Lecture Syllabus


Class Meetings: Tue/Thu 11:00 a.m. – 12:15 p.m., EN 107

Office Hours: Tue/Thu 2:00 to 3:00 pm and 5:00 to 6:00 pm, Wed 9:00 to 11:00 am or by appointment. I encourage you to email me with any questions or concerns you may have (see email address listed above).

Course Description

Physical Geology is the branch of geology concerned with the origin, classification, and composition of Earth materials, natural geologic processes affecting and shaping our Earth (plate tectonics, earthquakes, volcanoes, global climate change etc.), as well as the forces that cause those changes. This course includes laboratory studies of minerals, rocks, as well as physiographic and geologic maps.

GEOL 1403 is a required course for students majoring in Geology or Environmental Science. The course may be taken by any student with the necessary interest in the natural sciences. GEOL 1403.330/331 is part of a learning community, which includes a seminar class. Our overarching theme of the semester is “Dig your Core”. The seminar class will complement the Geology lecture with an opportunity for students to dig deeper into the material covered in class, as well as learning basic scientific skills required for this and future courses, in a smaller group setting.

Student Learning Outcomes

Upon successful completion of this course, you should be familiar with / demonstrate knowledge of:

- the composition and structure of the solid Earth,
- the theory of Plate Tectonics,
- the various rock types that make up Earth’s crust,
- the internal and external processes that shape our planet,
- natural hazards,
- geologic resources (with special emphasis on energy resources),
- global change including climate change,
- the interaction between some of the main components of the Earth System,
- the interdependence of science and technology and their influence on, and contribution to, modern culture.

In addition to the content knowledge this course also provides you with basic core competencies such as:

- critical thinking, e.g. when approaching topics using the scientific method
- problem solving by working collaboratively in teams
- communication skills, e.g. when presenting some of your work to the group verbally or in writing
- Empirical and quantitative skills when working with numeral data, reading graphs etc.

Please always remember that you are the one responsible for your success. I will do my best to guide you in your learning process but without YOU assuming an active role, by completing work, studying outside of class time, asking questions, making use of help offered etc. you may not successfully pass this course.
Evaluation and Grade Assignment
Your final grade will be based on a % curve from the following point distribution:

A) Exams (3@60 points each) 180 points
B) Lecture Quizzes: 5@10 points each 50 points
C) “Snapshot” quizzes 45 points
D) Geology in the News 5 points
E) Comprehensive Final Exam 100 points
F) Labs: 11 assignments @ 10 points each and 2 exams 250 points
Total: 730 points

A perfect score in this course would be to earn all 730 points available. There will be no curve at the end of the semester! Final grading will be as follows (100-90%=A, 90-80%=B etc.):

- A = 730-657 points
- B = 656-584 points
- C = 583-511 points
- D = 510-438 points
- F <438 points

Extra Credit
You will receive 5 points EC for turning in your completed score card (available at the beginning of the semester) on the day of the final.

Exams and Lecture Quizzes
The grade you will receive for this class is based on your performance on exams, quizzes, lab exercises and class work. Missing any of these opportunities to collect points towards your point total will most likely affect your grade. So: attend class!! If you miss an exam (which includes anyone walking in more than 15 minutes late on the day of an exam!) you will be given the opportunity to make up this exam on the day of the final (after you have taken the final). It is your responsibility to contact me within one week of missing an exam to let me know that you wish to make up the exam. You loose the privilege of making up an exam if you fail to notify me during this time period.

Lecture Quizzes happen randomly and help me monitor your progress and regular attendance of the class. Quizzes will consist of a short series of multiple-choice questions to be answered in approximately 5-10 minutes usually at the beginning of the class period. Students who walk in late will not be given an opportunity to answer missed questions. If you are absent for medical reasons or a University related event, you will be given an opportunity to make up missed quizzes at the end of the semester after the final. Again, it is your responsibility to contact me regarding the make-up of missed quizzes within a week (and provide documentation). After that you lose your privilege to make up the missed work. Lecture quizzes will include material covered in previous lectures and from the reading assignments.

Geology in the News
Each student will present a current geologic event to the class. Your presentation will be brief in the lecture class and more detailed during your seminar meeting. All students must present:
- Nature of event (e.g. volcanic eruption, earthquake, important geologic discovery…)
- Location (be sure to address geologic context, e.g. near a plate boundary etc.)
- Geologic background (brief in lecture class; longer during Seminar)

In addition, please briefly introduce yourself to the class.

Geology Portfolio
At the beginning of the semester you will be assigned a region on our planet that you will “follow” over the course of the semester. For selected topics covered in class you will write reports that will include:
- An abstract
- Key words
- Main body of text, which must include:
  - Application of your newly acquired knowledge to your region
  - How it affects humans in the region

Close to the end of the semester, you will have a complete portfolio, which must be turned in for grading on November 21st, 2013. No late work will be accepted.
Class and Lab Policies
While attendance of the lectures will not be recorded by the instructor on a regular basis, regular attendance is essential to the successful completion of this course. **Regular attendance of the lab sessions is required** and there will be no make-up labs except for excused absences. You can recover a missed lab, if you know you are going to miss your section during one particular week, by arranging to attend one of the other available sections. You need to make these arrangements with the lab instructors in advance (i.e., don't just show up and expect to be accommodated). **Each student may attend a different lab section no more than once during the semester (except for excused absences; proof required).**

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. **The use of cell phones, pagers, CD players, headphones and similar electronic devices is not allowed in class. Keep these devices in your bags, not on the tables.** You may be asked to refrain from using a laptop in class. Cheating will not be tolerated and will result in a failing grade in the course and possible further disciplinary action by the university.

Notice to Students with Disabilities
Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office, located in Corpus Christi Hall (CCH) 116, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

Academic Advising
The College of Science and 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. The College's Academic Advising Center is located in Center for Instructions CI 350, and can be reached at 825-6094.

Grade Appeal Process
As stated in University Rule 13.02.99.C2, Student Grade Appeals, 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 Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.
Dropping a Class
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. 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. **November 15, 2013** is the last day to drop a class with an automatic grade of “W” this term.

Reading and Online Assignments
All reading assignments are to be read prior to the class in which the material will be discussed. It is important that you come to class prepared. Lecture quizzes may contain material from the reading assignments. Online assignments MUST be completed before coming to class. You will not be able to keep up with the pace of the class if you do not complete this work.

The following lecture schedule will be followed as closely as possible although some revisions may become necessary during the semester.

Important Dates

<table>
<thead>
<tr>
<th></th>
<th>Nov 5</th>
<th>Sept 18</th>
<th>Oct 30</th>
<th>Nov 21</th>
<th>Nov 27</th>
<th>Dec 08</th>
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<tbody>
<tr>
<td>First class day</td>
<td></td>
<td>Exam 1</td>
<td>Exam 2</td>
<td>Portfolio due</td>
<td>Exam 3</td>
<td>Thanksgiving holiday</td>
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<td>Nov 10</td>
<td>Dec 10</td>
<td>Last day of class</td>
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<td>Nov 12</td>
<td>Dec 12</td>
<td>Final exam</td>
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Lecture Schedule

**September**

- Thu 09/05 Syllabus; Chapter 1: An Introduction to Geology and the “Big Ideas of Earth Sciences”
- Tue 09/10 Chapter 2: Solar System
- Thu 09/12 Chapter 3: Plate Tectonics
- Tue 09/17 Chapter 3 cont.
- Thu 09/19 Chapter 12: Earthquakes
- Tue 09/24 Chapter 12 cont.
- Thu 09/26 EXAM 1

**October**

- Tue 10/01 Chapter 4: Minerals
- Thu 10/03 Chapter 4 cont., The Rock Cycle, Chapter 5: Igneous Rocks
- Tue 10/08 Chapter 5 cont.
- Thu 10/10 Chapter 6: Volcanoes
- Tue 10/15 Chapter 6 cont.
- Thu 10/17 Chapter 7: Weathering
- Tue 10/22 Chapter 8: Sedimentary Rocks
- Thu 10/24 Chapter 8 cont.
- Tue 10/29 Chapter 9: Metamorphic Rocks
- Thu 10/31 EXAM 2

**November**

- Tue 11/05 Chapter 11: Mountain Building
- Thu 11/07 Chapter 11 cont.
- Tue 11/12 Oil Spills, Ethics and Society; Chapter 10: Geologic Resources
- Thu 11/14 Chapter 10 cont.
- Tue 11/19 Chapter 10 cont.
- Thu 11/21 Chapter 16: Global Warming
Laboratory Syllabus

Lab Time and Place: 341: Tue 09:00-10:50 a.m., CS 226
340: Tue 01:00-02:50 p.m., CS 226

Lab Material
Material (handouts) required to prepare yourself and to work with during the lab meetings will be posted on blackboard. It is your responsibility to print out and bring this material with you to lab. Handouts will not be provided! Also, please purchase a basic Rock and Mineral Identification book of your choosing.

Lab Attire
There is no food or drink permitted in the geology lab (CS 226). You are required to wear closed-toed shoes to the lab. You are not required to wear a lab coat. ALL STUDENTS MUST SUCCESSFULLY PASS A LAB SAFETY LECTURE WHICH WILL BE GIVEN DURING THE FIRST LAB MEETING.

Lab Description
The laboratory exercises are intended to give you a hands-on geology experience, as well as compliment the lecture material. They will focus on three main topics: (1) plate tectonics, (2) rocks and minerals, and (3) working with topographic and geologic maps. After the completion of these exercises, you should be able to successfully describe and identify the most common rocks and minerals found on our planet. You will also learn to recognize some of the most common rocks found in Texas. You will be given an introduction to the interpretation of topographic and geologic maps, as well as geologic cross sections.

Lab Objectives
Upon successful completion of the laboratory exercises you should be able to
- Describe the fundamental principles of plate tectonics
- Identify various minerals as well as basic igneous, sedimentary, and metamorphic rocks
- Read and interpret topographic and geologic maps

Evaluation and Grade Assignment
Your points from the lab section will be added to the points acquired in the lecture section.
To successfully complete this geology course you MUST attend both lecture AND labs.

<table>
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<tr>
<th>Lab Performance (quiz or assignment; 10 pts. each)</th>
<th>120 points</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>80 points</td>
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<tr>
<td>Exam 2 (Take-home; 5 points deduction/day for late work)</td>
<td>50 points</td>
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<td><strong>Total:</strong></td>
<td><strong>250 points</strong></td>
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Grade Assignment: See Course description
Lab Policies: See above and course description

Important Dates
<table>
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<tr>
<th>Sept 10</th>
<th>Labs begin</th>
<th>Dec 10</th>
<th>Exam 2 due</th>
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<tr>
<td>October 29</td>
<td>Exam 1</td>
<td>Dec 10</td>
<td>Last lab meeting</td>
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- 5 -
Lab Schedule

September
Tue  09/10  Lab 1  Syllabus, Lab safety, Basics: Math and Physics
Tue  09/17  Lab 2  Plate Tectonics
Tue  09/24  Lab 3  Minerals

October
Tue  10/01  Lab 4  Igneous Rocks
Tue  10/08  Lab 5  Sediments, Sedimentary Structures, and Sedimentary Rocks
Tue  10/15  Lab 6  Metamorphic Rocks
Tue  10/22  Lab 7  Rocks of Texas, Introduction to Geologic Maps
Tue  10/29  EXAM 1

November
Tue  11/05  Lab 8  Topographic Maps
Tue  11/12  Lab 9  Geologic Structures and Maps 1
Tue  11/19  Lab 10 Geologic Structures and Maps 2
Tue  11/26  Lab 11 Geologic Structures and Maps 3, EXAM 2 (TAKE HOME)

December
Tue  12/03  TA available to all students for Q&A Exam 2
Tue  12/10  EXAM 2 DUE

Drafting Supplies
The lab exercises (and partially the lectures) will require the use of some basic drafting supplies. The following is a list of what is needed. Please bring these items with you to each session.

- Mechanical pencil, lead size of 0.5 mm or finer
- Eraser
- Colored pencils (at least six colors)
- 12” ruler with mm markings
- Protractor (we can provide some)
- Calculator

Listservs
Listservs you may find interesting are:
geolstu-list@sci.tamucc.edu  Geology listserv
eescistu-list@sci.tamucc.edu  Environmental Sciences listserv