredge restoration (2 days)</em></td>
<td>Case study materials</td>
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<tr>
<td>15</td>
<td>5/5, 5/7</td>
<td>Exam review Final exam 8:00-10:30 a.m.</td>
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## LAB CONTENT / SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>LAB TOPICS</th>
<th>ASSIGNMENTS</th>
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<tbody>
<tr>
<td>1</td>
<td>22-Jan</td>
<td>No lab</td>
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<tr>
<td>2</td>
<td>27-Jan</td>
<td>Settlement plate preparation (all)</td>
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<tr>
<td>3</td>
<td>3-Feb</td>
<td>Settlement plate construction (all)</td>
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<tr>
<td>4</td>
<td>10-Feb</td>
<td>Diurnal preparation (all)</td>
<td></td>
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<tr>
<td>5</td>
<td>20-21 Feb</td>
<td>Diurnal sampling (noon on Feb 20 - noon on Feb 21) (CS loading dock)</td>
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<tr>
<td>6</td>
<td>24-Feb</td>
<td>Settlement plate deployment (all)</td>
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<tr>
<td>7</td>
<td>3-Mar</td>
<td>Substrate choice preparation (all)</td>
<td>Settlement plate intro, methods due</td>
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<tr>
<td>8</td>
<td>17-Mar</td>
<td>Substrate choice construction (all)</td>
<td>Diurnal intro, methods due</td>
</tr>
<tr>
<td>9</td>
<td>24-Mar</td>
<td>Substrate choice deployment (all)</td>
<td>Substrate choice intro, methods due</td>
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<tr>
<td>10</td>
<td>31-Mar</td>
<td>Settlement plate retrieval (all)</td>
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<tr>
<td>11</td>
<td>7-Apr</td>
<td>Nutrient enrichment, PS, R experiments (grp 1)</td>
<td>Diurnal results, discussion due</td>
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<tr>
<td>12</td>
<td>14-Apr</td>
<td>Nutrient enrichment, PS, R experiments (grp 2)</td>
<td>Settlement plate results, discussion due</td>
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<tr>
<td>13</td>
<td>21-Apr</td>
<td>Substrate choice retrieval (all)</td>
<td>Substrate choice results, discussion due</td>
</tr>
<tr>
<td>14</td>
<td>28-Apr</td>
<td>In lab working day (all)</td>
<td>Nutrient lab notebook due</td>
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<tr>
<td>15</td>
<td>5-May</td>
<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**
With prior permission from the instructor, students may attend specific seminars or participate in approved marine ecology related activities for a maximum of 3 extra credit points for the semester.

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

**Laptop Use**
Allowed during lectures and laboratory exercises but not 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](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 10, 2015. 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 10, 2015 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](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](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**  
Disability Services (DS) is the hub for coordinating services and accommodations to ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or
temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to 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.