HISTORICAL GEOLOGY, GEOL 1404-05, SPRING 2018
TR 9:30-10:45a
Room: VIN-139

Professor: James W. Ward, Ph.D., P.G.
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Office hours: Monday, Wednesday, Friday 9:15-10:00a, Tuesday &Thursday 11:00-12:15, Monday 1:00-3:00. Or contact me to set up an alternate time to meet

Texts:
• Earth System History, Fourth Edition, by Steven M. Stanley
• ASU Historical Geology Lab Manual, by Heather L. Lehto (purchase from ASU bookstore)

Grading:
• 2 exams (13% each)
• 2 lab quizzes (10% each)
• 2 homework assignments (3% each)
• 10 graded lab projects (3% each)
• 1 comprehensive final exam (18%)

• 1 Extra Credit Project (+ 0 - 5%), Brief, illustrated report about a Historical Geology topic that you choose. Detailed instructions will be distributed in class after Exam 1.
• 1 optional field trip project, replaces your lowest lab project or homework assignment grade. See field trip descriptions on page 2.

Attendance Policy
You are expected to attend every class meeting. Attendance will be recorded each day. We will discuss many topics of Texas and western North America geology that are not in the textbook. If you must miss class or lab, contact Dr. Ward for help in obtaining assignments or notes.

Course Web pages
http://blackboard.angelo.edu contains lecture slides, practice problems, web links to scenic areas mentioned in class and lab, answers to lab assignments and class projects, and your official grades.

Field Trips
On field trips you will get a chance to apply concepts discussed in class to describe and interpret outcrops of rocks, fossils, and sediments. We will go on 2 required field trips during lab time (see course schedule for dates). You are responsible for getting to the field trip locations. You will be provided with detailed information before each trip. Contact your lab instructor if you need a ride!

On optional weekend trips we will travel in university vans and most expenses will be covered.

1) Saturday, February 17: Girl Scout STEM Conference for Middle School and High School young women, various rooms and labs on ASU campus. Some volunteer opportunities on Friday, February 16. Leaders: Heather Lehto
2) Saturday April 7??, Waco Mammoth Quarry National Monument??

3) Saturday, May, 5: Rocker B Ranch field trip. Learn W. Edwards Plateau geology and collect fossils at the historic Rocker B Ranch outside Mertzon and Barnhart. Leaders: Dennis Webb, James Ward, Joe Satterfield,

4) Weeknights to be announced: Elementary School Science Nights. Share fossils, rocks, compasses, photos, and maps with interested elementary school students and their parents. Pizza is typically provided.

Notes:
No late assignments. Lab and homework assignments cannot be turned in after graded assignments are returned and answers are posted!

Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is contained in print and web versions of the Student Handbook.

Persons with disabilities which may warrant academic accommodations must contact the Student Life Office, Room 112 University Center, in order to request such accommodations prior to any accommodations being implemented. You are encouraged to make this request early in the semester so that appropriate arrangements can be made.

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

Student learning objectives

1) To practice problem-solving techniques used to interpret the history of Earth. Many of these are applicable to other fields and to everyday life. Problem-solving techniques that you will practice:
   a. Using multiple working hypotheses
   b. Being skeptical: look for ways to test hypotheses
   c. Making sketches: they help in visualizing the world in three dimensions
   d. Quantifying events and processes by using mathematics
   e. Applying the Principle of Uniformitarianism
   f. Working together to get as much practice or experience as you can
   g. Carefully defending your thinking when answering questions.

2) To find out about major events in Earth history over the last 5 billion years, including the appearance of diverse living things, changes in climate, and the rise of mountains

3) To recognize, and make interpretations from, common rock types, fossils and landforms present in West Texas and western North America
Learning objectives 1 – 3 will be evaluated by grades on exams, lab projects, lab quizzes, and homework
Core-course learning objectives

1) Critical Thinking Core Objective, SLO1: Students will be able to state a question, gather information, collect and analyze data, identify assumptions, develop hypotheses, and evaluate results to arrive at an answer to a question.

2) Communication Core Objective, SLO2: Students will be able to represent, organize, format, and display data and information visually.

SLO1 will be evaluated by Lab Quiz 1 (Describing Rocks) scores. SLO2 will be evaluated by scores on Lab 3 (Stratigraphic column of rocks in the Concho River Valley).

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<thead>
<tr>
<th>Week</th>
<th>Lecture/Discussion topics</th>
<th>Lab</th>
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<tbody>
<tr>
<td>I: 1/16, 1/18</td>
<td>Earth as a System (Ch 1) Principles of Steno The geologic time scale How to recognize, evaluate results of science</td>
<td>LABS DO NOT MEET (MLK HOLIDAY ON MONDAY)</td>
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<td>II: 1/23, 1/25</td>
<td>Describing sedimentary rocks (Ch 2) The diversity of life and fossils (Ch 3)</td>
<td>1: Rock-forming minerals</td>
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<td>III: 1/30, 2/1</td>
<td>Sedimentary Environments (Ch 5) Transgressions and regressions</td>
<td>2: Sedimentary rocks: Describing and interpreting sedimentary environments (Lab Manual, p.)</td>
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<td>IV: 2/6, 2/8</td>
<td>Correlation and Dating of the Rock Record (Ch 6) Project: Ordering geologic events Project: Correlating strata 2/8: HOMEWORK ASSIGNMENT 1 DUE</td>
<td>3: Stratigraphic column of rocks in the Concho River Valley (Lab Manual p.)</td>
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<td>VI: 2/20, 2/22</td>
<td>Evolution and the Fossil Record (Ch7) Project: Bird beak contest</td>
<td>5: FIELD TRIP 1 - Permian trackways in San Angelo State Park (Lab Manual p.) LAB 5 DUE AT END OF TRIP</td>
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<td>VII: 2/27, 3/1</td>
<td>Hadean, Archean Eons of Precambrian (Ch 11) Proterozoic Eon of Precambrian (Ch 12) Project: Interpreting Llano uplift geologic maps</td>
<td>Review all rocks in lab Practice Quiz on describing rocks</td>
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<td>VIII: 3/6, 3/8</td>
<td>First land vertebrates (Ch 14) Late Paleozoic mountain-building, reefs in W. Texas (Ch 15)</td>
<td>LAB QUIZ 1: DESCRIBING ROCKS (Labs 1, 2, 4, and 5)</td>
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<tr>
<td>Date Range</td>
<td>Event Description</td>
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<td>3/12 – 3/16</td>
<td>SPRING BREAK – GET OUTSIDE</td>
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<td>X: 3/27, 3/29</td>
<td>The Early Mesozoic Era (Ch 16) 7: Paleozoic fossils (Lab Manual p.)</td>
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<td>XIII: 4/17, 4/19</td>
<td>The Cretaceous World (Ch 17) Dinosaur extinction hypotheses and tests The rise of the Rocky Mountains</td>
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<td>XIV: 4/24, 4/26</td>
<td>Cenozoic volcanoes in West Texas The Pleistocene Epoch: the first humans, Ice Ages, and woolly mammoths (Ch. 18, 19) Review all fossils in lab Practice Quiz on fossils</td>
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<td>XV: 5/1, 5/3</td>
<td>Dead Week Review of Historical geology problem-solving techniques Review project: 3-D Images of active Faults in Basin and Range and California Review Project: constructing thickness map Review Project: Grand Canyon Seq. of Events LAB QUIZ 2: FOSSILS (Labs 6, 7, 8, 9, and 10)</td>
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<td>XVI: 5/10: 8:00 – 10:00 a</td>
<td>FINAL EXAM Lab does not meet</td>
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