GEO 309.01: Sedimentation and Stratigraphy

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Syllabus – GEO 309 – Sedimentation and Stratigraphy – Spring Semester 2015 – 4 credits

Lecture: Tuesday and Thursday 1:10 to 3:00 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 # 353; phone 243-4953; james.staub@umontana.edu


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 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 (18% 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 nine (9) laboratory exercises and/or problem sets posted on Moodle which will be
graded and count as part of your final grade (18% of total grade). Assignments must be
completed in a timely manner to receive credit. Due dates will be posted on Moodle.

There is a Saturday field trip on April 11th. We will leave at 9 AM and return by 6 PM.
Participation in this trip will count as 3% of your total grade.

There is a field exercise as part of a weekend long field trip (Friday-Sunday) that is graded (13% of
total grade). The field exercise is scheduled to start at 12 Noon on Friday, April 24th. We will
Travel to the Billings area and we will be camping. We will return on the evening of April 26th.
Your completed written field report is due on April 30th 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 12th. 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 26th. The term paper is due on the last day of class, Thursday, May 7th, 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 Tuesday, March 3rd; second midterm exam
(90 minutes) is on Thursday, April 16th; the final exam (two hours) is on Tuesday, May 12th 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)

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) or call 406.243.2243
(Voice/Text).