

## GEOL 3408 – Stratigraphy and Sedimentation

Fall - 2021

**Section:** MC1

**Lecture Times:** MWF: 12-12:50 pm

**Instructor:** Dr. Tom Shiller

**Office:** WSB 319

**Office Hours:** Tuesday and Wednesday, 2-5:00 pm; Thursday, 3:30-5:00 pm; or by appointment

**e-mail:** thomas.shiller@sulross.edu

### **Materials Required:**

Sedimentology and Stratigraphy, 2nd edition. 2009. Gary Nichols. ISBN-10: 1405135921

No lab text.

### **Course Purpose:**

This course will cover the processes of weathering, transportation and deposition of sediment, and the formation of sedimentary rock. Stratified sedimentary rocks and their spatial/temporal relationships are a chief topic in this course. The sub-disciplines of stratigraphy to be covered include lithostratigraphy, the study of rock strata; biostratigraphy, the study of fossils in sedimentary rocks and how they relate to geologic time; and sequence stratigraphy, the study of patterns of sedimentary strata and how they relate to sedimentological processes and to global events.

### **Student Learning Objectives: Each student will demonstrate the ability to:**

1. Identify, interpret and explain aspects of sediment and sedimentation as they have recorded Earth history and have differed through Earth history; SLO # 1 ... apply a diverse body of geologic information in the area of Earth history.
2. Contrast sedimentary depositional environments and their facies and evaluate their change and importance through Earth history; SLO # 1 ... apply a diverse body of geologic information in the area of Earth history.
3. Identify, interpret and explain aspects of lithostratigraphy, biostratigraphy, seismic stratigraphy and sequence stratigraphy; SLO #2 ... apply a diverse body of geologic information in the area of stratigraphy.
4. Illustrate, analyze and evaluate a stratified sediment or rock sequence; SLO #2 ... apply a diverse body of geologic information in the area of stratigraphy.
5. Demonstrate familiarity with and use of field techniques used in the study of sedimentology and stratigraphy; SLO #3 ... apply a diverse body of geologic information in the area of field techniques.
6. Devise and design a schematic representation of a real-world stratified sediment or rock sequence; SLO #3 ... apply a diverse body of geologic information in the area of field techniques.

### **Homework:**

There will be three take-home assignments given during the semester requiring independent research, critical thinking, and technical writing. Assignments will be given **during class** and will not be available on Blackboard. A due date will be given on the day homework is assigned. Late projects will be accepted at 50% of your earned point value by 6 pm. on the due date (including immediately after class); 25% value by the end of the following day, and 0% after that. Each homework assignment is worth 10% of your total grade. If you are planning on missing class for a Sul Ross sanctioned event or other valid reason, homework must be turned in early (prior to the absence).

### **Exams:**

There will be four exams covering sections discussed following the previous exam. These exams will comprise primarily short answer and essay questions. You may **not** use your notes for exams. Special arrangements will need to be made for make- up exams. Exams will be curved at the professor's discretion.

**Field Trip:**

There will be a one-day mandatory field trip to Shafter, Texas with and associated assignment. The assignment will be completed and turned in the day of the field trip and will comprise 10% of the final grade.

**Grading System:**

4 Exams = 60% (15% each); 3 Homeworks = 15% (5% each); 1 Field Trip = 10%; Lab = 15%

**Letter Grading:** Final course grade will be based on a percentage of the total points as follows:

90.00-100% = A  
80.00-89.90% = B  
70.00-79.90% = C  
60.00-69.90% = D  
Less than 60.00% = F

**Attendance and Make-up Policy:**

The only acceptable excuses for missing class are those due to illness, approved Sul Ross sanctioned events, and observation of religious holidays. All excused absences **must** be documented on paper. Please inform the professor at least 1 week prior to missing class (e-mail, note on office door, etc....). With an appropriate excuse, you must make up missed quizzes/exams **within 10 days** of the last day of the absence or you have failed to meet your course responsibilities and will receive a zero.

**Student athletes:**

You are given a full week to return the completed documentation: your progress (attendance and grade) to your coach, so when you present that card to me, I will take it and return it to you the following class period. Alternatively, you can bring it to my listed office hours and I will look up your progress then. I will not complete them at the beginning or end of class. No exceptions.

**Classroom Conduct:**

The Student handbook states under Student Misconduct, number 21, "Such prohibition includes disorderly classroom conduct that obstructs, interferes with, inhibits and/or disrupts teaching and/or classroom activities." Behavior which is included in this category: 1) persistent talking to ones' neighbors during lecture, 2) coming to class late or leaving early, 3) the use of cellular phones or MP3 devices in the classroom. **CELL PHONES MUST BE TURNED OFF IN CLASS.** This includes texting, emailing and social networking. *(If you are a member of an EMS/VFD group or have a child in day care and they must be able to reach you, let me know and we will discuss.)* Offenders of this policy will be asked once to stop and 5 points will be taken from their grade. If it occurs a second time, the offender will be instructed to leave the classroom, and there will be a meeting with the Dean of Student Life. If there are further incidents, UDPS will be called and offenders will be physically ejected from the classroom and will likely be expelled from the University. **CHEATING AND PLAGIARISM WILL NOT BE TOLERATED:** Any student caught cheating on an exam or quiz will receive an automatic **zero** on that assignment. If a student is caught cheating second time, additional disciplinary actions will be taken. Any student plagiarizing information on an assignment will receive an automatic zero for that assignment.

**Students Needing Special Accommodations:**

Sul Ross State University (SRSU) is committed to equal access in compliance with 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. Students seeking accessibility/accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email [rebecca.wren@sulross.edu](mailto:rebecca.wren@sulross.edu). Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

**SRSU Distance Education Statement.**

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. 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. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

**Lecture and Lab Schedule for the Fall 2021 Semester:**

*This calendar is subject to change with prior notice, at the instructor's discretion.*

<b>Week of</b>	<b>Lecture Topics</b>	<b>Chapters</b>	<b>Lab</b>
Aug 23	Intro to strat. & sed.	1	<b>No lab</b>
Aug 30	Review of sed. rocks and minerals	2	Review of sed. rocks and mins.
Sept 6	<b>Labor Day (no class 9/6)</b> , Types of sediment	2,3	Sand
Sept 13	Sedimentary structures, <b>Exam 1</b>	4	Sed. Structures (part I)
Sept 20	Alluvial fan deposits	9	Sed. Structures (part II)
Sept 27	Stream deposits	9	<b>No Lab</b>
Oct 4	Delta deposits, beach deposits, <b>Exam 2</b>	12,13	Sieve Sed. Analysis
Oct 11	Estuarine deposits, shallow marine deposits	13,14	<b>Lab Practical Exam</b>
Oct 18	Deep marine deposits,	16	Isopach and Structural Contour Maps (part I)
Oct 25	Shallow marine carbonates, <b>Exam 3</b>	15	Isopach and Structural Contour Maps (part II)
Nov 1	Stratigraphic principles, lithostratigraphy	19	Permian Basin
Nov 8	Lithostratigraphy, biostratigraphy	19,20	Correlation (part I),
Nov 15	Biostratigraphy	20	Correlation (part II),
Nov 22	Biostratigraphy, subsurface stratigraphy <b>Thanksgiving Holiday (no class 11/24-26)</b>	20,22	<b>Thanksgiving Holiday</b>
Nov 29	Subsurface, sequence stratigraphy	22,23	<b>LAB FINAL EXAM</b>
Dec 6	<b>Final Exam (12/7, 12:30-2:30)</b>		

**Geology BS 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.