CE 3335/GEOL 3321 - Geology for Engineers - Spring 2009

Lectures: Mon., Weds. 9:30-10:20 AM, GEOL 123

Labs: Monday 1:30-4:20 PM, Rooms 210, 216 and 218, Wednesday 1:30-4:20 PM, Room 218, Geology Building

Instructors:
Dr. Diane Doser (lecture) Geology 307, 747-5851, email: doser@utep.edu
Office Hours: Mon., Weds. 10:30-11:20 or by appointment
Christian Escudero, Brian Eslick and Oscar Romero de la Cruz (labs) (office hours Monday 11:30-12:30, Tues., Weds., Fri. 9:30-10:30 AM, room 306B, 3rd floor, geology building), 747-6549, email: frogsrain@gmail.com, beeslick@miners.utep.edu, omromero@miners.utep.edu


Supplemental lecture material and lab manual are available at: www.geo.utep.edu/pub/doser/engineergeo

Goal: To introduce engineering and environmental applications of geology and geophysics to engineering students. To provide a foundation in geology, so that students will be able to talk knowledgeably with geologists and geophysicists or read geological reports that are pertinent to engineering projects. Emphasis in laboratories will be placed on practical engineering problems that require the use of geology and geophysics.

Course Outline (lectures)

Plate Tectonics (Chapter 1 and supplements)
Minerals (Chapter 2)
Rock Cycle, Igneous Rocks, Volcanic Hazards (Chapters 3 and 5)
Sedimentary Rocks (Chapter 4)
Metamorphic Rocks (Chapter 5)
Rock Properties (Chapter 6)
Soils (Chapter 7)
Weathering (Chapter 8)
Geologic Time (Chapter 9)
Structural Geology (Chapter 10)
Geophysics, Earthquakes (Chapter 18)
Rivers (Chapter 11)
Groundwater (Chapter 15)
Arid Processes (Chapter 17)

Field trip (optional for extra credit): Tuesday, March 31 (Cesar Chavez Day, UTEP holiday) – an option of writing a paper on the geology of El Paso will be available those who cannot make the trip but would like extra credit

In-class exams: February 18 (Weds.)
March 25 (Weds.)

Final exam: May 13 (Weds.) 10-12:45
Other important dates: Spring Break March 16-20, Cesar Chavez Day March 31, Good Friday holiday April 10, last day for student to drop class is April 3, Dead Day is May 8 (I will likely have a review for the final exam this day)

Grading:

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<tr>
<td>In-class exams</td>
<td>30%</td>
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<td>Quizzes, homework</td>
<td>15%</td>
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<td>Laboratories, including project</td>
<td>35%</td>
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<td>Final Exam</td>
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Exam policy: If you miss an exam for any reason you must contact Dr. Doser within 24 hours of the exam.

Attendance: I will not take attendance in lecture, but will give quizzes about once a week over reading assignments. They cannot be made up (I will drop the lowest 2 quiz scores). Since the lecture covers material about the local geology NOT found in the book it is important to come to class.

In order to pass this course, you are expected to attend the labs. If you miss more than two labs and do not make them up within one week of the absences, you may be withdrawn, with a grade of either W or F. If you miss a lab, it is your responsibility to learn the material, since it will be on the tests.

Goals for Knowledge:
- be able to converse with a geologist/geophysicist
- be able to read geologic/geophysical reports
- know basic rock types and the properties of these rocks that an engineer may be concerned with
- understand surface geologic processes and how they affect engineering studies
- understand internal geologic processes (e.g. faults, earthquakes, volcanoes) and how they affect engineering studies
- know how geophysics is used in engineering site investigation

Goals for Skills:
- learn to read topographic and geologic maps
- locate yourself on a map or aerial photograph
- be able to construct topographic and geologic cross sections
- be able to predict properties of a rock by how it appears in hand sample/outcrop
- conduct simple geophysical surveys

There will be a final project in the course that will be worth 25% of your lab grade (~9% of total course grade). The project will involve analyzing data, constructing figures, working in a group, and making a presentation - all things you will be expected to do as engineers. The project will demonstrate how geology is used by engineers to solve a practical problem.

Academic Honesty and other issues: The Geological Sciences Department has gone to great lengths in order to make learning the material easier than engaging in scholastic dishonesty, which is defined in the UTEP Student Handbook and also at http://www.utep.edu/dos. Proven violations of these detailed regulations may result in any of the consequences outlined in the Student Handbook. Cellular phones and pagers are to be turned off or placed in silent mode during class. Conducting telephone conversations or extensive text messaging during class time may result in disciplinary action. Laptops may be used to take
notes, but should not be used to surf the web, write emails, or other non-class related activities. On days of exams or quizzes you must put away all cell phones, pagers and laptops prior to the start of the exam/quiz.