Spring 2-1-2019

GEO 309.01: Sedimentation and Stratigraphy

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Lecture: Tuesday and Thursday 2:00 to 3:50 PM; CHCB # 304

Professor: Marc S. Hendrix: Office hours are from 1:00 to 2:00 PM on Monday and Wednesday; other times by appointment. CHCB # 359; phone 243-5278; marc.hendrix@umontana.edu

Teaching Assistant: Andrew Keene: Office hours are Tuesday and Thursday 1-2PM. CHCB309; andrew.keene@umontana.edu


This course will cover roughly one chapter per week. Please keep up with the reading.

Course Outcomes: This course will provide you with a basic working knowledge of sedimentary rocks and the physical and chemical processes responsible for their deposition and subsequent diagenesis. The course also will provide a working knowledge of stratigraphic principles, correlation methods, and paleo-environmental reconstruction, in addition to an introduction into sedimentary basin analysis. These outcomes are achieved through classroom lectures, a series of laboratory exercises and/or problem sets, and a field exercise.

Class Format: Many ideas and materials will be presented in lectures that are not covered in the course text. You are accountable for all ideas and materials covered in the text as well as those presented in lecture.

Moodle Course Supplement: Class announcements, lecture slides, etc., will be posted on Moodle.

Course Content:
Introduction
Part I:
Weathering and Soils Boggs, Chapter 1
Transport and Deposition of Siliciclastic Sediment Boggs, Chapter 2
Sedimentary Textures Boggs, Chapter 3
Sedimentary Structures Boggs, Chapter 4
Siliciclastic Sedimentary Rocks Boggs, Chapter 5

Midterm #1, through Siliciclastic Sedimentary Rocks Thursday, Feb. 14
Carbonate Sedimentary Rocks Boggs, Chapter 6
Chemical/Biochemical and Carbonaceous Sedimentary Rocks Boggs, Chapter 7

Part 2:
Depositional Environments
Continental Environments Boggs, Chapter 8
Marginal Marine Environments Boggs, Chapter 9
Siliciclastic Marine Environments Boggs, Chapter 10
Carbonate and Evaporite Environments Boggs, Chapter 11

Midterm #2, through Carbonate and Evaporite Environments Thursday, March 21
Spring Break – No Class Meetings March 25-29

Part 3:
Stratigraphy
   Lithostratigraphy       Boggs, Chapter 12
   Seismic and Sequence    Boggs, Chapter 13
   Biostratigraphy         Boggs, Chapter 14
   Chronostratigraphy     Boggs, Chapter 15
   Basin Analysis          Boggs, Chapter 16

Final Exam (comprehensive) Thursday, May 2nd from 1:10 to 3:10 PM.

Grading: There will be two midterm exams (16% each). Each of the midterms will address all course material covered to that point in the class. The final exam (30%) will be comprehensive. Exam format will be variable and may include term definitions and/matching, short answer/essay, computational questions, hand specimen identification, and analysis of photos. Failure to take any of the exams at the scheduled time will result in a grade of zero (0), unless prior arrangements are made with the professor or a signed medical excuse from the attending physician is presented to the professor.

There are seven (7) laboratory exercises in which you will log/describe continuous rock core. These are reviewed/graded and count as part of your final grade (21% of total grade). All exercises must be completed in a timely manner to receive credit. Due dates will be posted on Moodle.

There is a field exercise as part of a weekend long field trip (Friday-Sunday) that is graded (17% of total grade). The field exercise is scheduled to start at 12 Noon on Friday, April 12th. We will Travel to the Dillon area and will return on the evening of April 14th. Your completed written field report is due on Friday, April 26th by 5:00 PM.

If you cannot participate in the field exercise/field trip for an acceptable reason (e.g., medical issue, National Guard duty) you must discuss this with the instructor by January 24th. In lieu of your participation, a research term paper is required to successfully complete this course using the following guidelines: The text of the paper (not including the abstract, figures, and references) should be 10 to 12 pages in length (one and one-half spaces for text) and follow is the Geological Society of America Bulletin format. Schedule an appointment with the instructor to discuss your paper topic before January 24th. The make-up term paper is due on the last day of classes, Friday, April 26th, by 4:00 PM.

Individual letter grades and final letter grades will be based on the following percentages: 100-90% A, 89-80% B, 79-70% C, 69-60% D, 59% and below F. Plus and minus scores will be assigned to letter grades following university guidelines.

Exam Dates: First midterm exam (90 minutes) is on Thursday, February 14th; second midterm exam (90 minutes) is on Thursday, March 21st; the final exam (two hours) is on Thursday, May 2nd from 1:10 to 3:10 PM.

STUDENT CONDUCT CODE: Please be familiar with the UM Student Conduct Code. The Student Conduct Code can be found on the Vice President for Student Affairs website is http://www.umt.edu/student-affairs/dean-of-students/Student%20Conduct%20Code%20-%20FALL%20-%202018.pdf

COURSE ACCOMMODATIONS (DSS): Students with disabilities will receive reasonable accommodations in this course. To request course modifications, please contact me as soon as possible. I will work with Disability Services in the accommodation process. For more information, visit the Disability Services website (https://www.umt.edu/dss/) or call 406.243.2243 (Voice/Text).