ENSC 134B  Science of the Earth Environment, Fall 2015
M,W 3:10-4:25 PM
Instructor: Dr. William Fenner

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Office Hours: MW 10:00-3:00

The Department of Environmental Studies at the University of St. Thomas offers degree programs in environmental science (BS), and environmental policy and management (BA). The BS degree in Environmental Science has a distinct emphasis in natural and physical sciences, and the BA program in Environmental Studies has a distinct emphasis in social sciences. A joint-majors option is available that combines the BA degree program in Environmental Studies with Communication, International Studies and Political Science. Pending administration approval, an urban studies emphasis for either Environmental Science majors or Environmental Studies majors will be available. A minor program is also available for non-majors who wish to add an interdisciplinary focus to their major. See your instructor for more details or visit our website at www.stthom.edu/environmental_studies

Course Description:

The course will begin with an introduction into environmental geology including a brief account of the origin of the earth, the solar system and the universe. After the introduction, the course will focus on earth materials and structure beginning with minerals. A brief introduction into chemical terminology will be made prior to the explanation of the physical properties and classification of minerals. The three major rock types (igneous, sedimentary and metamorphic) will be introduced, their origin explained, and their physical characteristics outlined. After earth materials, the earth’s internal structure and the principles of plate tectonics will be considered.

The second major segment of the course will be earth processes. Earth processes will include subject matter concerning earthquakes and earthquake hazards, volcanic activity and hazards, rivers and flooding, and mass wasting including landslides, karst collapse and subsidence. We will also discuss planning for the mitigation of hazards stemming from natural earth processes.

The major segment will be largely dedicated to earth resources and pollution. Included in this segment will be discussions of water, mineral, energy resources, pollution and soils.

<table>
<thead>
<tr>
<th>Class Period</th>
<th>Subject(s)</th>
<th>Chapter(s)</th>
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<tbody>
<tr>
<td>8/24 -- 8/26</td>
<td>Introduction To Environmental Geology, First Principles</td>
<td>1</td>
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<tr>
<td>8/31-- 9/2</td>
<td>Internal Structure of the Earth, Plate Tectonics</td>
<td>2</td>
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<tr>
<td>9/7 -- 9/9</td>
<td>Labor Day, Minerals</td>
<td>3</td>
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<tr>
<td>9/14 -- 9/16</td>
<td>Igneous, Sedimentary and Metamorphic Rocks</td>
<td>3</td>
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<tr>
<td>9/21 -- 9/23</td>
<td><strong>Exam 1</strong>, Introduction to Natural Hazards</td>
<td>4</td>
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<tr>
<td>9/28 – 9/30</td>
<td>Earthquake Hazards</td>
<td>5</td>
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<td>10/5--10/7</td>
<td>Mass Wasting</td>
<td>8</td>
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<td>10/12--10/14</td>
<td>Mid Semester Break, Mass Wasting</td>
<td>8</td>
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<tr>
<td>10/19 --10/21</td>
<td>Coastal Processes and Hazards</td>
<td>8, 9</td>
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<tr>
<td>10/26—10/28</td>
<td>Coastal Processes and Hazards, Water Resources</td>
<td>9, 10</td>
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<tr>
<td>1/31</td>
<td>Field Trip</td>
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<tr>
<td>11/2-11/4</td>
<td><strong>Exam 2</strong>, Water Resources, Water Pollution</td>
<td>10, 11</td>
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<td>11/9--11/11</td>
<td>Mineral Resources</td>
<td>12</td>
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<td>11/16-11/18</td>
<td>Energy Resources</td>
<td>13</td>
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<td>11/23—11/25</td>
<td>Soils, Thanksgiving</td>
<td>14</td>
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<tr>
<td>11/30-12/7</td>
<td>Review</td>
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<tr>
<td>12/14</td>
<td>Final Exam 1:45-4:15 PM</td>
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Final Examination  12/14/15  1:45-4:15 PM

Learning Goals

This course attempts to give the student a basic content knowledge relating to our understanding of the earth, its composition and processes. This will be accomplished by instruction in the following subject areas:

1. The historical development of our understanding of the universe, solar system and our planet.
3. The origin of igneous, sedimentary and metamorphic rocks and their classification.
4. Plate tectonics, types of plate boundaries and the processes that occur at plate boundaries, structural geology
5. Earth processes and natural hazards including earthquakes, volcanoes, rivers and flooding, mass wasting and coastal processes
6. Resources and pollution including water resources and pollution, mineral resources and environmental issues surrounding them, energy resources, soils and air pollution

Text:


Calendar - Assignments and Due Dates:

1. Exam 1                              September 21, 2015
2. Exam 2                              November 2, 2015
3. Final Examination                   December 14, 2015
4. Field Trip Report/Paper            December 1, 2015

Computation of Grades:

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<tbody>
<tr>
<td>Exam 1</td>
<td>9/21/15</td>
<td>25%</td>
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<tr>
<td>Exam 2</td>
<td>11/2/15</td>
<td>25%</td>
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<tr>
<td>Final</td>
<td>12/14/15</td>
<td>25%</td>
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<tr>
<td>Field Trip/Paper</td>
<td>12/1/15</td>
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Grading Scale:

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<tbody>
<tr>
<td>93-100 A</td>
<td>80-82 B-</td>
<td>67-69 D+</td>
</tr>
<tr>
<td>90-93 A-</td>
<td>77-79 C+</td>
<td>60-66 D</td>
</tr>
<tr>
<td>87-89 B+</td>
<td>73-76 C</td>
<td>59 and lower F</td>
</tr>
<tr>
<td>83-86 B</td>
<td>70-72 C-</td>
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Expectations of Students:

Academic Dishonesty:
“The penalty for an incident of academic dishonesty is, at the discretion of the professor, either a mark of zero for the work in question or the grade of “F” for the course. A student guilty of two incidents of academic dishonesty will be dismissed from the university.” Undergraduate Catalog

Turning in Assignments and the Final Examination: Students must submit all major assignments in order to take the final examination. Failure to complete the course (by not turning in assignments) will result in failure of the course.

Tests: The class tests will include true /false, matching and short essay questions. Tests will not be given early. Students missing scheduled tests will make up these tests at the end of the semester.

Participation: Class participation is an important part of the learning process. Variations in points of view are encouraged and will be treated with respect.

Operating Rules:

Attendance: Attendance is very important in this course. Because of this, students will be allowed four absences throughout the semester. Attendance will be taken at the beginning of each class. Any student entering the classroom after attendance will be responsible for informing the professor after class. Once the professor has left the classroom, anyone not on the roll for the day will be counted absent. After the fourth absence, will incur a one point penalty on the final grade for each absence.
Absences: NO EXAMS WILL BE GIVEN EARLY. Students may make up ONE exam missed during the last full week of classes. The makeup exam will contain 10 essay questions over the material covered on the missed exam. It will be the responsibility of the student to schedule a time with the testing center for the makeup exam.

Papers for Submission:

Papers may not be submitted for credit in this course if they have been previously used for grading purposes in other courses.

Field Trip / Paper Option

You will be given the option of either attending a field trip on October 23 or writing a term paper that will be due December 10th. You will be asked to make a decision by September 10.

The Trip:
When: October 30, 2015
Leaving: 9 AM, Saturday, October 31 (Approximate)
Returning: 5 PM, Saturday, October 31 (Approximate)

Where: Buffalo Bayou, Braes Bayou, Willow Bayou Flood Remediation Project

What: Looking at sites providing examples of coastal changes, human impact on natural and urban flooding and flood control.

What will be expected of you:

Field Trip Log
For Each Locality:
  a. Locality Description
  b. Basic sketch or photo of locality
  c. Description of locality’s importance

Transportation: Since this trip is local, we will carpool. Distance from Saint Thomas will not exceed 10 miles.

Grade: The field trip grade will be based upon participation (20%), the field trip logs (80%)

The Paper (The Paper will not be returned)

Length:
- 3 to 4 pages, single spaced
- 5 sources minimum, only two of which can be texts
- Must be at least six pages of text.

Due Date: The paper is due at the time of the final exam. Electronic submission is preferred.

*If the paper is not turned in by 5 PM December 1st, you will receive no credit for this portion of the course.

Grading:
A. Content 30pts.
B. Completeness 20pts.
C. Figures 10 pts.
D. Bibliography 10 pts.
E. Spelling and Grammar 15 pts.

Use of Internet Resources
Students may not use Internet resources until certified by a member of the department faculty in terms of what may be used, where and how to cite the sources of this information, and how to judge what is allowable and what is not.

Common Course Requirements for the Department of Environmental Studies

The following requirements are the minimum requirements for this level of course, faculty members may make additional requirements above those specified below. Unless otherwise specified, students are to use a 1” margin for all papers and no font size greater than 12 point.

Introductory courses in Geology and Environmental Studies will, in addition to tests and a comprehensive final examination, require the attendance of a field trip or the completion of a paper related to course content. The minimum page requirement for the paper equivalent to the field trip is 3-4 pages, all of which must be text (single-spaced). Papers submitted
for freshman level courses will be graded for spelling and grammatical errors, in addition to content. If there are more than 10 grammatical/spelling errors, the student will automatically lose 15 points on the paper. Students have the opportunity to submit papers three weeks before their final deadline for a “reading” so that they have a chance to make changes before submitting the paper for a grade.

**Information for Students with Disabilities**

- Any student with a documented disability needing academic accommodations is requested to speak with me as early as possible. All discussions will remain confidential. Students with disabilities will also need to contact Counseling and Disability Services in Crooker Center. This office can be reached at (713) 525-2169 or 6953.

- Any student with a disability requiring accommodations in this course is encouraged to contact me after class or during office hours. Additionally, students will need to contact Counseling and Disability Services in Crooker Center. This office can be reached at (713) 525-2169 or 6953.

- If you have a documented disability that will impact your work in this class, please contact me to discuss your needs. Additionally, you will need to register with the Counseling and Disability Services Office in Crooker Center. This office can be reached at (713) 525-2169 or 6953.