2023 / Fall Semester
Stratigraphy with Lab

GEOL 4308 and GEOL 4008

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Office Hours: 11-12 M-R, 2:15-3 M, T and W and 6:00-6:30 M or by appointment
Department: Earth Sciences and Geologic Resources

Class meeting time and place: 10:00-10:50 AM, MW in 326 Miller Science Building
Lab meeting time and place: 2:00-4:30 PM, R in 326 Miller Science Building

Course Description: Stratigraphy and Sedimentation

Stratigraphy and Sedimentation - Two hours lecture, three hours laboratory per week. Study of basic stratigraphic relations and the identification, origin, distribution and correlation of sedimentary rocks. Two hours lecture and three hours lab

Prerequisites: GEOL 2242 and 2243
Corequisites: GEOL 4308 and GEOL 4008

Program Learning Outcomes:

1. Demonstrate knowledge of fundamental geoscience concepts. (Concepts)
2. Execute geoscience procedures and methods accurately, appropriately, and safely. (Geoscience Skills)
3. Demonstrate proficiency in interpretation and communication of geoscience information. (Scientific Communication)
4. Apply geoscience concepts, skills, and scientific communication to identify, analyze, and interpret geoscience phenomena. (Research)

General Education Core Curriculum Objectives/Outcomes:

Does not apply to this course.

Student Learning Outcomes:

1. Properly identify and describe sediment rocks
2. Measure and describe stratigraphic units
3. Construct from field data stratigraphic columns, fence diagrams, and correlation charts
4. Describe well cuttings and core
5. Work with and correlate seismic sections
6. Construct isopach and facies maps
7. Produce biostratigraphic correlation charts
8. Properly use stratigraphic nomenclature

Text and Materials:

Lecture Textbook: Principles of Sedimentology and Stratigraphy - Sam Boggs, Jr
No lab textbook required.

Course Requirements:

Lecture exams
One Lecture Exam
Quizzes (Approximately 10)
Final Lecture Exam (Comprehensive)

Lab projects
Measured and describe stratigraphic sections (Approximately 8)
Construct three cross-section
Construct three correlation charts
Generate a biostratigraphic correlation chart
Paleocurrent Analysis
Describe core
Analyze cuttings
Isopack mapping project
Electric log project
Seismic project
Facies project
Lab final exam

Course Calendar:

Lecture Schedule
Tentative Lecture schedule of topics to be covered in GOL 408 lecture include:
Note: associated readings to be completed outside of class for each lecture are listed in parentheses and should take about 3 hours..

Lecture Topics  Reading Assignment
• 28 Aug 2023 – Introduction and overview of course (Ch. n/a)
• 30 Aug 2023 – Weathering and soils(Ch. 1)
· 04 Sept 2023 – Transport and deposition of sediment (Ch. 2)
· 06 Sept 2023 – Sedimentary textures (Ch. 3)
· 11 Sept 2023 – Sedimentary structures (Ch. 4)
· 18 Sept 2023 – Silicilastic sedimentary rocks (Ch. 5)
· 20 Sept 2023 – Carbonate sedimentary rocks (Ch. 6)
· 25 Sept 2023 – Other chemical/biochemical sed rocks (Ch. 7)
· 27 Sept 2023 – Other chemical/biochemical sed rocks (Ch. 7)
· 02 Oct 2023 – Review for Exam midterm exam
· 04 Oct 2023 – Mid Term Exam (Ch. 1-7)
· 09 Oct 2023 – Continental Environments (Ch. 8)
· 11 Oct 2023 – Continental Environments (Ch. 8)
· 16 Oct 2023 – Continental Environments (Ch. 8)
· 18 Oct 2023 – Marginal marine environments (Ch. 9)
· 23 Oct 2023 – Marginal marine environments (Ch. 9)
· 25 Oct 2023 – Marginal marine environments (Ch. 9)
· 30 Oct 2023 – Siliciclastic marine environments (Ch. 10)
· 01 Nov 2023 – Carbonate and Evaporite Environments (Ch. 11)
· 06 Nov 2023 – Carbonate and Evaporite Environments (Ch. 11)
· 08 Nov 2023 – Lithostratigraphy (Ch. 12)
· 13 Nov 2023 – Seismic, Sequence and Magnetic Strat. (Ch. 13)
· 07 Nov 2023 – Biostratigraphy (Ch. 14)
· 15 Nov 2023 – Basin analysis, tectonics, and sedimentation (Ch. 16)
· 20 Nov 2023 – Thanksgiving – No Class
· 22 Nov 2023 – Thanksgiving – No Class
· 27 Nov 2023 – Basin analysis, tectonics, and sedimentation (Ch. 16)
· 29 Nov 2023 – Basin analysis, tectonics, and sedimentation (Ch. 16)
· 04 Dec 2023 – Chronostratigraphy (Ch. 15)
· 06 Dec 2023 – Review for Final Exam (Comprehensive)

**Final Exam:** Monday, December 11, 2023  10:30 AM - 12:30

**Lab Schedule**

**Week**  |  **Topic**
---|---
31 Aug 2023 | Measured Section - Cushing, TX
03 Sept 2023 | Paleocurrent Analysis - Rose Diagram
10 Sept 2023 | Measured Sections Mt. Enterprise, TX
17 Sept 2023 | Measured Sections Mt. Enterprise, TX
24 Sept 2023 | Measured Sections Mt. Enterprise, TX
31 Sept 2023 | Measured Sections Mt. Enterprise, TX
05 Oct 2023 | Correlation Chart Mt. Enterprise, TX, TX
Grading Policy:

Lab and Lecture will be 50% each and the two grades will be averaged to make the final grade.

Calculation of final grades:

Lecture Grade Calculation

Lecture Exam 1: ________100 points
Final Exam: ________100 points
Lab Final Exam ________100 points
Quizzes: ________100 points
Total points: ________400 points

_____% Your Lecture Points divided by the Lecture Points Possible (Lecture %)

Lab Grade Calculation

Assignments will be due at the start of the class period or at an assigned time. Drafting and analyzing measured sections and correlations chart construction will take about 4 hours per section.

Lab Grade
<table>
<thead>
<tr>
<th></th>
<th>Core Description</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Measured Section (Cushing)</td>
<td>(100)</td>
</tr>
<tr>
<td>2</td>
<td>Paleocurrent Project</td>
<td>(100)</td>
</tr>
<tr>
<td>3</td>
<td>Measured Section</td>
<td>(100)</td>
</tr>
<tr>
<td>4</td>
<td>Measured Section</td>
<td>(100)</td>
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<tr>
<td>5</td>
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<td>Measured Section</td>
<td>(100)</td>
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<tr>
<td>10</td>
<td>Correlation Chart</td>
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<tr>
<td>11</td>
<td>Fence Diagram</td>
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<tr>
<td>12</td>
<td>Core Description</td>
<td>(100)</td>
</tr>
<tr>
<td>13</td>
<td>Well Cuttings Analysis</td>
<td>(100)</td>
</tr>
<tr>
<td>14</td>
<td>Electric Log Analysis</td>
<td>(100)</td>
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<tr>
<td>15</td>
<td>Seismic Analysis</td>
<td>(100)</td>
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<tr>
<td>16</td>
<td>Biostratigraphy Project</td>
<td>(100)</td>
</tr>
<tr>
<td>17</td>
<td>Facies Analysis</td>
<td>(100)</td>
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</tbody>
</table>

**Total** (1500)

Your Lab Total Points _____ / Lab Points Possible (1500) = _____%

100-90% = A, 89-79% = B, 79-70% = C, 69-60% = D, 59-0% = F

**Labs 1-11 (measured section and data collection labs and all correlation diagrams (3) and panel diagrams (3) associated with the measured sections projects)** must be completed and corrected until a grade of 100% is achieved to pass Stratigraphy with a C or better grade.

**Lecture and Lab will count 50% each and will be averaged to give the final grade.**

Class % _____ + Lab % _____ Divide by two = Course % _____

The course letter grade is based on Course %:

100-90% = A, 89-80% = B, 79-70% = C, 69-60% = D, 59-00% = F

**Make-Up Exams:**

Do not miss schedule exams unless you have a Doctor’s excuse or Dean of Students Excuse. I reserve the right to give an oral exam as a make-up. Unexcused absence = 0.

All exams will include a multiple-choice section; therefore, **ALWAYS bring a**
Attendance Policy:

Students are required to attend every lecture. Attendance will be monitored by unannounced quizzes, up to two per class period, that will effect the course grade. If you are ill or have a university excuse contact me before class.

Academic Integrity (4/1)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit. Please read the complete policy at http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf.

Withheld Grades Semester Grades Policy (5.5)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Mental Health and Wellness**

SFA values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students' mental health and wellness. Many of these resources are free, and all of them are confidential.

**On-campus Resources:**
SFA Counseling Service  
www.sfasu.edu/counselingservices  
Health and Wellness Hub (corner of E. College and Raguet)  
936.468.2401

**SFA Human Services Counseling Clinic**  
www.sfasu.edu/humanservices/139.asp Human Services, Room 202  
936.468.1041

**Crisis Resources:**  
Burke 24-hour crisis line: 1.800.392.8343S
Suicide Prevention Lifeline: 1.800.273.TALK (8255)
Crisis Text Line: Text HELLO to 741-741