

GEOLOGY 4401 - SEDIMENTARY PETROLOGY

Fall 2024

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

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

Dr. Elizabeth Measures

office WSB 315

837-8117

measures@sulross.edu

Program office WSB 216

837-8112

OFFICE HOURS

Mon 2 pm to 5 pm

Thrs 2:30 pm to 5 pm

or by appointment; call or email to arrange;
weekly schedule is posted next to office door**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 sediment, hand samples and thin sections of sediment and sedimentary rocks.

The course concerns the laws of sedimentation, the origin, history, description, classification, and interpretation of sedimentary rocks. It also involves determination of the rock types in the source areas. Laboratory work consists of petrographic investigation of thin sections of sedimentary rock types. Taken from SRSU Course Catalog

PREREQUISITES/CO-REQUISITES

Optical Mineralogy (GEOL 2405)

Stratigraphy and Sedimentation (GEOL 3408)

METHODS OF INSTRUCTION

The course consists of three hours of classroom lecture and three hours of work during the scheduled lab time each week. Open lab hours will be offered.

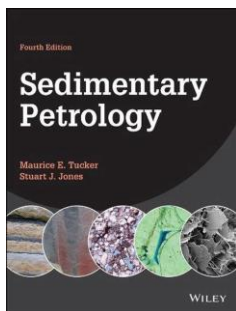
TEXT***Sedimentary Petrology***4th ed, 2023

M. Tucker & S. Jones

ISBN 978-1-118-78649-9.

No lab text.

Other readings from books and journals, to supplement the text, may be assigned as the material is covered.

**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, required, day-long field trip(s) and field exercise(s) are required. They will be scheduled on a weekend. Other day trips or weekend trips possible and optional.

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.

CLASS ATTENDANCE AND CONDUCT - EXPECTATIONS AND REQUIREMENTS

- ★ Be on time to lecture and lab, attend all lectures and labs, and stay throughout the entire designated period.
- ★ Be engaged, awake, and on task.
- ★ Do not work on another class during this class.
- ★ Keep instructor informed either **before** anticipated absence or **soon after** unplanned absence.
- ★ Where possible, schedule routine medical/dental appointments around lecture/lab times.
- ★ If you are going to miss a lecture, or have missed a lecture, written notification (email) and documentation must be provided as soon as possible. **Be sure to get the notes from another student in the class.**
- ★ Legitimate reasons for tardiness, leaving and returning during class, or leaving class early are, but are not limited to, illness, appointment with specialist, family emergency, caregiver duties, and emergency responder calls.
- ★ Inform instructor **prior** to class if conditions exist that may cause you to leave periodically during class or leave before the end of class.
- ★ Arrangements for missed assignments must be made, and the make-up done, within one week of the scheduled due date. Points will be deducted for late work on assignments other than exams.
- ★ Late assignments will not be accepted once graded papers are returned.
- ★ You are expected to check you SR email at least 3 times a day; morning, noon, and evening.
- ★ You are expected to observe the University's Code of Student Conduct (see the Student Handbook).

ELECTRONICS POLICY

- ★ Texting, checking email, playing games, surfing the internet, working on another class during lectures is not acceptable.
- ★ Smart phones, cell phones, i-pods, laptops, earbuds (etc.) are to be turned OFF during lectures.
- ★ If taking notes on an electronic device is your preferred method, please discuss this with the instructor.
- ★ If electronics are to be used for recording audio or for taking images of material written on the board, please discuss this with the instructor. DO NOT post any class recordings on any social media/web site.
- ★ If you need access to your electronics during lectures (e.g., caregiver, emergency responder), for purposes other than note taking, audio recording, or obtaining images of material written on the board, discuss this with the instructor.
- ★ Points will be deducted from exams for violation of the electronic policy during lectures.
- ★ If electronics are accessed during an exam, then the exam will receive a grade of zero.
- ★ If an electronic device makes an audible noise during an exam, then the exam will receive a grade of zero.
- ★ Electronics may be used during lab and for purposes of lab.
- ★ Use of any AI on any assignment will result in a grade of zero on the assignment.

GRADING AND ASSIGNMENTS

The semester grade distribution:	Grading Scale	
52% from lecture exams	100-90.00%	A
30% from laboratory	89.99-80.00%	B
10% from field exercises	79.99-70.00%	C
8% other assignments (see below)	(D and lower does not count for Geology major credit)	
	69.99-60.00%	D
	<59.99%	F

Any curving, or dropping of grades, will be done after the last exam.

Exams – There are 4 exams during the semester, exams 1 through 3 may contain some through-going material and therefore are slightly comprehensive. The last lecture exam occurs during finals week and is comprehensive (½ of the questions will cover previous material in exams 1 through 3). The exams assess content knowledge of sedimentary petrology, and application of critical reasoning and problem-solving skills, through questions such as multiple choice, diagrams, matching, discussion, etc.

Lab – Exercises will be hands-on application of content knowledge covered in lectures. Critical reasoning and problem-solving skills will also be applied. Grading details are on the lab syllabus.

Field exercises – Hands-on application of content knowledge and methodologies to a real-world project such as a granulometric analysis or measured section.

Other – discussions/short written summaries of sedimentary rock types or sedimentary formations, homework questions based on readings from the text; homework over application of material covered in the text; quizzes; daily participation/ attendance. Homework questions may appear in some format on exams.

Reading skills, problem-solving skills, critical reasoning, and hands-on work with samples are emphasized in all aspects of the course.

SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE

MONDAY		WEDNESDAY		FRIDAY	
Aug 26	Intro Particle Parameters [C 2]	Aug 28	Particle Parameters [C 2]	Aug 30	Particle Parameters [C 2]
Sept 2	Labor Day Holiday - No Class	Sept 4	Particle Parameters [C 2]	Sept 6	Particle Parameters [C 2] Sed Structures [C 2]
Sept 9	Particle Parameters [C 2]	Sept 11	Particle Parameters [C 2] Sed Structures [C 2]	Sept 13	Sed Structures [C 2] Cong/Breccias [C 2]
Sept 16	Cong/Breccias [C 2] Sandstones [C 2]	Sept 18	Sandstones [C 2] EXAM # 1 (in lab)	Sept 20	Sandstones [C 2]
Sept 23	Sandstones [C 2]	Sept 25	Sandstones [C 2]	Sept 27	Sandstones [C 2]
Sept 30	Carbonates [C 4]	Oct 2	EXAM # 2	Oct 4	Carbonates [C 4]
Oct 7	Carbonates [C 4]	Oct 9	Carbonates [C 4]	Oct 11	Carbonates [C 4]
Oct 14	Carbonates [C 4]	Oct 16	Carbonates [C 4]	Oct 18	Carbonates [C 4]
Oct 21	Carbonates [C 4]	Oct 23	Carbonates [C 4]	Oct 25	Carbonates [C 4]
Oct 28	Carbonates [C 4]	Oct 30	Carbonates [C 4]	Nov 1	Carbonates [C 4]
Nov 4	Cherts [C 9]	Nov 6	EXAM # 3	Nov 8	Cherts [C 9]
Nov 11	Cherts [C 9] Evaporites [C 5]	Nov 13	Evaporites [C 5]	Nov 15	Evaporites [C 5]
Nov 18	Evaporites [C 5] Coal/Petroleum [C 8]	Nov 20	Coal/Petroleum [C 8]	Nov 22	Coal/Petroleum [C 8]
Nov 25	Sed Iron Deposits [C 6] Phosphates [C 7]	Nov 27	Thanksgiving Holiday No Class	Nov 29	Thanksgiving Holiday No Class
Dec 2	Sed Iron Deposits [C 6] Phosphates [C 7]	Dec 4	Sed Iron Deposits [C 6] Phosphates [C 7]		
EXAM # 4 TUESDAY DEC 10; 10:15am-12:15pm					

DISABILITIES ACCOMMODATION ADA statement (Americans with Disabilities Act)

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 Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director at 432-837-8203 or email mschwartz@sulross.edu, or contact Alejandra Valdez at 830-758-5006 or email alejandra.valdez@sulross.edu. 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.

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.

Geology Undergraduate (BS) Student 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.

LIBRARY

The Bryan Wildenthal Memorial Library and Archives of the Big Bend offers FREE resources and services to the entire SRSU community. The library's website, library.sulross.edu/, has information on how to borrow or electronically access books, articles, and more. 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 by 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 an assignment, failing the class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

CLASSROOM CLIMATE OF RESPECT

This class fosters free expression, critical investigation, and open discussion of ideas. Everyone in the class must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, all people in the class must learn how to probe, oppose, and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference.