

**COURSE SYLLABUS**  
**GEOL 2100 – Stratigraphy and Sedimentation**  
**Spring 2019**

**Instructor Information:**

**Instructor:** Brandon McElroy

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**Office:** GEO 311b

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**Office Hours:** Wed 9-10 AM

Wed 3-4 PM

Thu 1-2 PM

**Course Information:**

**Meetings:** GEO 216, MWF, 10-10:50

**Lab Meetings:** GEO 311G, Thu, 11-12:50

1:20-3:10

**WyoCourses:** Strat and Sediment: GEOL-2100-01

**Prerequisites:** GEOL 2010 Mineralogy. This course is an introductory survey of the study of sedimentology and stratigraphy. Topics in quantitative reasoning, physics and chemistry will be reviewed as necessary to cover the relevant materials.

**Course Description:** Introduces principles of stratigraphy and materials and processes common to sedimentary systems. Laboratory instruction includes study and interpretation of sedimentary rocks, sedimentary structures and stratigraphic techniques. *Field trip required, Saturday, April 20th.*

**Student Learning Outcomes:** The objective of this course is to provide access to the empirical and theoretical background that forms the modern basis for evaluating and understanding sediment transport systems, their observable processes, and their geologic products. Students who fully participate and complete this course can expect to be prepared to conduct scientific and professional inquiry into the sedimentary evolution of Earth's surface, its stability, and its dominant processes.

**Text(s) and Readings:** No texts are required in this course. There is an electronic coursepack that will be available on the website.

**Required Materials:** Although no texts are required, you will need to equip yourselves as geologists for this course. The most important item is a hand lens (10x magnification) this is *absolutely necessary* for the labs and the field trip. You will need a good ruler with metric units and a 3H pencil in the lab and on field trips. Softer pencils smudge and pens make a mess; nobody likes that. These items are all available in the bookstore. You should get a rock hammer (point-tip or chisel-tip) for the field trip, and these can be purchased for ~\$30 at a variety of places (Ace, True Value, Murdoch's, etc.). These materials are fundamental tools of a professional geologist. Most of you are studying for a degree in geology or a closely related field, and skill in the use of these items will serve you for your careers. Now is the time to start.

**Course Requirements/Assignments:** This course consists of a series of 42 lecture periods that explore the processes and products of the evolution of Earth's surface and shallow subsurface- highlighting the sedimentary cover. Approximately 10 assignments will be given that focus on concepts given in the weekly lectures. There will be 2 non-cumulative exams during lecture periods covering roughly 4-5 weeks of material each. There will also be a cumulative final exam that incorporates the final portions of class material with all previous material. In addition 4 unannounced quizzes will be given during regular lecture

meetings. The schedule of exams is given below along with a list of lecture topics. As part of the course, there will be a **mandatory field trip on Saturday, 4/20**.

**Lecture Assignments:** Topical assignments will be given approximately once per week. These will help reinforce learning of lecture material, and each will be graded with a weight of 1% of your final grade. They will always be due two class periods after they are assigned at the beginning of class (e.g. if assigned on Wednesday, then due the following Monday). No late assignments will be accepted beyond those exceptions allowed by university policy. I will always answer questions about the homework before they are due.

**Lecture Quizzes:** Four unannounced quizzes will be given during lecture periods throughout the semester. Quizzes will be based on recent material and the geologic timescale. Missed quizzes cannot be made up except those due to approved University absences.

**Lecture Exams:** Two exams will be given during regular lecture hours. Notes, calculators, rulers, etc. will not be needed nor allowed in exams. The 2 non-cumulative exams are worth 30% of your grade. Whichever exam you score higher on will account for 17%, and the other will account for 13%. There are good days and bad days for us all... I want to help you average them out. With the exception of approved university absences, missed exams cannot be made up.

**Lab Overview:** Along with lectures are weekly laboratory meetings that will help you develop skills in observing, describing, and interpreting sediments and strata. Lab exercises will be assigned each week, and they will be due at the beginning of the lab meeting one week after they are assigned. Because a large majority of the lab material builds upon mastery of previous topics, it is very important to keep up with the lab exercises, and no late lab exercises will be accepted beyond those exceptions allowed by university policy. In addition the lab will be open and materials will be accessible during normal hours except when other classes and/or lab sections occupy the room. To avoid conflicts and difficulty keeping up, do not put off completing your lab until the last minute. There will be two exams given during the lab meetings.

### **Grading Standards:**

Grades will be based on exams, lab exercises, and quizzes as follows.

Final Exam:	20%
Section Exams:	30% (17% +13%)
Quizzes:	10% (4 x 2.5%)
Lecture Assignments:	10% (10 x 1%)
Lab Exercises:	18% (12 x 1.5%)
Lab Exams:	12% (2 x 6%)

Final grades will be assigned on a standard scale based on weighted (and possibly curved) scores from exams, assignments, quizzes, and lab:

90-100 A; 80-90 B; 70-80 C; 60-70 D; <60 F

Only in very exceptional circumstances will incomplete grades be allowed, and all coursework must be completed in accordance with university policy to receive a passing grade.

### **Attendance/Participation Policy:**

University sponsored absences are cleared through the Office of Student Life. Lectures form the primary content of the course, and therefore attendance and participation is mandatory. If you must be absent, please have a university sponsored absence, or see me first (e.g. if you are to attend a conference, etc.). In general material cannot be made up for absences.

**Academic Honesty:**

UW Regulation 6-802. The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated [from the University Catalog]. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. Other University regulations can be found at [http://www.uwyo.edu/generalcounsel/\\_files/docs/uw-reg-6-802.pdf](http://www.uwyo.edu/generalcounsel/_files/docs/uw-reg-6-802.pdf)

**Classroom Behavior Policy:**

At all times, treat your presence in the classroom and your enrollment in this course as you would a job. Act professionally, arrive on time, pay attention, complete your work in a timely and professional manner, and treat all deadlines seriously. You will be respectful towards you classmates and instructor. Spirited debate and disagreement are to be expected in any classroom and all views will be heard fully, but at all times we will behave civilly and with respect towards one another. Personal attacks, offensive language, name-calling, and dismissive gestures are not warranted in a learning atmosphere. As the instructor, I have the right to dismiss you from the classroom, study sessions, electronic forums, and other areas where disruptive behavior occurs.

Electronic devices such as mobile phones should be (left at home, set to silent, turned off). Laptops are allowed for note-taking purposes. No video or audio recording during class is allowed to protect the privacy of your fellow students.

**Classroom Statement on Diversity:**

The University of Wyoming values an educational environment that is diverse, equitable, and inclusive. The diversity that students and faculty bring to class, including age, country of origin, culture, disability, economic class, ethnicity, gender identity, immigration status, linguistic, political affiliation, race, religion, sexual orientation, veteran status, worldview, and other social and cultural diversity is valued, respected, and considered a resource for learning.

**Disability Support:**

If you have a physical, learning, sensory or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 330 Knight Hall.

**Duty to Report:**

UW faculty are committed to supporting students and upholding the University's non-discrimination policy. Under Title IX, discrimination based upon sex and gender is prohibited. If you experience an incident of sex- or gender-based discrimination, we encourage you to report it. While you may talk to a faculty member, understand that as a "Responsible Employee" of the University, the faculty member MUST report information you share about the incident to the university's Title IX Coordinator (you may choose whether you or anyone involved is identified by name). If you would like to speak with someone who may be able to afford you privacy or confidentiality, there are people who can meet with you. Faculty can help direct you or you may find info about UW policy and resources at <http://www.uwyo.edu/reportit>

You do not have to go through the experience alone. Assistance and resources are available, and you are not required to make a formal complaint or participate in an investigation to access them.

**The instructor may make changes to the syllabus as the course proceeds. If necessary, these changes will be announced in class. Substantive changes made to the syllabus shall be communicated in writing to the students. The most up-to-date syllabus can always be found online.**

**Lecture Topics**

Weathering  
Sediment Transport  
Glacial Environments  
Fans  
Rivers  
Deltas  
Coasts  
Deepwater Systems  
Aeolian Systems  
Chemical Sediments  
Carbonate Chemistry  
Carbonate Constituents  
Platforms  
Peritidal Environments  
Evaporites  
Carbonates through time  
Sedimentary Cycle  
Other Stratigraphy

**Lab Topics**

Siliciclastic Materials  
Siliciclastic Rocks  
Invertebrate Fossils  
Carbonate Constituents  
Carbonate Rocks  
Rivers  
Deltas  
Deepwater  
Measuring Strata  
Interpreting Strata

**Exam Dates**

Lecture Exam 1	Fri, Mar 1 <sup>st</sup>
Lecture Exam 2	Fri, April 12 <sup>th</sup>
Lab Exam 1	Thurs, March 14 <sup>th</sup>
Lab Exam 2	Thurs, May 9 <sup>th</sup>

**Field Trip**

Saturday, April 20<sup>th</sup>, 8 AM – 5 PM

**Final Exam**

Monday, May 13<sup>th</sup>, 10:15 AM – 12:15 PM, GEO 216