GEOL 1404: Historical Geology
4 credits
Spring 2019

Sect. 20: MWF 11:00 am - 11:50 am VIN 139
Sect. 40: TR 11:00 am - 12:15 pm VIN 139
Lab Sect. 07Z: T 1:00 - 2:50 pm VIN 139
Lab Sect. 08Z: T 3:00 - 4:50 pm VIN 139
Lab Sect. 09Z: R 1:00 - 2:50 pm VIN 139

Instructor: Dr. Elizabeth C. Koeman-Shields
Office: VIN 124
Phone: 325-486-6767 (office)
Email: ekoemanshields@angelo.edu

Office Hours: MW 1:00 pm - 4:00 pm and T 9:00 am – 11 am, or by appointment

Required Materials:
- ASU email account that you check regularly
- Blackboard course site

GRADING:
- 10 Graded Lab Assignments (3% each) 30%
- 2 Lab Quizzes (10% each) 20%
- 3 Lecture Exams (6% each) 18%
- 1 Final Comprehensive Exam 12%
- Chapter Quizzes (1% each) 10%
  - 13 chapter quizzes (lowest 3 are dropped)
- Daily Attendance 10%
  - There will be no make-ups for daily attendance; however, you will have 3 unexcused absences dropped from your grade.
- Extra Credit Project (+0-5 pts): Brief, illustrated report about a scientific paper on a geology topic of your own choosing. Details to be provided after Exam 1.
- Make-up a single lab grade by participating on an optional field trip and turning in a brief project report.

There will be no make-ups for homework, in-class activities, or quizzes. Make-up exams will be given for tests ONLY under extenuating circumstances. Prior email notification is needed for a make-up exam.

CHAPTER QUIZZES
Chapter quizzes will be given the day we begin a new chapter in class. They will consist of 4-5 questions based on the chapter reading which must be done BEFORE we begin a new chapter. There will be 13 total quizzes given, however the lowest 3 will be dropped. There will be NO makeup quizzes given.
STUDENT LEARNING OUTCOMES:
This course is designed to familiarize the student with the processes, principles, and theories involved in Historical Geology. The student will practice the scientific method, including generating and testing hypotheses, while acquiring knowledge in the history of Earth. The student will also learn and practice how to study and work together and how to carefully defend their thinking when answering questions or participating in a discussion. Learning outcomes will be evaluated by homework, lab assignments, quizzes, and exams. At the end of this course, the student will be able to:

1. Describe how rocks and minerals are formed and classified.
2. Explain what evolution is, including what mechanisms are involved.
3. Describe the current theories of how life might have evolved on Earth, including what experiments have been done to help improve the theory, when life evolved, and what type of organism it was.
4. Explain what the fossil record is and how it can be biased.
5. Explain how the Geologic Time Scale was produced, including how stratigraphic and fossil correlation is used and how the numerical ages were added.
6. Describe the theory of plate tectonics including identifying plate boundaries, describing plate motions at boundaries, and identifying landforms/features associated with each boundary. Describe the early theories that laid the foundation for plate tectonics (continental drift, sea floor spreading).
7. Draw and describe how the several types of organisms lived and changed through time:
8. Explain what sedimentary facies are and how they are used to interpret ancient sedimentary environments.
9. Describe the tectonic changes in North America that occurred throughout time (orogenies, oceans, etc.).
10. Explain what a mass extinction is and describe the causes of the major mass extinctions throughout time.

LECTURE:
A typical class meeting will combine mini-lectures, discussions, group activities, multimedia presentations, and other demonstrations and activities to give you an opportunity to learn concepts in as active a manner as possible.

ATTENDANCE POLICY:
You are expected to attend all scheduled class meetings. Please inform me well ahead of time if you will need to be absent for any reason including religious holidays. NOTE: You are NOT automatically dropped if you stop attending class. March 28th is the last day to drop a course.

CELL PHONES AND OTHER ELECTRONIC DEVICES:
You may use a laptop or tablet to take notes during class. Please do not disturb others with their use. Please keep all electronics on vibrate or silent. The use of any electronic device not
authorized by the instructor during a test may result in the forfeiture of your grade for that test. All electronic devices should be turned off and stored out of sight during tests.

**CORE CURRICULUM STUDENT LEARNING OUTCOMES:**
The following list of core curriculum student learning outcomes will be met and measured during this course:

<table>
<thead>
<tr>
<th>Student Learning Outcome</th>
<th>Assessment Method</th>
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<tbody>
<tr>
<td>1. Gather, analyze, evaluate, and synthesize information relevant to a question or issue.</td>
<td>Lab Quiz 1</td>
</tr>
<tr>
<td>2. Develop, interpret, and express ideas through effective visual communication.</td>
<td>Lab Assignment 3</td>
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</tbody>
</table>

**FIELD TRIPS:**
On field trips you will get a chance to apply concepts discussed in class to describe and interpret outcrops of rocks and sediments. On the optional weekend trips we will travel in university vehicles. No special equipment is required but space is limited! You may go on more than one optional trip, but you can only use one field trip project to replace a single or lab assignment grade. Tentative schedule:

1. Girl Scout STEM Conference: Saturday, March 23: for Middle School and High School young women, various rooms and labs on ASU campus. Some volunteer opportunities on Friday, March 22. Leaders: Heather Lehto, Elizabeth Koeman-Shields
2. Waco Mammoth National Monument: TBA, [Waco Mammoth Information](#) Leaders: Elizabeth Koeman-Shields
3. Art and Science Day at the San Angelo Museum of Fine Art: TBD. Leaders: Heather Lehto, Elizabeth Koeman-Shields
4. Elementary School Science Nights: evenings to be announced. Opportunities for sharing basics of rocks, fossils, and maps with students, their parents, and interested people of all ages.

**CLASS PREPARATION ASU EMAIL:**
Since class announcements will be routinely distributed via email and Blackboard, you will need to regularly check your ASU email account and our course Blackboard site (daily). All course correspondence will be through your ASU email account and Blackboard. Please see the email policy in Bb for more details. ASU provides internet and email services to you at any of the computer labs on campus. Call 942-2911 to set this up if necessary.

**STUDENTS WITH DISABILITIES:**
ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs
or activities of the university, or be subjected to discrimination by the university, as provided by
the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act
Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the
responsibility of reviewing and authorizing requests for reasonable accommodations based on a
disability, and it is the student’s responsibility to initiate such a request by contacting: Ms. Dallas
A. Swafford, Director of Student Disability Services, 325-942-2047

TITLE IX:
Angelo State University is committed to the safety and security of all students. If you or someone
you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or
discrimination, you may contact ASU’s Title IX Coordinator: Michelle Nicole Boone, J.D., Director
of Title IX Compliance, 325-486-6357, michelle.boone@angelo.edu, Mayer Administration
Building 204A.

RELIGIOUS HOLY DAY:
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.

INCOMPLETE GRADE POLICY
It is policy that incomplete grades be reserved for student illness or personal misfortune. Please
contact faculty if you have serious illness or a personal misfortune that would keep you from
completing course work. Documentation may be required. See ASU Operating Policy
10.11 Grading Procedures for more information.

ACADEMIC INTEGRITY:
Students are expected to maintain complete honesty and integrity in all work. Any student found
guilty of any form of dishonesty in academic work is subject of disciplinary action and possible
expulsion from ASU. The College of Science and Engineering adheres to the Statement of
Academic Integrity.

PLAGIARISM:
Plagiarism is a serious topic covered in ASU’s Academic Integrity policy in the Student Handbook.
Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as
one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without
quotation marks and the source of the quotation. It is expected that you will summarize or
paraphrase ideas giving appropriate credit to the source both in the body of your paper and the
reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand
this policy better are available at the ASU Writing Center.
COPYRIGHT POLICY:
Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

GENERAL POLICIES RELATED TO THIS COURSE:
All students are required to follow the policies and procedures presented in these documents:
  1) Angelo State University Student Handbook\textsuperscript{vii}
  2) Angelo State University Catalog\textsuperscript{viii}

GEOLOGIC EXHIBITION ORGANIZATION (GEO):
GEO, the student organization of all interested in geology (not just majors/minors), meets almost every Wednesday @ 6:00PM. GEO is a student chapter of the American Association of petroleum Geologists (AAPG\textsuperscript{ix}). Sigma Gamma Epsilon, the national honor society of the earth sciences is related to GEO.

YOU CAN MAJOR OR MINOR IN GEOLOGY @ ASU!
See the BS in Geoscience requirements\textsuperscript{x}. A Geology Minor requires 18 hours of geology courses. Good and rewarding careers exist for geologists, geophysicists, hydrogeologists, secondary science teachers, and petroleum engineers. Talk to your professor and read information about geoscience careers\textsuperscript{xi}.

FINAL NOTE:
It is my goal to make this class both interesting and informative for you. With a reasonable amount of effort, it should be possible for everyone to meet the course objectives and earn a passing grade. With additional effort, aptitude, and investment of time, students may earn even higher course grades. If at any time you run into difficulties with the material, or need assistance or clarification, please do not hesitate to ask for help. I am here for you, and I will be glad to entertain any reasonable requests.

\textsuperscript{i} http://blackboard.angelo.edu
\textsuperscript{ii} https://www.nps.gov/waco/index.htm
\textsuperscript{iii} https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
\textsuperscript{iv} http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
\textsuperscript{v} http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
\textsuperscript{vi} http://www.angelo.edu/dept/writing_center/academic_honesty.php
\textsuperscript{vii} http://www.angelo.edu/student-handbook/
\textsuperscript{viii} http://www.angelo.edu/catalogs/
\textsuperscript{ix} http://www.aapg.org
\textsuperscript{x} https://www.angelo.edu/physics/geoscience_degree.php
\textsuperscript{xi} http://www.angelo.edu/dept/physics/Geosciences/geoscience Careers.php
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topics</th>
<th>Assigned Reading</th>
<th>Lab Exercises and Assigned Readings</th>
</tr>
</thead>
</table>
| #1: 1/14 – 1/18 | Syllabus and Introductions  
Exploring Earth  
Minerals and Rocks                  | Chapter 1  
Chapter 2     | 1: Rock-forming minerals  
Lab Manual Chapter 1 |
| #2: 1/22 – 1/25 | Geologic Time                              | Chapter 1  
Chapter 2     | No labs this week!  
(MLK Holiday Monday) |
| #3: 1/28 – 2/1  | Sedimentary Rocks  
Sed. Environments  
Diversity of Life and  
Fossils                      | Chapter 5  
Chapter 3     | 2: Sedimentary rocks: Describing &  
interpreting sedimentary  
environments  
Lab Manual Chapter 2 |
| #4: 2/4 – 2/8   | Correlation and Dating of Rocks  
Exam #1: Chapters 1-3, 5               | Chapter 6     | 3: Stratigraphic column of rocks in  
Concho River Valley  
Lab Manual Chapter 3 |
| #5: 2/11 – 2/15 | Correlation and Dating of Rocks            | Chapter 6     | 4: Igneous and metamorphic rocks  
Lab Manual Chapter 4 |
| #6: 2/18 – 2/22 | Evolution and the Fossil Record  
Plate Tectonics                   | Chapter 7  
Chapter 8     | 5: FIELD TRIP 1 - Permian trackways,  
San Angelo State Park  
Lab Manual Chapter 5 |
| #7: 2/25 – 3/1 | Mountain Building  
Hadean, Archean Eons of  
Precambrian                     | Chapter 9  
Chapter 11    | Review and practice for Lab Quiz |
| #8: 3/4– 3/8   | Proterozoic Eon of  
Precambrian                     | Chapter 12    | LAB QUIZ 1: Describing Rocks  
(Labs 1, 2, 4, 5) |
| #9: 3/11– 3/15 | SPRING BREAK                             |                  |                                    |
| #10: 3/18– 3/22 | The Early Paleozoic                      | Chapter 13     | 6: Paleogeographic maps  
Lab Manual Chapter 6 |
| #11: 3/25– 3/29 | Middle Paleozoic                         | Chapter 14     | 7: Fossils, Keys to Past Life  
Lab Manual Chapter 7 |
| #12: 4/1– 4/5   | Late Paleozoic Reefs in West Texas        | Chapter 15     | 8: More Common Texas Fossils  
Lab Manual Chapter 8 |
| #13: 4/8– 4/12  | The Early Mesozoic Era  
Exam #3 Chapters 11-15              | Chapter 16     | 9: FIELD TRIP 2: Fossil Localities near  
Christoval  
Lab Manual Chapter 9 |
| #14: 4/15– 4/19 | Cretaceous Dinosaur Extinction             | Chapter 17     | 10: Paleo-Geoenvironments  
Lab Manual Chapter 10 |
| #15: 4/22– 4/26 | Cenozoic Era  
The Pleistocene Epoch          | Chapter 18  
Chapter 19    | Practice for Lab Quiz 2 |
| #16: 4/29– 5/3  | Holocene  
Review and Evals                        | Chapter 20     | LAB QUIZ 2: Fossils  
(Labs 6-10) |
| #17: 5/6– 5/9   | Final Exams                               | 40: T 10:30 am-12:30pm  
20: W 10:30 am-12:30pm  | No labs |
|            |                                             |                  |                                    |