

GEOLOGY OF THE WESTERN NATIONAL PARKS**Geology 3305**

Spring 2026

Geology Program

Natural Sciences Department

Agriculture, Life, and Physical Sciences College

Sul Ross State University

TueThrs 9:30 to 10:45**Dr. E Measures**

measures@sulross.edu

837-8117; office WSB 315

Office Hours

MW 2:30 to 4:30

Thr 3 to 4:30

or by appointment;

call or email to arrange

COURSE INFORMATION**Course Description**

This course is a survey of the geology of the National Parks of the western United States. Some National Monuments and state parks are also covered. Emphasis is placed on stratigraphy, paleogeography, and paleoenvironments. National Park geology is used to interpret the development of the western margin of North America. [2025-2026 Sul Ross Catalog]

The course discusses the development of the western North American continent through the geology preserved in the U.S. National Parks. It is designed for those students with introductory class work in geology. Topics to be covered include: A history of the National Park system; the igneous foundations of the continent; Precambrian life and oceans and the formation of the western edge of the continent; the Early Paleozoic stable margin and primitive ocean life; Middle and Late Paleozoic disturbances of the margin and more advanced ocean life; Mesozoic mountain building and continental deposition and terrestrial plants and animals; Cenozoic sculpting of the land by volcanic eruptions and glaciers, and the appearance of mammals.

Course Learning Objectives

At the end of the semester, the successful student will be expected to apply critical reasoning and problem-solving skills to:

- * Interpret the mode of formation or environment of deposition for the three different types of rocks. (SLO 1, 3, and 4)
- * Describe the major geologic events in the creation of the western U.S. (SLO 1, 3, and 4)
- * Interpret the geology in each National Park. (SLO 1, 3, and 4)
- * Identify the organisms present during the major subdivisions of geologic time. (SLO 1)
- * Interpret the structural/environmental events responsible for the creation of the present geologic exposures in each National Park. (SLO 1, 3, and 4)

Course Prerequisites/Co-requisites

Physical Geology GEOL 1304

Course Required TextGeology of National Parks, 8th ed., D. Foster, D. Hacker (eds)**ISBN 978-1-7924-8150-5****Course Materials**

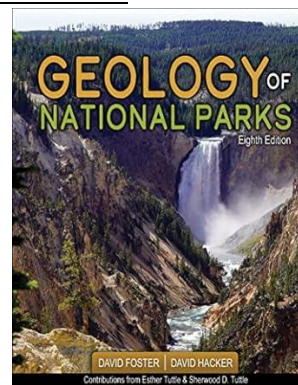
pencils

notebook/paper

Course Delivery/Methods of Instruction

The course consists of two face-to-face lectures (1.25 hrs each) a week. This course is NOT an on-line, web-based, or asynchronous course.

Optional field trips, either half-day or full day, might be offered.



COURSE POLICIES

Attendance/Conduct Policy

Attendance is expected in lectures since the exams are mostly based on classroom material. You are expected to be on time to class, and to be there for the entire class period. Leaving lecture early is not acceptable. Leaving and returning to the classroom is not acceptable. If you are tardy or must leave early, **communicate** the circumstances to the instructor ASAP. You are expected to make arrangements with the instructor **before** explained absences and as soon as possible after absences caused by **emergencies or illness**. Please inform the instructor if you are an emergency responder or caregiver since this may impact attendance. You can be dropped for having 9 hours of absences (6 class periods). You are expected to be interested and engaged in the class. Do not work on another class during lecture time. You are expected to observe the University's Code of Student Conduct (see the SR Student Handbook).

Electronics Policy

Smart phone, cell phone, i-pod, earbud, laptop (etc.) usage is prohibited during lecture. Smart phones, cell phones, i-pods, laptops (etc.) are to be turned OFF and put away so they are not accessible. Checking incoming texts or calls is not acceptable. If you need to be excluded from any of this electronics policy, send an email to the instructor stating the reason(s) why you need access to these electronics during class. Policy exception: electronics may be used for the express purpose of recording or taking notes or for taking images of displayed lecture notes. DO NOT post any class recordings on any social media/web site.

Student Responsibilities Statement

All full-time and part-time students are responsible for familiarizing themselves with the **Student Handbook** and the **Undergraduate & Graduate Catalog** and for abiding by the **University rules and regulations**. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to familiarize him/herself with the requirements of such laws.

Disabilities Accommodation Policy - ADA (Americans with Disabilities Act) Statement

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 for accessibility services. Students seeking accessibility/accommodation services must contact Ronnie Harris, LPC, SRSU's Accessibility Services Director at 432-837-8203 (leave a message and they will get back to you as soon as possible during working hours), or email ronnie.harris@sulross.edu. The Administrative Specialist is Grace Knight and can also be reached at 432-837-8203. The office is located on the first floor of Ferguson Hall, room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

You will be provided with an accommodation letter which must be given to the instructor as early as possible in the semester.

GRADING

These are the requirements for successful completion/passing grade

{ exams (up to 3)	60%
{ homework (up to 12)	10%
{ term paper	12%
{ presentation	12%
{ other	6%

Grades will follow the standard scoring:

100% to 90%	A – Excellent
89.9% to 80%	B – Good
79.9% to 70%	C – Average
69.9% to 60%	D – Poor
(D is not passing for Geology majors)	
59.9% and lower	F – Failing

Any curving, or dropping of grades, will be done after the last exam and only if needed by a majority of the class.

Exams – closed notes/books; no electronics; no take-home exams

Homework – consists of questions keyed to the text, other articles/readings and web sites

Paper – 8 to 10 pages, excluding references

Presentation – a PowerPoint presentation covering geologic aspects of one of the National Parks

Other – credit for asking questions, contributing to class discussion, modeling expected behavior

Tentative schedule – subject to change

Tuesday		Thursday	
		Jan 15	Intro & Geologic Time
Jan 20	Geologic Principles (p. xix – xl)	Jan 22	History of NP evolution (p. xi – xiv)
Jan 27	History of NP evolution	Jan 29	Precambrian units (C 2, 9, 17, 31, 32, 50, 51, 52, 53, 54)
Feb 3	Precambrian units (C 2, 9, 17, 31, 32, 50, 51, 52, 53, 54)	Feb 5	Paleozoic units (C 2, 3, 5, 6, 7, 22, 23, 35, 51, 52, 54, 59)
Feb 10	Paleozoic units (C 2, 9, 17, 31, 32, 50, 51, 52, 53, 54)	Feb 12	Paleozoic units (C 2, 9, 17, 31, 32, 50, 51, 52, 53, 54)
Feb 17	Paleozoic units (C 2, 9, 17, 31, 32, 50, 51, 52, 53, 54)	Feb 19	Paleozoic units (C 2, 9, 17, 31, 32, 50, 51, 52, 53, 54)
Feb 24	Exam 1	Feb 26	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)
Mar 3	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)	Mar 5	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)
Mar 9 – Mar 13 SPRING BREAK			
Mar 17	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)	Mar 19	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)
Mar 24	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)	Mar 26	Mesozoic units (C 2, 3, 4, 5, 6, 7, 9, 13, 34, 35, 51, 53, 54, 55, 59)
Mar 31	Exam 2	Apr 2	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)
Apr 7	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)	Apr 9	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)
Apr 14	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)	Apr 16	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)
Apr 21	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)	Apr 23	Cenozoic units (C 4, 9, 36, 41, 42, 43, 49, 50, 53, 59)
Apr 28	Presentations	Apr 30	DEAD DAY
Exam 3 MONDAY May 4 - 8 am to 10 am			

GEOLOGY UNDERGRADUATE (BS) STUDENT LEARNING OUTCOMES (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 UNDERGRADUATE (BACHELOR OF SCIENCE) STUDENT MARKETABLE SKILLS:

1. The student will be able to conduct fieldwork.
2. The student will be able to use field equipment.
3. The student will be able to use lab equipment.
4. The student will be able to use library resources.
5. The student will be able to communicate in written and oral format.

LIBRARY

The Bryan Wildenthal Memorial Library offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, [library@sulross.edu/](mailto:library@sulross.edu). Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for coursework and can be reached in person, by email (srsulibrary@sulross.edu) or phone (432-837-8123).

ACADEMIC INTEGRITY

Students are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation contributes to learning.

Examples of academic dishonesty include, but are not limited to:

- ⊗ Turning in work as original that was used in whole or in part for another course and/or professor;
- ⊗ Turning in another's person's work as one's own;
- ⊗ Copying from professional works or internet sites without citation;
- ⊗ Collaborating on a course assignment, exam, or quiz when collaboration is forbidden.
- ⊗ **Using AI for an assignment**

Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

Use of AI is considered to be academic dishonesty in this course. Use of AI will result in a final grade of "F" in this course.

CLASSROOM CLIMATE OF RESPECT

This class should foster free expression, critical investigation, and open discussion of ideas. All people in the class must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others.

SRSU Required AI Statement (it is not applicable since use of AI is not allowed in this course)

The University does not recommend or endorse any specific AI tools or resources. Students should be aware that many generative AI tools (e.g., ChatGPT, Google Gemini, Microsoft Copilot) store user input and may use this data to train future models. For this reason, students should never upload or share personal, confidential, or identifiable information — such as names, ID numbers, health data, or assignment submissions containing such details — into any generative AI platform. When using AI tools, students should verify whether the tool complies with student privacy standards as indicated by the University. Faculty may recommend specific tools that better align with institutional data privacy policies, but ultimate responsibility for data protection rests with the users. Students are encouraged to use faculty-recommended platforms when engaging in coursework involving generative AI. The University is not liable for any adverse experience or impact when students interact with these tools.