

GEOLOGY 4401 - SEDIMENTARY PETROLOGY

Fall 2026

Geology Program, Natural Sciences Dept, ALPS College
Sul Ross State University

MonWedFri 11:00-11:50 Lab Tue 2-5

Dr. Elizabeth Measures

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OFFICE HOURS

MonWed 3 pm to 5 pm

Thrs 2:30 pm to 5 pm

can't make these hours?

or by appointment; call or email to arrange;

weekly schedule is posted next to office door

LAB COURSE DESCRIPTION

The course covers the characteristics, classification, composition, occurrence, history, and origin of sediment and sedimentary rocks.

Laboratory work consists of examination, classification, and interpretation of hand samples and thin sections of sediment and sedimentary rocks.

PREREQUISITES/CO-REQUISITES

Optical Mineralogy (GEOL 2405)

Stratigraphy and Sedimentation (GEOL 3408)

METHODS OF INSTRUCTION

The course consists of three hours of work during the scheduled lab time. Open lab hours will be offered. One to two, required, day-long field trips on a weekend. Other day trips or weekend trips possible and optional.

TEXT

No lab manual.

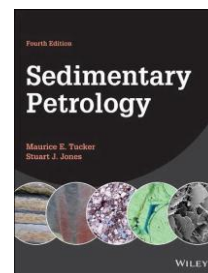
Lecture text will be used in lab

Sedimentary Petrology

4th ed, 2023

M. Tucker & S. Jones.

ISBN 978-1-118-78649-9.



REFERENCE BOOKS/TEXTS

Books to be used for reference will be available in the lab.

MATERIALS

Notebook/paper

pencils

map pencils

hand lens

stapler

FIELD TRIP(S)

One to two, day-long field trip(s) and field exercise(s) are required.

This syllabus gives specifics on procedures/contents/aspects of lab.

Refer to the lecture syllabus for aspects that relate to the course as a whole, such as:

- * Student Responsibilities Statement
- * Use of Blackboard
- * Class Attendance and Conduct – Expectations and Requirements
- * Electronics Policy
- * Warning About Generative Artificial Intelligence (AI)
- * Disabilities Accommodation ADA statement
- * Library
- * Academic Integrity
- * Classroom Climate of Respect

ELECTRONICS POLICY

- ★ Electronics may be used during lab and for purposes of lab.

GRADING AND ASSIGNMENTS

The semester grade:

50%	weekly lab assignments
30%	lab practicals
10%	quizzes and lab attendance
10%	field exercise(s)

Grading Scale

100-90.00%	A	
89.99-80.00%	B	
79.99-70.00%	C	
69.99-60.00%	D	(D and lower does not count for Geology major credit)
<59.99%	F	

Any curving, or dropping of grades, will be done after the last exam (scheduled during finals week).

Lab grade will be included in final grade for the entire course. It will only count 30% toward the total final course grade.

Weekly lab Assignment – total of 12; Examination, description, analysis of sediment, rocks, and thin sections.

Lab Practical – total of 2; Examination, description, analysis of sediment, rocks, and thin sections.

Quizzes – 10 or less; over chapter material pertinent to daily lab; over previous week's lab

Field exercises – Hands-on application of content knowledge and methodologies to a real world project.

GEOLOGY UNDERGRADUATE PROGRAM (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.

EXPECTED COURSE LEARNING OBJECTIVES:

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

- ★ Identify, describe, and apply the basic classification schemes for identification of the sedimentary rock types (clastics, carbonates, cherts, evaporites, coals, phosphates, and iron deposits), in hand sample and thin section. (SLO 2)
- ★ Interpret and explain mechanisms and modes of transportation, deposition, and environment from examination of sediment and sedimentary rocks, in hand sample and thin section. (SLO 2)
- ★ Use basic geologic lab equipment (sediment shaker, sieves, handlens, stereomicroscope, and petrographic microscope) correctly and safely for the examination, description, and interpretation of sediment and sedimentary rocks. (SLO 2)
- ★ Integrate different lithologies into a facies model and use the model, and stratigraphic relationships, to interpret the depositional history of a region. (SLO 1 and SLO 2 and SLO 4)
- ★ Summarize and synthesize all aspects of sedimentary petrology in a class capstone field exercise that requires analysis of a sedimentary rock outcrop through the design and creation of a descriptive measured section. (SLO 2 and SLO 5)

GEOLOGY UNDERGRADUATE (BACHELOR OF SCIENCE) STUDENT MARKETABLE SKILLS:

- ★ The student will be able to conduct fieldwork.
- ★ 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.

SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE

WEDNESDAY	
Aug 25	Course Intro
Sept 1	Particle Parameters/Granulometrics; Sand and Gravel
Sept 8	Particle Parameters/Granulometrics; Sand and Gravel
Sept 15	Clastics 1 – Conglomerate/Breccias Exam 1 Applied Granulometrics
Sept 22	Clastics 2 – Sandstones
Sept 29	Clastics 3 – Sandstones
Oct 6	Lab Practical 1
Oct 13	Carbonates 1
Oct 20	Carbonates 2
Oct 27	Carbonates 3
Nov 3	Carbonates 4
Nov 10	Miscellaneous Sedimentary Rocks
Nov 17	Miscellaneous Sedimentary Rocks 1 & 2
Nov 24	Clastics 4 – Mudrocks
Dec 1	Lab Practical 2