GEOLOGY 4401 - SEDIMENTARY PETROLOGY

Fall 2022

Department of Biology, Geology and Physical Sciences
Sul Ross State University
MonWedFri 9:00-9:50 Lab Wed 2-5

Dr. Elizabeth Measures
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OFFICE HOURS

Mon	2 pm to 4 pm
Tue Thrs	11 am to noon
Thrs Fri	3 pm to 5 pm

or by appointment; call or email to arrange
weekly schedule is posted on office door

LAB INSTRUCTOR Sara Grannis

COURSE DESCRIPTION

The course covers the composition, characteristics, description, classification, occurrence, history, origin (including determination of source rocks), and interpretation of sedimentary rocks.

Laboratory work consists of examination of hand samples and thin sections of sedimentary rock types.

PRE-REQUISITES/CO-REQUISITES

Optical Mineralogy (GEOL 2405) and Stratigraphy and Sedimentation (GEOL 3408)

METHODS OF INSTRUCTION

The course consists of three hours of lecture and three hours (minimum) of lab work.

One to two, required, day-long field trips. Other day trips or weekend trips possible and optional.

TEXT

Sedimentary Petrology, 3nd ed, 2001, by Maurice Tucker, **ISBN:** 0-632-05735-1.

No lab text. Other readings from books and journals may be assigned to supplement the text and will be assigned as the material is covered.

REFERENCE MATERIALS

Other books to be used for reference will be available in the lab. Handouts will be provided. There is no lab book.

MATERIALS

Notebook/paper pencils hand lens

CLASS ATTENDANCE AND CONDUCT POLICY

You are expected and required to be on time to lecture and lab, attend lectures and labs and to stay throughout the entire designated period.

Tardiness, leaving during class, or leaving class early are not acceptable except for serious, legitimate reasons (illness, appointments with specialists, family emergency, caregiver, emergency responder for example). Legitimacy will be determined by instructor. Keep instructor informed either before anticipated absence or after absences.

Schedule routine medical/dental appointments around lecture/lab times.

You are expected to be engaged, awake, and on task. Sleep at home not in class. Do not work on another class during this class.

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.

Arrangements for missed assignments must be done, and the make-up also done, within one week of the scheduled due date. Points will be deducted for late work.
Late assignments will not be accepted once graded papers are returned.
You are expected to observe the University's Code of Student Conduct (see the Student Handbook).
You may be asked to leave if you are disruptive or not observing the stated policy.

ELECTRONICS POLICY

Smart phone, cell phone, i-pod, laptop (etc.) usage is prohibited during lecture. Smart phones, cell phones, i-pods, laptops (etc.) are to be turned OFF. Electronics may be used during lab and for purposes of lab.
Texting, checking email, playing games, surfing the internet, working on another class during class time are not acceptable.
Multitasking does not work.
Points will be deducted from exams for violation of this policy during class.
If electronics are accessed during an exam then the exam will receive a grade of zero.
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.
Electronics policy exception: electronics may be used for the express purpose of recording or taking notes. DO NOT post any class recordings on any social media/web site.

FIELD TRIP(S)

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

DISABILITIES ACCOMMODATION

ADA (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 Rebecca Greathouse-Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (leave a message and they will get back to you as soon as possible during working hours), or email rebecca.wren@sulross.edu. The office is located on the first floor of Ferguson Hall, Suite 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

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

GRADING AND EXAMINATIONS

The semester grade:
54% from lecture exams, three (includes final)
30% from laboratory (grading details will be provided on the lab syllabus)
10% from term presentation
6% other assignments and classroom deportment
Exams 1 and 2 only cover approximately 4.5 weeks of material. The last lecture exam is comprehensive (⅓ of the questions will cover exam 1 and 2 material).
Other assignments: questions based on chapters in the text, quizzes, daily participation/ attendance, and required field trip exercise(s). Homework questions may appear in some format on exams.

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	

SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE

MONDAY		WEDNESDAY		FRIDAY	
Aug 22	Intro	Aug 24	Particle size	Aug 26	Particle size
Aug 29	Sedimentary Structures	Aug 31	Sed Structures & Conglomerates & Breccias	Sept 2	Conglomerate & Breccias
Sept 5	Labor Day Holiday - No Class	Sept 7	Conglomerate & Breccias; Sandstones	Sept 9	Sandstones
Sept 12	Sandstones	Sept 14	Sandstones	Sept 16	Sandstones & Mudrocks
Sept 19	Mudrocks	Sept 21	Mudrocks	**Sept 23**	**EXAM # 1**
Sept 26	Carbonates	Sept 28	Carbonates	Sept 30	Carbonates
Oct 3	Carbonates	Oct 5	Carbonates	Oct 7	Carbonates
Oct 10	Carbonates	Oct 12	Carbonates	Oct 14	Carbonates
Oct 17	Carbonates	Oct 19	Carbonates	Oct 21	Carbonates
Oct 24	**EXAM # 2**	Oct 26	Cherts	Oct 28	Cherts
Oct 31	Evaporites	Nov 2	Evaporites	Nov 4	Coal & other organics
Nov 7	Coal & other organics	Nov 9	Sed Iron Deposits & Phosphates	Nov 11	Veterans Day - No Class
Nov 14	Sed Iron Deposits & Phosphates	Nov 16	Volcaniclastics	Nov 18	Volcaniclastics
Nov 21	Carbonate Microfacies and Regional Rock Suites	Nov 23	Thanksgiving Holiday No Class	Nov 25	Thanksgiving Holiday No Class
Nov 28	Carbonate Microfacies and Regional Rock Suites	Nov 30	PRESENTATIONS		
TUES Dec 6 EXAM # 3 8 am to 10 am					

METHODS OF ASSESSMENT/EVALUATION
Learning outcome assessment will be made on the basis of three (3) exams and weekly lab assignments and two (2) lab practicals. The exams will assess the application of critical reasoning and problem solving skills through short answer questions, multiple choice questions, diagrams, matching, etc. The graded exams will be reviewed by providing students with "point reclamation" questions over those items missed by a majority of the class. Lab exercises will apply examples of material covered in lectures. Homework assignments will assess student's reading skills and problem solving skills in applying, describing, and explaining aspects of clastic petrology, carbonate petrology and petrology of other sedimentary rocks.

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.

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:
1. Identify, describe, and apply the basic classification schemes for discrimination of the sedimentary rock types, in hand sample and thin section, of clastics, carbonates, coals, cherts, evaporites and volcaniclastics through lab assignments, and lecture and lab exams. (SLO 2)
2. Demonstrate ability to interpret and explain mechanisms and modes of transportation, deposition and environment from examination of a sedimentary rock, in hand sample and thin section, through lab assignments, and lecture and lab exams. (SLO 2)
3. Demonstrate ability to correctly and safely use basic geologic lab equipment (handlens, stereomicroscope and petrographic microscope) for examination, description and interpretation of sedimentary rocks through lab assignments and exams. (SLO 2)
4. Integrate different lithologies into a facies model and use this model and stratigraphic relationships to interpret the depositional history of a region through lab assignments, and lecture and lab exams. (SLO 1 and SLO 2 and SLO 4)
5. Identify and explain the the products and processes of diagenesis through lab assignments, and lecture and lab exams. (SLO 2)
6. 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:
1. The student will be able to conduct field work.
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 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 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. 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.

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. 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. Discourse will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

DIVERSITY STATEMENT
This course should be a learning environment for students that supports diversity of thoughts, perspectives and experiences, and honors identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). It is understood that COVID, economic disparity, and health concerns, or even unexpected life events could impact conditions necessary for students to succeed. The student will be given assistance to meet the course's learning objectives. This demonstrates commitment to the student and the mission of Sul Ross State University to create an inclusive environment and the whole student as part of the Sul Ross Familia. Class performance can be impacted by experiences outside of class and resources are available to the student for dealing with them.