GEOLOGY 4401, SEDIMENTARY PETROLOGY

Spring 2015
Biology, Geology and Physical Sciences
Sul Ross State University
TueThr 11:00-12:15 Lab Thr 2-5 (Alpine); TBA (Midland)

INSTRUCTOR: Dr. Elizabeth Measures
OFFICE: WSB 319
PHONE: 837-8117
EMAIL: measures@sulross.edu

OFFICE HOURS: MF 10:30 - 11:30
TThr 9:30 - 10:30
MTWF 2:30-3:30
or by appointment

LAB INSTRUCTOR: Joan Gawloski in Midland. Chris Pate in Alpine

COURSE DESCRIPTION: The course covers the origin, history, description, classification, and interpretation of sedimentary rocks. Laboratory work involves the examination of hand specimens and thin sections.

METHODS OF INSTRUCTION: The course consists of three hours of lecture by Measures and three hours (minimum) of lab work. One required day-long field trip.

TEXT: Sedimentary Petrology, 3nd ed, 2001, byMaurice Tucker, **ISBN:** 9780632057351.
No lab text. Other readings may be assigned to supplement the text.

REFERENCE MATERIALS: Other books to be used for reference will be available in the lab. Handouts will occasionally be provided in lecture or posted on Blackboard. There is no specific lab book. Reviews may be posted on Blackboard.

CLASS ATTENDANCE POLICY: Attendance is expected in lectures and required in lab. Lab exams and exercises missed cannot be made up at a later time unless prior arrangements are made with the TA. If you are going to miss a lecture exam for a legitimate reason, let the instructor know **AHEAD** of time. Missed lecture exams may only be made-up within one week of the scheduled exam date and only for a legitimate excuse (legitimacy will be determined by the instructor). If lecture exam is not taken within the week, then an all-essay make-up test will be administered during Dead Days.

ELECTRONICS POLICY: cell phone, i-pod usage is prohibited during lecture and lab; points will be deducted from tests for violation of this policy

CONDUCT: Students are expected to observe the University's Code of Student Conduct (see Student Handbook, http://www.sulross.edu/pages/3633.asp).

Turn OFF all cellular phones, IPODs, MP3s, etc. If you need to be excluded from this, please email to me the reason(s) why you need access to these electronics during class.

FIELD TRIP: One field trip, required. Saturday or Sunday late in April.

GRADING AND EXAMINATIONS:

The semester grade: 57% from lecture exams, three (includes final)
30% from laboratory
13% from homework assignments

Exams 1 and 2 only cover 4.5 weeks of material.
Final lecture exam is comprehensive.
Lab grading details will be provided by the lab instructor.
Homework: Questions based on chapters in the text and a field trip exercise.
You may turn in paper copies of the homework or send them as e-mail attachments. Homework questions may appear in some format on exams. Late homeworks will be penalized 25 points for each 24 hours late.

Incomplete (I) grades are given where passing work has been done and only a minor part of the requirements are incomplete.

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

DISABILITY: "Sul Ross State University is committed to equal access in compliance with the Americans With Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartze, the ADA Coordinator in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is P.O. Box C-171, Sul Ross State University, Alpine, Texas 79832. Telephone: 432-837-8203. Please inform me ASAP if accommodation is needed

DISTANCE EDUCATION STATEMENT: Students enrolled in distance education courses have equal access to the university's academic support services, library resources, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should submit online assignments through Blackboard or SRSU email, which require secure login information to verify students' identities and to protect students' information. All lecture exams will be proctored. The procedures for filing a student complaint are included in the student handbook. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook

SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE

TUESDAY		THURSDAY		
Jan 20	Intro & Review Rock Class, Text, Sed Struct	Jan 22	Review of sedimentary rock classification	No Lab
Jan 27	Conglomerates	Jan 29	Conglomerates & Sand	Conglomerates
Feb 3	Sand & Sed Minerals	Feb 5	Sand & Sed Minerals	Review: Scopes and Minerals
Feb 10	Sand & Sed Minerals & SS Class	Feb 12	Sand & Sed Minerals & SS Class	Sand & Sandstones 1
Feb 17	SS Class	Feb 19	**Exam # 1**	Sandstones 2
Feb 24	Sandstones; Qtz Arenites, Arkoses, Wackes	Feb 26	Sandstones; Qtz Arenites, Arkoses, Wackes	Sandstones 3
Mar 3	Sandstones; Qtz Arenites, Arkoses, Wackes	Mar 5	Carbonates Intro	Carbonates 1
Mar 10	Siltstones, Shales, Mudstones & Minerals	Mar 12	Carbonate Class	**Lab Practical # 1**
S P R I N G B R E A K				
Mar 24	Carbonates Microfacies	Mar 26	Carbonate Microfacies	Carbonates 2
Mar 31	Carbonates Microfacies	Apr 2	**Exam # 2**	Carbonates 3
Apr 7	Carbonate Platforms	Apr 9	Carbonate Platforms	Carbonates 4
Apr 14	Chert & Misc Sed Rocks	Apr 16	Chert & Misc Sed Rocks	Chert and Volcaniclastics
Apr 21	Chert & Misc Sed Rocks	Apr 23	Rock Suites; Texas & New Mexico	Miscellaneous Sed Rocks
Apr 28	Rock Suites; Texas & New Mexico	Apr 30	Rock Suites; Texas & New Mexico	**Lab Practical # 2**
May 5	Rock Suites; Texas & New Mexico	May 7	DEAD DAY	
May 12	**Exam # 3 10:15 – 12:15**			

EXPECTED STUDENT LEARNING/COURSE OBJECTIVES/OUTCOMES:

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. (PLO 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. (PLO 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. (PLO 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. (PLO 1 and PLO 2 and PLO 4)
5. Identify and explain the the products and processes of diagenesis through lab assignments, and lecture and lab exams. (PLO 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. (PLO 2 and PLO 5)

GEOLOGY UNDERGRADUATE (BACHELOR OF SCIENCE) PRIMARY LEARNING OBJECTIVES/OUTCOMES (PLO's):

1. The student will identify, compare/contrast, synthesize and apply bodies of information of Geology regarding the area of Earth history.
2. The student will identify, compare/contrast, synthesize and apply bodies of information of Geology regarding the areas of mineralogy and petrology.
3. The student will identify, compare/contrast, synthesize and apply bodies of information of Geology regarding the areas of structural geology and tectonics.
4. The student will identify, compare/contrast, synthesize and apply bodies of information of Geology regarding the area of stratigraphy.
5. The student will identify, compare/contrast, synthesize and apply bodies of information of Geology regarding the area of field techniques in Geology.

METHODS OF ASSESSMENT/EVALUATION – Learning outcome assessment will be made on the basis of two (2) Exams and one (1) Final Exam and weekly lab sessions and two (2) lab practicals. The exams will assess the application of critical reasoning and problem solving skills through short answer questions and multiple choice questions (with some diagrams). The graded exams will be reviewed, by discussing the logic of the answers to and content of the questions missed by a majority of the class. 'Muddiest Point' discussions of topics that are unclear will be used to assess student critical reasoning. Lab exercises will apply examples of material covered in lectures. Homework assignments will assess student problem solving skills in applying, describing, and explaining principles and processes of stratigraphy and sedimentology.