Marine Ecosystem Dynamics (MARB 6590.005/CMSS 6359.001)
Department of Life Sciences
Fall 2017

A. COURSE INFORMATION

Course number/section: MARB 6590.005/CMSS 6359.001
Class meeting time: T/TH 0930-1045
Class location: BH-201
Course Website: Refer to Blackboard course website

B. INSTRUCTOR INFORMATION

Instructor: Dr. Michael Wetz
Office location: Science Lab 2, Room 102
Office hours: T/TH 1100-1330
Telephone: 361-825-2132
e-mail: michael.wetz@tamucc.edu
Appointments: By email or personal communication

C. COURSE DESCRIPTION

Catalog Course Description
Investigation of the interactions between organisms and physical processes that regulate marine ecosystem functions.

Extended Course Description
This course will introduce students to principles of marine ecosystem dynamics. Case studies on the interactions between aquatic organisms and physical-chemical processes that regulate aquatic ecosystem function will be presented.

D. PREREQUISITES AND COREQUISITES

Prerequisites
None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
None.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

At the conclusion of this course the student should be able to:
1. Identify and categorize various marine ecosystem components.
2. Analyze principles for the functioning of marine ecosystems.
3. Evaluate the physical-chemical processes that regulate productivity and biogeochemical cycling in the marine environment.
4. Synthesize the current issues, e.g., anthropogenic and climatic change, as they relate to ecosystem processes in the coastal zones and world oceans.
5. Effectively communicate knowledge of marine ecosystem dynamics to the general public.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Proposed topics will be covered in weekly instructor-led lectures and class discussions of the primary literature.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Grading will be based on participation in discussions, group presentation, mid-term and final exams.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Overall Grade Percentage</th>
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</thead>
<tbody>
<tr>
<td>Lead Discussion</td>
<td>20%</td>
</tr>
<tr>
<td>Participate in Discussions (all)</td>
<td>10%</td>
</tr>
<tr>
<td>Mid-term Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Project Presentation</td>
<td>20%</td>
</tr>
<tr>
<td>Total:</td>
<td>100%</td>
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<table>
<thead>
<tr>
<th>Class Average (X)</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>X ≥ 90.0%</td>
<td>A – Excellent</td>
</tr>
<tr>
<td>89.9% ≥ X &gt; 80.0%</td>
<td>B – Good</td>
</tr>
<tr>
<td>79.9% ≥ X &gt; 70.0%</td>
<td>C – Satisfactory</td>
</tr>
<tr>
<td>69.9% ≥ X &gt; 60.0%</td>
<td>D – Passing</td>
</tr>
<tr>
<td>X &lt; 60.0%</td>
<td>F – Failing</td>
</tr>
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</table>

 Discussions – On certain days noted in the schedule, we will discuss either a classic or recent high publicity manuscript that pertains to the topic of the prior lecture. One student will lead each discussion. You should do your best to involve other students in the discussion… try to frame the discussion in terms of questions to the other students. Students who are not leading a discussion will also want to participate, as you are being graded on participation in the discussion.
Presentation – Students (in groups of 2) will prepare a 30 minute presentation about a selected “hot topic” seen in the news on an aquatic phenomenon. The presentation should include significant background information on the phenomenon, including details on the environmental setting of the affected system, i.e., physical-chemical-geological-biological dynamics, as well as drivers of the phenomenon and its ecosystem impacts. Drafts of presentations are due to the instructor no later than 5 p.m. on November 10th, 2017. Each student is expected to contribute in an equitable manner to the presentation, though division of labor can be determined by the group (i.e., research, presentation development, oral presentation, etc.). Potential topics that have been in the news in recent years include:

Huge warm water “blob” off the Pacific coast causes mass death of sea species (2015)
Scientists estimate total weight of plastic floating in world’s oceans (2015)
Five years after Deepwater Horizon, wildlife still struggling (2015)
Lake Erie increasingly susceptible to large cyanobacterial blooms (2015)
“Guacamole thick” toxic algae bloom prompts state of emergency in Florida (2016)
Scientists just measured a rapid growth in acidity in the Arctic ocean, linked to climate change (2017)
Ocean oxygen levels drop 2% in 50 years, Nature study finds (2017)

I. COURSE CONTENT/SCHEDULE

The range and type of marine ecosystems will be described, including estuarine, coastal and offshore environments. The organization of marine systems from biological, chemical, geological, and physical perspectives will be investigated. The interactions between the biotic and abiotic realms of marine systems will be studied. There will be examples describing the habitats and biogeochemical processes of many different marine systems, including the Gulf of Mexico.

Tentative Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
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</thead>
<tbody>
<tr>
<td>1-3</td>
<td>Introduction to marine systems</td>
</tr>
<tr>
<td>3-6</td>
<td>Biological components</td>
</tr>
<tr>
<td>6-8</td>
<td>Estuarine processes</td>
</tr>
<tr>
<td>9</td>
<td>Tides, internal waves</td>
</tr>
<tr>
<td>9-10</td>
<td>Eastern boundary currents (upwelling)</td>
</tr>
<tr>
<td>10-11</td>
<td>Fronts and thin layers</td>
</tr>
<tr>
<td>11-12</td>
<td>Natural climate variability</td>
</tr>
<tr>
<td>12-13</td>
<td>Large-scale ocean circulation</td>
</tr>
<tr>
<td>14-15</td>
<td>Student presentations</td>
</tr>
<tr>
<td>15,16</td>
<td>Student presentations</td>
</tr>
</tbody>
</table>

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. Should you miss a lecture, it is **YOUR** responsibility to find out what you missed, get notes, learn about changes in the syllabus, etc. A missed grade will result in a score of ‘0’ for that assignment, with exceptions granted only in exceptional circumstances including illness (with doctor’s note), death in the family (with verification), university-sponsored event (with verification) or military deployment (with verification). Students with a university approved scheduled absence (athletics, military duty, etc.) **MUST** contact the lecture instructor well in advance of a scheduled absence.

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)**
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 your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. 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.

**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.