

Geology 325 – Depositional and Diagenetic Environments

Monday & Wednesday, 6:00 - 8:40 PM; Fall, 2008; 4 credit hours

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Office hours will be scheduled as necessary during the semester.

Text: Bridge & Demicco, Earth Surface Processes, Landforms and Sediment Deposits, ©2008

	Class Date		Topic
1	August	25	<i>Introduction, class scope & plans, review of syllabus, overview of the earth, depositional systems and categories of sedimentary rocks: binocular scope introduction</i>
2		27	<i>Scan Chapters 1 & 2. Discussion of earth cycles, spheres, formation of rocks, weathering and erosion. Video.</i>
3	September	1	<i>Labor Day – No Class. Review Chapter 3 (don't let equations scare you, look for concepts)</i>
4		3	<i>Weathering, sediment, soils, biogenic and chemogenic sediments.</i>
5	Project 1 due. Literature review.	8	<i>Scan Chapter 4. Field Trip #1 to local outcrop. How to evaluate and measure a section.</i>
6		10	<i>Weathering, sediment, soils, biogenic and chemogenic sediments continued.</i>
7		15	<i>Scan Chapter 5. sediment transport by water, air, gravity</i>
8	Project 2 due. Measured outcrop.	17	<i>sediment transport by water, air, gravity continued</i>
9		22	<i>Scan Chapter 8. movement of sediment by gravity, volcanoclastic movement, ice</i>
10		24	<i>movement of sediment by gravity, volcanoclastic movement, ice continued.</i>
11		29	<i>Quiz #1. followed by basic sediment descriptions – Video.</i>
12	October	1	<i>Scan Chapters 13-14. Erosion and deposition by rivers and lakes</i>
13		6	<i>Scan Chapter 15. Coastal Erosion and deposition.</i>
14	Fall Break 9 th -10 th	8	<i>Coastal and marine sediments: analysis and description</i>
15		13	<i>Coastal, near shore, and deep ocean sediments and processes.</i>
16	Oct 16 th last day to drop	15	<i>Glacial and arid environments processes and deposition</i>
17		20	<i>Rock types and character followed by hands on rock descriptions</i>
18		22	<i>Sediments and rocks from rivers, streams, lakes</i>
19		27	<i>Sediments and rocks from the coastal zone and shallow marine Video.</i>
20		29	<i>Sediments and rocks from glaciers, deserts, and deep ocean</i>
21	November	3	<i>Quiz #2. followed by changes to rock - diagenesis</i>
22	Nov. 4th election day, no classes	5	<i>Review Chapter 12. Structural changes, post-deposition deformation</i>
23		10	<i>Field Trip #2, Johnson Creek ebb tidal delta, Hunting Island. . Review Chapter 19. Diagenesis.</i>
24		12	<i>Chemical and physical changes to sediment and rock</i>
25		17	<i>Chemical and physical changes to sediment and rock</i>
26		19	<i>Stratigraphic Concepts – lithostratigraphy, hydrostratigraphy, chronostratigraphy, facies – Video.</i>
27	Project 3 due. Tidal delta review.	24	<i>Economics and sustainability, using the earth</i>
28	No Class	26	<i>Thanksgiving Break</i>
29	December	1	<i>Looking at the earth as a whole system</i>
30	Last Class	3	<i>Discussion and Review</i>
31		8	<i>Final Exam</i>

Note: Field trip dates may vary depending on schedules.

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Class Objectives and Information

My objective for this class is for you to learn the basics of sedimentary rock depositional type and style with resulting diagenesis and why these types of rocks are important for mankind. Basic sedimentology and stratigraphy will be discussed. Field examination and hands on sample analysis will be a large part of our class activities and there will be hands-on examination of sedimentary rocks. I do not expect you to memorize or fully understand the equations used in the text.

Several scientific papers and/or trade articles will be reviewed as part of this class. These papers will discuss aspects and techniques of sedimentary rock geological interpretations. Some time may be spent researching resources and data from the internet.

Three interpretive projects will be completed for the class. These projects will include the use of geological concepts and techniques related to the study of sedimentary rocks. The projects will become progressively more complex during the course. Some, or all, of the projects may be collaborative efforts.

The quizzes and final exam will cover key concepts discussed in class.

There will be at least two field trips for this class. One will be close by and occur during the class period. The other trip will require a trip to the beach and will probably be an overnight trip. We will work to keep expenses and time to a minimum.

This is a long class period and we will have a break during the class. Food and drink are permitted.

If you have a physical, psychological, and/or learning disability which might affect your performance in this class, please contact the Office of Disability Services, 126A B&E, (803) 641-3609, as soon as possible. The Office of Disability Services will determine appropriate accommodations based on medical documentation.

Good writing and communication is valued in this course as in life. Please remember the written work you produce in this class can be included in your rising junior writing portfolio. For further information on the portfolio requirement please consult your USCA Undergraduate and Graduate Bulletin or visit Dr. Lynn Rhodes, Director of Writing Assessment or Mr. Karl Fornes, Director of the Writing Room.

The Bridge and Demicco text is excellent and you will be expected to read and understand the material. If the syllabus says "Review" a certain part of the text, I expect you to read it and be conversant in the concepts. If the syllabus says "Scan" a certain part of the text, I expect you to be broadly familiar with the terms and concepts.

Grading

Grades will be based on completion of three (3) projects, class participation, two (2) quizzes, and a final exam. The point system used and overall grading will be based on the following:

Project #1	(25 points) – literature review project
Project #2	(25 points) – measured outcrop and sample descriptions
Project #3	(50 points) – current deposition and tidal delta map
Quiz #1	(50 points) - multiple choice, short answer, T/F, sketch
Quiz #2	(50 points) - multiple choice, short answer, T/F, sketch
Final	(100 points) – multiple choice, short answer, T/F, sketch
Participation	(±10 points) – add or subtract up to 10 points in either direction, my call!
Total	300 points, 275-300=A, 250-274=B, 225-249=C, 200-224=D, <200 no excuses!