

1-2014

GEO 309.01: Sedimentation and Stratigraphy

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Syllabus – GEO 309 – Sedimentation and Stratigraphy – Spring Semester 2014 – 4 credits

Lecture: Monday and Wednesday 10:10 to 11:30 AM and Friday; 10:10 to 11:00 AM; CHCB # 348

Professor: James R. Staub: Office hours are from 2:00 to 3:00 PM on Monday and Wednesday; other times by appointment. CHCB # 353; 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, library research culminating in a term paper, 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 to Sedimentology and Stratigraphy
- 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
 - Carbonate Environments
- Stratigraphy
 - Lithostratigraphy
 - Seismic and Sequence
 - Biostratigraphy
- Basin Analysis and Tectonics

Grading: There will be *two midterm exams* (15% 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 will be seven (7) *laboratory exercises* and/or *problem sets* posted on Moodle which will be graded and count as part of your final grade (14% of total grade). Assignments must be completed in a timely manner to receive credit. Due dates will be posted on Moodle.

A *term research paper* is required (13% of total grade) consisting of library research. 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 paper your topic before February 21st*. The term paper is due on the last day of class, Friday, May 9th, by 4:00 PM.

There is a *field exercise* as part of a weekend long (Friday-Sunday) field trip that is graded (13% of total grade). The field exercise is scheduled to start at *12 Noon on Friday, April 25th*. We will Travel to the Billings area and we will be camping. We will return on the evening of April 27th. Your completed written field report is due on May 2nd by 4:00 PM. If you cannot participate in the *field exercise/field trip* for an acceptable reason (e.g., medical issue) you must discuss this with the instructor by *February 11th*. In lieu of your participation, a second term paper following the same guidelines from the previous paragraph on a second topic is required to successfully complete this course.

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 (one hour) is on Friday, February 28th; second midterm exam (one hour) is on Friday, April 11th; the final exam (two hours) is on Friday, May 16th from 10:10 AM to 12:10 PM.

Student Conduct Code: Please be familiar with the UM Student Conduct Code. It outlines the rights and responsibilities of students at The University of Montana. Being a student at UM presupposes a commitment to the principles and policies embodied in the code. The Student Conduct Code can be found on the Vice President for Student Affairs web site at http://life.umt.edu/vpsa/student_conduct.php.

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 at <http://life.umt.edu/dss> or call 406.243.2243 (Voice/Text).