Oceanography – ESCI 3351
Department of Physical and Environmental Sciences
Summer I 2017

A. COURSE INFORMATION

Course number/section: ESCI 3351.001
Class meeting time: MTWR 10.00 – 11:55
Class location: OCNR-132
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Mark C. McKay
Office location: NRC 3504
Office hours: MTWR 12:00-1:30 or by appointment
Telephone: 361-825-6050
e-mail: mmckay@islander.tamucc.edu
Appointments: Appointments are to be arranged by email.

C. COURSE DESCRIPTION

Catalog Course Description
Methods and principles of oceanography. This is an upper-level science course designed for students in a variety of majors. Students are expected to be familiar with the scientific method, with earth science and biological science concepts, and to have an appreciation for the scientific approach to knowledge.

Extended Course Description
The course is designed around understanding the broad-scale features and dynamics of the Earth’s oceans. The course will cover the four main disciplines of oceanography: marine geology, marine chemistry, physical oceanography, and marine biology. Students will learn that there is much overlap and interdependence between these disciplines. Specific topics include seafloor spreading, marine sediments, salinity, biogeochemical cycles, ocean structure, currents, waves, tides, primary production, marine ecology and global warming. Time permitting, we will also explore Satellite Oceanography and the use of the Integrated Ocean Observing System (IOOS).

The Oceans are a very complex and integrated systems. We will look not only at the various components of the Oceans but also look at how oceans affect our daily lives, health, ecological services, and the economy.

D. PREREQUISITES AND COREQUISITES

Prerequisites
CHEM 1312, or ESCI 1401 and 1402, or GEOL 1403, or permission of instructor.

Corequisites
none

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
Trujillo and Thurman, Essentials of Oceanography 12th Edition. Earlier editions may be used but it is up to the student to keep track of differences. Professor is not responsible for variations between textbooks. This textbook is also available for rent in electronic form.
Supplies
None required however students are encouraged to bring laptops or tables to class

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. Identify different oceanographic processes that shape our earth system.
2. Describe interaction between different marine biogeochemical cycles and their relationships with other Earth systems.
3. Describe the interaction between human activities and the ocean.
4. Explain how marine organisms could affect the ocean chemistry and nutrient cycles.
5. Predict the effect of physical and chemical parameters on the distribution of marine organisms.
6. Intensify the tools that are used to study the ocean and its effect of Earth Systems
7. Develop, research, and compose a clear and concise paper on an oceanographic topic.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The course will be taught through lectures using PowerPoint, and short topic specific videos. Coursework involves several problem sets, class participation, quizzes, a research paper, midterm and final exams.

H. MAJOR COURSE REQUIREMENTS AND GRADING

A paper related to and expanding on a class topic due on June 30th in word format in electronic form using blackboard. The title/subject of the paper must receive the instructor’s approval and is due on Black board on June 16th. The paper should be in your own words, should be between 1000 and 1500 words long, 1.5 lines spacing, 1 inch margins, 12 pt Times New Roman font, citing at least 2 peer reviewed papers, 1 figure, and 1 table. All peer reviewed papers must be given credit in the text of your paper as well as in the reference section. If text from a source is included verbatim you must use quotation marks around the passage in addition to citing the source.

There will in addition to required readings, weekly timed quizzes, problem sets a midterm and a final exam. Due to the condensed nature of this class, due dates are strictly enforced.

The midterm exam is comprehensive and will cover the material that has been covered in class up to the date of the examination and the final is also comprehensive which will cover all material learned over the term. Final letter grade (X) for the lecture course will be as follows: A = X≥90; B = 89>X≤80; C = 79>X≤70; D = 69>X≤60; F = X<60.
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
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<tr>
<td>Mid-term</td>
<td>25%</td>
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<tr>
<td>Term Paper</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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<tr>
<td>Attendance and Participation</td>
<td>10%</td>
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I. COURSE CONTENT/SCHEDULE

Outline of Lecture Topics (book chapters)

1. Introduction to Planet “Earth”
2. Plate tectonics and the Ocean Floor
3. Marine Provinces
4. Marine Sediments
5. Water and Seawater
6. Air-sea Interaction
7. Ocean Circulation
8. Waves and Water dynamics
9. Tides
10. The Coast: Beaches and Shoreline Processes
11. The Coastal Ocean
12. Marine Life and the Marine Environment
13. Biological Productivity and Energy Transfer
14. Animals of the Pelagic Environment
15. Animals of the Benthic Environment
16. The Oceans and Climate Change
<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
<th>ASSIGNMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 30th wk 1</td>
<td>Introduction to planet Earth, Plate Tectonics, Marine Provinces</td>
<td>1, 2, 3</td>
<td>Weekly Quiz</td>
</tr>
<tr>
<td>June 4th wk 2</td>
<td>Marine Sediments, Water and Seawater, Air-Sea Interaction</td>
<td>4, 5, 6</td>
<td>Weekly Quiz Problem set 1 Research topic due</td>
</tr>
<tr>
<td>June 12th wk 3</td>
<td>Ocean Circulation, Waves and Seawater, Tides</td>
<td>7, 8, 9</td>
<td></td>
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<tr>
<td>June 15</td>
<td>Midterm</td>
<td>Chapter 1-8</td>
<td>Format to be announced</td>
</tr>
<tr>
<td>June 19th wk 4</td>
<td>Beaches and shoreline Processes, Coastal Ocean, Biological Productivity</td>
<td>10, 11, 13</td>
<td>Weekly quiz</td>
</tr>
<tr>
<td>June 26th wk 5</td>
<td>Animals of the Ocean, the oceans and climate change</td>
<td>(14,15 condensed) 16</td>
<td>Weekly Quiz Problem set 2</td>
</tr>
<tr>
<td>June 30th</td>
<td>Research Paper</td>
<td></td>
<td>Research Paper due in Blackboard</td>
</tr>
<tr>
<td>June 30th</td>
<td>Final Exam</td>
<td>9-16</td>
<td>Format to be announced</td>
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</tbody>
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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.

**OTHER IMPORTANT DATES**

**Summer 1**

- **May 30**: Classes begin
- **May 31**: Last day to register or add a class
- **June 16**: Last day to drop a class
- **June 28**: Last day to withdraw
  
- **June 30**: Last day of classes
  
- **June 30**: Summer Session I final examinations

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J. COURSE POLICIES

Attendance/Tardiness
I expect students to attend every class meeting. Failure to attend class may affect your performance on scheduled examinations. Lecture notes will only be provided during lecture and will not be repeated if a student fails to attend at the scheduled meeting time. Changes to the course content and schedule will be announced during lectures.

Late Work and Make-up Exams
There will be a 10% reduction, per day, in credit for overdue assignments. Students with a university approved scheduled absence (athletics, military duty, etc.) MUST contact the instructor in advance of the 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 or the Office of the Dean of Students is required. Exam taken outside class will not be multiple choice and it will not include any bonus points. Bring your university picture ID to all lecture exams.

Extra Credit
We have a lot to cover in a short period. Not a lot of time for extra credit. The addition of extra credit to examinations or for individuals will remain at the sole discretion of the professor.

Cell Phone Use
Before you enter the lecture hall turn your cell phone to silent! Electronic interruptions will NOT be tolerated!

Laptop Use
Laptops and tablets are encouraged in the classroom for course related activities only.

Food in Class
Beverages in spill proof containers are permitted.

Missed Exam
If an exam date is missed and the student cannot fulfill the above requisites for excuse, an exam grade of 0 will be recorded. Providing a student with an opportunity to make up an unexcused missed examination will remain at the sole discretion of the Professor. NO STUDENT WILL BE ADMITTED TO THE EXAMINATION AFTER THE FIRST EXAM-TAKER HAS LEFT!

Participation
Participation in class discussions is required and will count for a significant portion of final 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 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](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
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/](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.

### 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.