

GEOL 1303 – Physical Geology

Spring - 2024

Section: 001

Lecture Times: MWF: 12:00-12:50 pm

Room: WSB 101

Instructor: Dr. Tom Shiller

Office: WSB 319

Office Hours: Tuesday and Thursday, 9-11:00 am; Wednesday, 1-3:00 pm; or by appointment

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Tutor: Aubrey Nall

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Materials Required:

Text: Essentials of Geology, 6th edition.

Lab: Laboratory Manual for Physical Geology Laboratory Geology 1103 by Measures and Mattison.

Course Purpose:

Physical geology is defined as a division of geology concerned with Earth materials, changes of the surface and interior of Earth, and the forces that cause those changes. This course serves as a comprehensive overview of these topics of physical geology, as well as an introduction to the science of geology in general.

General Objectives: Each student will develop:

1. Knowledge about the application of the scientific method as a tool for understanding Earth's processes
2. Knowledge about the composition and formation of common rocks and minerals
3. An understanding of the internal and external processes that create Earth's major landforms such as plate tectonics and weathering
4. Ability to identify and interpret structural features in Earth's crust such as faults and folds, and knowledge of the processes responsible for creating such structures.
5. A general knowledge of Earth history and the methods and techniques used to date rocks and geologic events

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

1. Identify and interpret common rocks and minerals
2. Explain different weathering processes and the formation of sedimentary rocks
3. Determine the relative ages of rocks and geologic structures using geologic dating principles
4. Identify and evaluate structural features in Earth's crust such as faults and folds
5. Demonstrate the mechanisms and processes that create earthquakes, and how the location and strength of earthquakes are determined
6. Explain and evaluate the relationship between plate tectonics and the formation of mountains, igneous bodies and earthquake zones

Exams:

There will be four total exams covering sections discussed following the previous exam. These exams will comprise primarily short answer and essay questions. You may **not** use your notes for exams. Special arrangements will need to be made for make-up exams. Exams will be curved at the professor's discretion.

Pop Quizzes:

Four unannounced quizzes will be given during the semester at the beginning of class (so don't be late for class!). These quizzes will cover material from the previous one or two lectures, plus the reading assignment. You may use your own lecture notes that are on paper. (If you take notes on a laptop you can sit in the front of the class where the instructor can see your screen as you use your digital notes.) **No quizzes can be made up.**

Homework:

There will be two take-home assignments given during the semester requiring independent research, critical thinking, and technical writing. Assignments will be given **during class** and will not be available on Blackboard. A due date will be given on the day homework is assigned. Late projects will be accepted at 50% of your earned point value by 5 pm. on the due date (including immediately after class); 25% value by the end of the following day, and

0% after that. Each homework assignment is worth 5% of your total grade. If you are planning on missing class for a Sul Ross sanctioned event or other valid reason, **homework must be turned in early** (prior to the absence).

Presentations: Students will give a 10-minute presentation on an assigned subject in the first month of the semester and near the end of the semester. Students will work in groups and share responsibility for researching the topic assigned and putting together a Power Point slideshow.

Field Trip: There will be a one-day, optional field trip to Big Bend National Park. A short assignment will be given, to be turned in after the trip for extra credit. The date of the trip will be announced later in the semester.

Grading System:

Percentages:

4 Exams = 60% (15% each)

4 Pop Quizzes = 20% (5% each)

2 Homework Assignments = 10% (5% each)

2 Presentations = 10% (5% each)

Your accumulated grades will be recorded on Blackboard in the Grade Center.

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. Attendance will be recorded at the beginning of class each day. Attendance is expected, but does not count towards the final grade. Students with 2 or less unexcused absences may drop an exam grade. **Arriving 10 minutes or later to class will be considered an unexcused absence.**

University policy dictates that your instructor can drop you with an F from the course after 6 absences from TR/MW classes or after 9 absences from MWF classes.

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:

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the 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 Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartz@sulross.edu or ronnie.harris@sulross.edu. RGC students can also contact Alejandra Valdez, at 830-758-5006 or email alejandra.valdez@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

Lecture Schedule for the Spring 2024 Semester:

Week of...	Lecture Topics	Reading Assignment	Lab
1/15	Science and Geology, Time	Prelude: And Just What is Geology?, 1: The Earth in Context	NO LAB
1/22	Minerals	3: Patterns in Nature: Minerals; Interlude A: Introducing Rocks	Intro Lab
1/29	Igneous Rocks	4: Up from the Inferno: Magma and Igneous Rocks	Minerals
2/5	EXAM 1 , Weathering, Soil & Sediment, Sedimentary Rocks	Interlude B: A Surface Veneer: Sediments and Soils;	Igneous Rocks
2/12	Sedimentary Rocks	6: Pages of the Earth's Past: Sedimentary Rocks	Sedimentary Rocks
2/19	Metamorphic Rocks	7: Metamorphism: A Process of Change	Metamorphic Rocks
2/26	EXAM 2 , Earth's Interior, Plate Tectonics	2: The Way the Earth Works: Plate Tectonics	Plate Tectonics
3/4	Mountain Building, Structures	Interlude D: The Earth's Interior Revisited, 9: Craggs, Cracks, and Crumples	LAB PRACTICAL
3/11	SPRING BREAK	SPRING BREAK	SPRING BREAK
3/18	Earthquakes	8: A Violent Pulse: Earthquakes	Geologic Structures

3/25	Exam 3, Volcanoes	5: The Wrath of Vulcan: Volcanic Eruptions	Geologic Time
4/1	Volcanoes		Topographic Maps #1
4/8	Geologic Time	Interlude E: Memories of Past Life, 10: Deep Time: How Old is Old?	Topographic Maps #2
4/15	Streams	14: Streams and Floods	Geologic Maps
4/22	Streams & Ground Water	16: A Hidden Reserve: Groundwater	Ground Water
4/29	Glaciers, Review	18: Amazing Ice: Glaciers and Ice Ages	LAB FINAL EXAM
5/6	FINAL EXAM		

Geology BS SLO's:

1. The student will be able to apply a diverse body of Geologic information in the area of Earth history.
2. The student will be able to apply a diverse body of Geologic information in the area of mineralogy and petrology.
3. The student will be able to apply a diverse body of Geologic information in the area of structural geology and tectonics.
4. The student will be able to apply a diverse body of Geologic information in the area of stratigraphy.
5. The student will be able to apply a diverse body of Geologic information in the area of field techniques.

Geology BS marketable skills:

- * The student will be able to conduct field work.
- * The student will be able to use field equipment.
- * The student will be able to use lab equipment.
- * The student will be able to use library resources.
- * The student will be able to communicate in written and oral format.

Personal Responsibility

Students will develop principles of personal responsibility for living in a diverse world; to include intercultural competency, knowledge of civic responsibility, and the ability to engage effectively in regional, national and global communities.

Social Responsibility

Students will develop principles of social responsibility for living in a diverse world, to include the ability to connect choices, actions, and consequences to ethical decision-making.