Geological Oceanography – CMSS 6334.001  
Department of Physical and Environmental Science  
Spring Semester 2016

A. COURSE INFORMATION
Course number/section: CMSS 6334.001  
Class meeting time: Tuesdays and Thursdays 9:30 to 10:45 a.m.  
Class location: OCNR-255  
Course Website: https://bb9.tamucc.edu/webapps/portal/frameset.jsp

B. INSTRUCTOR INFORMATION
Instructor: Thomas Naehr, Ph.D.  
Office location: HRI-119 or FC-171 (preferred)  
Office hours: TR 11:00 a.m. to noon and MWF 01:00 to 02:00 p.m. or by appointment  
Telephone: 361.825.2470  
Email: thomas.naehr@tamucc.edu  
Appointments: Appointments can be made by phone or email (preferred).

C. COURSE DESCRIPTION
Catalog Course Description  
Integrated examination of the geology and geochemistry of the marine environment. Evolution of ocean basins, continental margins and plate boundaries; geology of oceanic crust; controls on the types, origin, and distribution of marine sediments; and introduction to paleoceanography.

This is a graduate-level course in Geological Oceanography primarily for students in Coastal and Marine System Science, which will expose students to the geology, geophysics, and geochemistry of the marine environment. Topics include: Review of plate tectonic processes relevant to the evolution of continental margins and plate boundaries, geophysics and ocean morphology, geology of ocean crust, controls on the types, origin and distribution of marine sediments, marine geochemistry, marine stratigraphy, correlation and chronology, nearshore geologic processes and the continental shelf, introduction to paleoceanography, global paleoceanographic evolution, critical events in ocean history.

D. PREREQUISITES AND COREQUISITES
Prerequisites  
ESCI 3351 Oceanography, or GEOL 4316 Marine Geoscience, or permission of instructor.

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

Required Textbook(s)
There is no required textbook for this course. Relevant textbooks will be put on reserve in the library. In addition, select journal articles that will be discussed in class will be made available electronically or as hardcopies.

Optional Textbook(s) or Other References
The Ocean Basins: Their Structure and Evolution, 2nd Edition, Open University
Marine Geology, James Kennett, Prentice Hall
Ocean Margin Systems, Wefer et al., Springer
Marine Geochemistry, Schulz & Zabel, Springer

Supplies
None.

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. demonstrate an understanding of the structure and evolution of the major ocean basins,
2. be able to discuss the most important geologic and geochemical processes in the marine environment,
3. demonstrate familiarity with the concepts of marine stratigraphy and paleoceanography, and
4. summarize and present the main findings of recent scientific studies in one of the areas of geological oceanography.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

We will use a variety of instructional methods in this course, including lectures, discussions, and peer presentations.
H. MAJOR COURSE REQUIREMENTS AND GRADING

Your final grade will be based on a % curve from the following point distribution:

A) Mid-Term Exam: 100 points
B) Final Exam: 100 points
C) Presentation: 100 points

Total: 300 points

I. COURSE CONTENT/SCHEDULE

Important Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>January 20</td>
<td>Classes begin</td>
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<tr>
<td>March 14–18</td>
<td>Spring Break</td>
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<tr>
<td>March 08</td>
<td>Mid-term Exam</td>
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<tr>
<td>April 08</td>
<td>Last day to drop a course</td>
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<tr>
<td>May 03</td>
<td>Last day of classes</td>
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<tr>
<td>May 05</td>
<td>Final Exam 08:00 a.m.–10:30 a.m.</td>
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Lecture Schedule

January

Thu 01/21  Syllabus, Introduction
Tue 01/26  The Shape of Ocean Basins
Thu 01/28  The Shape of Ocean Basins

February

Tue 02/02  The Evolution of Ocean Basins
Thu 02/04  The Evolution of Ocean Basins
Tue 02/09  Structure and Formation of Oceanic Lithosphere
Thu 02/11  Structure and Formation of Oceanic Lithosphere
Tue 02/16  Hydrothermal Circulation
Thu 02/18  Hydrothermal Circulation
Tue 02/23  Paleoceanography and Sea-Level Change
Thu 02/25  Paleoceanography and Sea-Level Change

March

Tue 03/01  Paleoceanography and Sea-Level Changes
Thu 03/03  The Broader Picture
Tue 03/08  MID-TERM EXAM
Thu 03/10  Introduction to Marine Biogeochemical Cycles
Tue 03/15  SPRING BREAK
Thu 03/17  SPRING BREAK
Tue 03/22  Biogeochemical Processes in Seawater
Thu 03/24  Biogeochemical Processes in Seawater
Tue 03/29  Biogeochemical Processes in Seawater
Thu 03/31 The Accumulation of Deep-Sea Sediments

April
Tue 04/05 The Accumulation of Deep-Sea Sediments
Thu 04/07 Deep-Sea Sediments and Paleoceanography
Tue 04/12 Deep-Sea Sediments and Paleoceanography
Thu 04/14 Deep-Sea Sediments and Paleoceanography
Tue 04/19 Biogeochemical Activity in Deep-Sea Sediments
Thu 04/21 Biogeochemical Activity in Deep-Sea Sediments
Tue 04/26 Presentations
Thu 04/28 Presentations

May
Tue 05/03 Review
Thu 05/05 FINAL EXAM: 08:00 a.m.–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**
You are expected to attend all lectures and remain in class for the entire period.

- **Late Work and Make-up Exams**
Exams can only be taken during the scheduled time, except in cases of emergencies. Documented proof is required of such emergencies. There will be NO make up exams for unscheduled and unexcused absence! If you know you are going to miss a class or an exam and have a valid excuse, let me know BEFORE the fact, NOT after (by that time I already know…)! Make-up exams cannot be taken after the graded test has been given back to the class. There will be no exceptions!

- **Cellphone Use**
The use of cellphones, pagers, MP3 players, headphones and similar electronic devices is not allowed in class. If your cellphone rings during lecture, you will be asked to leave the classroom. Text messaging is not permitted in this class.

- **Laptop/Tablet Use**
You may use a laptop or tablet computer for note taking during class. However, if laptop/tablet use becomes a distraction to you or others, I will ask you to discontinue the use of your laptop or tablet.
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, 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.