

Spring 2-1-2018

GEO 309.01: Sedimentation and Stratigraphy

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Syllabus – GEO 309 – Sedimentation and Stratigraphy – Spring Semester 2018 – 4 credits

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

Professor: James R. Staub: Office hours are from 2:00 to 3:00 PM on Monday and Wednesday; other times by appointment. CHCB # 363; phone 243-4953; james.staub@umontana.edu

Text: Principles of Sedimentology and Stratigraphy, 5th edition, Sam Boggs, Jr., 2012, Prentice Hall, ISBN 10: 0-321-64318-6

Course Outcomes: To provide you with a basic working knowledge of the characteristic features of sedimentary rocks and the physical and chemical processes responsible for their origins and diagenesis. A working knowledge of stratigraphic principles, methods of correlation, and methods of paleographic reconstruction will also be provided by this course. In addition, concepts of basin analysis are introduced. These outcomes are achieved through class room 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, and laboratory exercises and problem sets will be posted on Moodle.

Course Content:

Introduction

Weathering and Soils

Transport and Deposition of Siliciclastic Sediment

Sedimentary Textures

Sedimentary Structures

Siliciclastic Sedimentary Rocks

Carbonate Sedimentary Rocks

Chemical/Biochemical and Carbonaceous Sedimentary Rocks

Depositional Environments

 Controls on Sea Level

 Continental Environments

 Marginal Marine Environments

 Siliciclastic Marine Environments

Stratigraphy

 Lithostratigraphy

 Seismic and Sequence

 Biostratigraphy

Grading: There will be *two midterm exams* (16% each). They will not be comprehensive. The *final exam* (30%) will be comprehensive. Exam questions will be short answer/essay, computational, hand specimen identification, photo analysis, etc. in format. 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 27th*. We will travel to the Billings area. We will return on the evening of April 29th. Your completed written field report is due on Friday, May 4th by 4:00 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 *February 9th*. 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 February 21st*. The make-up term paper is due on the last day of class, Friday, May 4th, 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, March 1st; second midterm exam (90 minutes) is on Tuesday, April 17th; the final exam (two hours) is on Monday, May 7th 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 \(http://life.umt.edu/vpsa\)](http://life.umt.edu/vpsa)

COURSE ACCOMMODATIONS (DDS): 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 \(http://life.umt.edu/dss\)](http://life.umt.edu/dss) or call 406.243.2243 (Voice/Text).