

## GEOL 3302 – Dinosaurs, Volcanoes, and Earthquakes

Fall - 2021

**Section:** 001

**Lecture Times:** T: 6-8:50 pm

**Instructor:** Dr. Tom Shiller

**Office:** WSB 319

**Office Hours:** Tuesday and Wednesday, 2-5:00 pm; Thursday, 3:30-5:00 pm; or by appointment

**e-mail:** thomas.shiller@sulross.edu

### **Course Purpose:**

The course is designed for those with no previous class work in geology, and it cannot be counted by Geology majors for advanced credit. The course covers several of the currently popular topics in geology: who were the dinosaurs; the world of the dinosaur; hot blooded dinosaurs; and mass extinction and the fate of the dinosaurs; meteorites and asteroid impacts. What is an earthquake and what causes them; how big and how many? Where do they occur? Case histories of earthquakes and tsunami, earthquake destructiveness -- can it be controlled? Volcanic deposits and eruptive styles, case histories of volcanoes, volcanism and human affairs.

### **Student Learning Objectives: Each student will demonstrate the ability to:**

Upon completion of this course, students will apply critical reasoning and problem solving skills to: 1. Identify, describe, and apply the basic geologic principles. 2. Analyze processes and settings of volcanoes and earthquakes, and relate associated features. 3. Evaluate evolutionary processes and analyze how the fossil record of dinosaurs is interpreted. 4. Apply basic classification of dinosaurs. 5. Analyze volcanic hazards present in different settings 6. Analyze earthquake hazards in different settings.

### **Grading System:**

Semester grade is based on homework plus three open-book, open-notes exams. Each of the exams counts equally (30%). No electronics are allowed out on the desk during exams.

3 Exams = 90% (30% each); 5 Homeworks = 10% (2% each)

### **Field Trip:**

Depending on COVID restrictions in Big Bend National Park, there may be a one-day field trip offered. The field trip will have a follow-up assignment for extra credit – the field trip is not mandatory.

**Letter Grading:** Final course grade will be based on a percentage of the total points as follows:

90.00-100% = A

80.00-89.90% = B

70.00-79.90% = C

60.00-69.90% = D

Less than 60.00% = F

### **Attendance and Make-up Policy:**

The only acceptable excuses for missing class are those due to illness, approved Sul Ross sanctioned events, and observation of religious holidays. All excused absences **must** be documented on paper. Please inform the professor at least 1 week prior to missing class (e-mail, note on office door, etc....). With an appropriate excuse, you must make up missed quizzes/exams **within 10 days** of the last day of the absence or you have failed to meet your course responsibilities and will receive a zero.

### **Student athletes:**

You are given a full week to return the completed documentation: your progress (attendance and grade) to your coach, so when you present that card to me, I will take it and return it to you the following class period. Alternatively, you can bring it to my listed office hours and I will look up your progress then. I will not complete them at the beginning or end of class. No exceptions.

**Classroom Conduct:**

The Student handbook states under Student Misconduct, number 21, "Such prohibition includes disorderly classroom conduct that obstructs, interferes with, inhibits and/or disrupts teaching and/or classroom activities." Behavior which is included in this category: 1) persistent talking to ones' neighbors during lecture, 2) coming to class late or leaving early, 3) the use of cellular phones or MP3 devices in the classroom. **CELL PHONES MUST BE TURNED OFF IN CLASS.** This includes texting, emailing and social networking. (*If you are a member of an EMS/VFD group or have a child in day care and they must be able to reach you, let me know and we will discuss.*) Offenders of this policy will be asked once to stop and 5 points will be taken from their grade. If it occurs a second time, the offender will be instructed to leave the classroom, and there will be a meeting with the Dean of Student Life. If there are further incidents, UDPS will be called and offenders will be physically ejected from the classroom and will likely be expelled from the University. **CHEATING AND PLAGIARISM WILL NOT BE TOLERATED:** Any student caught cheating on an exam or quiz will receive an automatic **zero** on that assignment. If a student is caught cheating second time, additional disciplinary actions will be taken. Any student plagiarizing information on an assignment will receive an automatic zero for that assignment.

**Students Needing Special Accommodations:**

Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email [rebecca.wren@sulross.edu](mailto:rebecca.wren@sulross.edu). Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

**SRSU Distance Education Statement.**

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

**Tentative Lecture Schedule for the Fall 2021 Semester:**

August 24: Introduction, Review of Geologic Time, and Plate Tectonics

August 31: Intro. To Dinosaurs

September 7: Dinosaurs

September 14: Tracking dinosaurs

September 21: Big Bend Dinosaurs

September 28: Demise of the Dinosaurs

October 5: **FIRST EXAM**

October 12: Volcanoes

October 19: Volcano Hazards

October 26: Volcanoes

November 2: **SECOND EXAM**

November 9: Intro to Earthquakes

November 16: Earthquakes

November 23: **No Class**

November 30: Earthquakes

December 7: **FINAL EXAM**

## SCIENCE STANDARDS

### Earth and Space Science

*Standard X. The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in Earth and space science.*

Upon successful completion of Geol 3302, you will be able to:

- 10.1s describe properties and uses of rocks, soils, water, atmospheric gases, and other Earth materials;
- 10.3s describe forces and processes that change the surface of Earth (e.g., glaciers, earthquakes, weathering);
- 10.8s analyze a variety of Earth cycles (e.g., rock cycle, water cycle, carbon cycle, nitrogen cycle);
- 10.9s analyze and describe how human activity and natural processes, both gradual and catastrophic, can alter Earth systems;
- 10.15s analyze the processes that power the movement of Earth's continental and oceanic plates;
- 10.16s identify and analyze the effects of plate movement, including faulting, folding, earthquakes, and volcanic activity;
- 10.18s analyze a given landform to understand its history (e.g., weathering, tectonism);
- 10.22s classify rocks according to how they are formed during the rock cycle;
- 10.23s analyze factors (e.g., temperature, pressure, rate of cooling) that influence the formation of rock types;
- 10.26s analyze the effect of natural events and human activities on the atmosphere;
- 10.27s analyze the role of the Sun as the major source of energy for phenomena on the Earth's surface (e.g., weather, water cycle);
- 10.44s compare and contrast the topography of the ocean floor with the topography of the continents;
- 10.45s evaluate the causes and effects of tides, tidal bores, and tsunamis;
- 10.48s explain how regional changes in the environment may have a global effect;
- 10.53s analyze the relationship between current geologic theories for the origin of Earth and the geologic time scale;
- 10.54s describe and analyze the historical development of the theory of plate tectonics, including continental drift and sea-floor spreading;
- 10.68s analyze the effects of Earth's rotation, revolution, and tilt of axis on its environment.