Lecture Syllabus

**Text:** Physical Geology - The Science of Earth by Charles Fletcher (2011); John Wiley & Sons. Inc. ISBN: 978-0-471-22037-4

**Class Meetings:** Tue/Thu 12:30 a.m. – 01:45 p.m., EN 106

**Office Hours:** Tue/Thu 11:00 am to noon and 2:00 to 3:00 pm, Mon 11:00 am to noon 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 and 1403.331 are part of a learning community, which includes a seminar class.** Our overarching theme for the semester is **“Go Climb a Rock- Becoming an active Learner”**. The seminar class will complement the Geology lecture with an opportunity for students to actively engage in 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
D) Comprehensive Final Exam 100 points
E) Portfolio 100 points
F) Labs: 11 assignments @ 10 points each and 2 exams (140 points) 250 points
Total: 680 points

A perfect score in this course would be to earn all 680 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 = 680-612 points  B = 611-544 points  C = 543-476 points
D = 475-408 points  F <408 points

Extra Credit
You have four opportunities to earn extra credit points.
1. Turn in your completed score card (posted on blackboard) on the day of the final (5 points). This card will help you to keep track of your grades. Record your grades regularly!
2. Points scored on lecture quizzes beyond the 5 quizzes counting towards your grade.
3. (If available) attend a geologic presentation (e.g. the HRI lecture series) and write a one-page summary-- up to 10 points. You may only do this for EC once.
4. Submit (to the instructor) an online resource for the class from the following areas:
   a. Best content/teaching tool
   b. Best study tool
   c. Best visualization
   If accepted you can receive 5 points extra credit for your submission. You can turn in online resources twice, so earn up to 10 points extra credit.

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 generally 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 loose your privilege to make up the missed work. Lecture quizzes will include material covered in previous lectures and from the reading assignments.

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:
  o Application of your newly acquired knowledge to your region
  o How it may affect humans in the region
More details regarding the portfolio will be given in class at the beginning of the semester. Close to the end of the semester, you will have a complete portfolio, which must be turned in for grading on November 20th, 2014. 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/Civility
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.

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.

Academic Integrity/Plagiarism
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.) Cheating will not be tolerated and will result in a failing grade in the course and possible further disciplinary action by the university. Please keep this in mind in particular when working on your portfolio.

Notice to Students with Disabilities and Veterans
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 or visit Disability Services at (361) 825-5816 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.

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 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 (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.

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 7, 2014 is the last day to drop a class with an automatic grade of “W” this term.

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.

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.

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>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 28</td>
<td>First class day</td>
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<tr>
<td>Sept 18</td>
<td>Exam 1</td>
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<tr>
<td>Oct 23</td>
<td>Exam 2</td>
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<tr>
<td>Nov 20</td>
<td>Portfolio due</td>
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<tr>
<td>Nov 20</td>
<td>Exam 3</td>
</tr>
<tr>
<td>Nov 27</td>
<td>Thanksgiving holiday</td>
</tr>
<tr>
<td>Dec 2</td>
<td>Last day of class</td>
</tr>
<tr>
<td>Dec 9</td>
<td>Final (11 am to 1:30 pm)</td>
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</tbody>
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Lecture Schedule

August
Thu  08/28  Lab Safety Lecture; Chapter 1: An Introduction to Geology and the “Big Ideas of Earth Sciences”

September
Tue  09/02  Chapter 2: Solar System
Thursday 09/04: Chapter 3: Plate Tectonics
Tuesday 09/09: Chapter 3 cont.
Thursday 09/11: Chapter 12: Earthquakes
Tuesday 09/16: Chapter 12 cont.
Thursday 09/18: **EXAM 1**
Tuesday 09/23: Chapter 4: Minerals
Thursday 09/25: Chapter 4 cont., The Rock Cycle, Chapter 5: Igneous Rocks
Tuesday 09/30: Chapter 5 cont.

**October**

Thursday 10/02: Chapter 6: Volcanoes
Tuesday 10/07: Chapter 6 cont.
Thursday 10/09: Chapter 7: Weathering
Tuesday 10/14: Chapter 8: Sedimentary Rocks
Thursday 10/16: Chapter 8 cont.
Tuesday 10/21: Chapter 9: Metamorphic Rocks
Thursday 10/23: **EXAM 2**
Tuesday 10/28: Chapter 11: Mountain Building
Thursday 10/30: Chapter 11 cont.

**November**

Tuesday 11/04: Oil Spills, Ethics and Society; Chapter 10: Geologic Resources
Thursday 11/06: Chapter 10 cont.
Tuesday 11/11: Chapter 10 cont.
Thursday 11/13: Chapter 16: Global Warming
Tuesday 11/18: Chapter 16 cont.
Thursday 11/20: **EXAM 3**
Tuesday 11/25: First Year Celebration??
Thursday 11/27: Thanksgiving Holiday (no classes)

**December**

Tuesday 12/02: Chapter 17 Paleoclimatology (17. 5-10) (last day of class)
Thursday 12/09: Comprehensive final exam (11:00 a.m. to 01:30 p.m.)

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**Laboratory Syllabus**

**Lab Time and Place:**
- 341: Tue 09:00-10:50 am, CS 226
- 340: Tue 01:00-02:50 pm, CS 226
- 002: Thu 04:00-05:50 pm, CS 226
- 003: Thu 02:00-03:50 pm, CS 226
- 004: Thu 10:00-11:50 am, 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 CLASS 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>
<thead>
<tr>
<th>Evaluation</th>
<th>Points</th>
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<tbody>
<tr>
<td>Lab Performance</td>
<td>110</td>
</tr>
<tr>
<td>Exam 1</td>
<td>80</td>
</tr>
<tr>
<td>Exam 2 (Take-home)</td>
<td>60</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>250</strong></td>
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</table>

**Grade Assignment:**
See Course description

**Lab Policies:**
See above and course description

**Important Dates**

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 02/04</td>
<td>Labs begin</td>
</tr>
<tr>
<td>Oct 28/30</td>
<td>Exam 1</td>
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<td></td>
<td>Dec 2</td>
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<td></td>
<td>Exam 2 due</td>
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<td>Last lab meeting</td>
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**Lab Schedule**

**September**

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<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Lab</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Tue</td>
<td>09/02</td>
<td>1</td>
<td>Syllabus, Lab safety, Basics: Math and Physics</td>
</tr>
<tr>
<td>Thu</td>
<td>09/04</td>
<td>1</td>
<td>Syllabus, Lab safety, Basics: Math and Physics</td>
</tr>
<tr>
<td>Tue</td>
<td>09/09</td>
<td>2</td>
<td>Plate Tectonics</td>
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<tr>
<td>Thu</td>
<td>09/11</td>
<td>2</td>
<td>Plate Tectonics</td>
</tr>
<tr>
<td>Tue</td>
<td>09/16</td>
<td>3</td>
<td>Minerals</td>
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<tr>
<td>Thu</td>
<td>09/18</td>
<td>3</td>
<td>Minerals</td>
</tr>
<tr>
<td>Tue</td>
<td>09/23</td>
<td>4</td>
<td>Igneous Rocks</td>
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<tr>
<td>Thu</td>
<td>09/25</td>
<td>4</td>
<td>Igneous Rocks</td>
</tr>
<tr>
<td>Tue</td>
<td>09/30</td>
<td>5</td>
<td>Sediments, Sedimentary Structures, and Sedimentary Rocks</td>
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**October**

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<tr>
<th>Day</th>
<th>Date</th>
<th>Lab</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Thu</td>
<td>10/02</td>
<td>5</td>
<td>Sediments, Sedimentary Structures, and Sedimentary Rocks</td>
</tr>
<tr>
<td>Tue</td>
<td>10/07</td>
<td>6</td>
<td>Metamorphic Rocks</td>
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<tr>
<td>Thu</td>
<td>10/09</td>
<td>6</td>
<td>Metamorphic Rocks</td>
</tr>
<tr>
<td>Tue</td>
<td>10/14</td>
<td>7</td>
<td>Rocks of Texas, Introduction to Geologic Maps</td>
</tr>
<tr>
<td>Thu</td>
<td>10/16</td>
<td>7</td>
<td>Rocks of Texas, Introduction to Geologic Maps</td>
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<tr>
<td>Tue</td>
<td>10/21</td>
<td>8</td>
<td>Topographic Maps</td>
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<tr>
<td>Thu</td>
<td>10/23</td>
<td>8</td>
<td>Topographic Maps</td>
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<tr>
<td>Tue</td>
<td>10/28</td>
<td></td>
<td><strong>EXAM 1</strong></td>
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<tr>
<td>Thu</td>
<td>10/30</td>
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<td><strong>EXAM 1</strong></td>
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**November**

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<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Lab</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Tue</td>
<td>11/04</td>
<td>9</td>
<td>Geologic Structures and Maps 1</td>
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<tr>
<td>Thu</td>
<td>11/06</td>
<td>9</td>
<td>Geologic Structures and Maps 1</td>
</tr>
<tr>
<td>Tue</td>
<td>11/11</td>
<td>10</td>
<td>Geologic Structures and Maps 2</td>
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<tr>
<td>Thu</td>
<td>11/13</td>
<td>10</td>
<td>Geologic Structures and Maps 2</td>
</tr>
<tr>
<td>Tue</td>
<td>11/18</td>
<td>11</td>
<td>Geologic Structures and Maps 3, <strong>EXAM 2 (TAKE HOME)</strong></td>
</tr>
<tr>
<td>Thu</td>
<td>11/20</td>
<td>11</td>
<td>Geologic Structures and Maps 3, <strong>EXAM 2 (TAKE HOME)</strong></td>
</tr>
<tr>
<td>Tue</td>
<td>11/25</td>
<td></td>
<td>TA available to all students for Q&amp;A Exam 2</td>
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</table>
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
Listserves you may find interesting are:
geolstu-list@sci.tamucc.edu  Geology listserv
escistu-list@sci.tamucc.edu  Environmental Sciences listserv