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# GEO 211.01: Earth's History and Evolution

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**GEO 211 01, EARTH'S HISTORY AND EVOLUTION  
FALL SEMESTER 2013 SYLLABUS**

**LECTURE:** Tuesday and Thursday; 10:10 to 11:00 AM; CHCB # 304

**PROFESSOR:** James R. Staub: Office hours are from 1:00 to 2:00 PM on Wednesday and Thursday; other times by appointment. Office is CHCB # 353; phone 243-4953; [james.staub@umontana.edu](mailto:james.staub@umontana.edu)

**TEXT:** *Earth System History*, 3<sup>rd</sup> edition by Stephen M. Stanley, 2009, ISBN 1-4292-0520-2, W.H. Freeman and Company

**COURSE GOAL:** The goal is to provide you with a basic understanding of the processes responsible for evolution of the Earth System through time. The development of the Earth's physical features and environmental systems are examined from a process perspective. The course is divided into two parts. The first, which represents about 60% of the lecture time, focuses on examining modern Earth processes and developing an introductory knowledge of the concepts, methods, and evidence geoscientists use to understand these processes. The second is applying these concepts and methods to examine evidence concerning specific issues related to the evolution of the Earth through time, starting with Earth's formation approximately 4.6 billion years ago and its evolution into the world we know today. During this phase the focus is placed on using process interpretation to decipher ancient tectonic and depositional settings as well as changes in climate and biodiversity to ascertain global change through time.

**PREREQUISITES:** There are no prerequisites for this class per se. Basic knowledge of algebra and the introductory principles of physics and chemistry, however, is helpful as well as basic computer skills.

**CLASS ATTENDANCE AND FORMAT:** Attendance is required. Ideas and materials are presented in the lectures that are not covered in the course text. You will be held accountable for all ideas and materials covered in the text and presented in lecture. The format is a traditional lecture with a caveat; the lectures are interactive to an extent. I will ask you questions during the course of lectures in an attempt to verify that you understand/comprehend materials as they are being presented.

**FIELD TRIP:** There is a required Saturday field trip on October 5th. We will leave from the south side of CHCB at 9:00 AM and return by ~ 5:30 PM.

**MOODLE SUPPLEMENT:** Review questions and problem sets will be posted on Moodle. They must be completed in a timely manner to receive credit.

**LECTURE, ASSIGNED READING, and CONTENT**

**Part 1: Materials, Processes, and Principles**

8/27	<i>Earth as a System</i>	Chapter 1
8/29	<i>Minerals and Rocks</i>	Chapter 2
9/5	<i>Diversity of Life</i>	Chapter 3
9/12	<i>Environments and Life</i>	Chapter 4
<b>9/19</b>	<b>FIRST EXAM</b>	
9/24	<i>Sedimentary Environments</i>	Chapter 5
10/1	<i>Correlation and Dating of the Rock Record</i>	Chapter 6
10/3	<i>Organic Evolution</i>	Chapter 7
<b>10/5</b>	<b>FIELD TRIP</b>	Garrison Junction (leaves 9 AM)
10/8	<i>Plate Tectonics</i>	Chapter 8
10/10	<i>Tectonics and Mountain Chains</i>	Chapter 9
10/15	<i>Chemical Cycles</i>	Chapter 10
<b>10/17</b>	<b>SECOND EXAM</b>	

**Part 2: The Story of the Earth**

10/22	<i>The Hadean and Archean</i>	Chapter 11
10/29	<i>The Proterozoic</i>	Chapter 12
10/31	<i>Early Paleozoic</i>	Chapter 13
11/5	<i>Middle Paleozoic</i>	Chapter 14
11/8	<i>Late Paleozoic</i>	Chapter 15
<b>11/12</b>	<b>THIRD EXAM</b>	
11/14	<i>Early Mesozoic</i>	Chapter 16
11/19	<i>The Cretaceous</i>	Chapter 17
11/26	<i>The Paleogene</i>	Chapter 18

**11/27-29 THANKSGIVING BREAK**

**NO CLASS**

12/3 *The Neogene*

Chapter 19

12/5 *The Holocene*

Chapter 20

**12/13 Final Exam, 10:10 AM to 12:10 PM**

**COURSE GRADE:** Individual exam letter grades and final letter grades will be based on the following percentages of correct responses: 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. **All exams, all review questions/problem sets, and the field trip will be counted in determining the final grade in the course.** The weighting of the review questions, field trip, and exams to determine the final letter grade is as follows:

% of Final Grade	
20	Review questions and problem sets (on Moodle)
15	First exam
03	Field trip (required)
15	Second exam
15	Third exam
32	Final exam
100	Total %

**REVIEW QUESTIONS AND PROBLEM SETS:** Review questions and problem sets for each lecture will be posted and available to answer on **Moodle**. Your responses are **due before the start of the next lecture** (i.e. the *Minerals and Rocks* lecture starts on 8/29, so the *Earth as a System* assignment is due by midnight on 8/28). After the next lecture starts the review materials will no longer be available on Moodle.

During **Part 1** of the course the Moodle postings will be review questions and problem sets will test your basic understanding of physicochemical and biological processes as they relate to the geosciences and the Earth. During **Part 2** of the course the Moodle postings will contain some (fewer) review questions as well as problem sets. You will be asked to analyze and solve problems related to questions about the evolution of the Earth at a given point in time. In each case this will involve the analysis of a data set to determine the responsible process and/or processes in order to answer the question(s) posed. Feedback will be provided via Moodle.

If you have a problem meeting a due date, please see the professor. **The final set for chapter 20 is due by midnight on Saturday, December 7<sup>th</sup>.** Each review/problem set counts as 1.00% of your final grade.

**EXAMS:** All exams except the final exam will be given during the scheduled class period. The days that they occur are marked in **bold face** type. **Midterm exams are not**

**be comprehensive.** Failure to take a midterm exam 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.

**The final exam is comprehensive** from the beginning of the course and the exam period will last for two (2) hours. It is tentatively scheduled for **Friday, December 13, 2010, from 10:10 AM to 12:10 PM.** Failure to take a final exam 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.

**Exam questions** types are true or false, fill in the blank, matching, short answer/essay, diagram and graph analysis, and short problem solving.

**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 web site at [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).

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

**TECHNICAL REQUIREMENTS:** Content in the Moodle supplement includes PDF files and external links. If you have problems using Moodle or accessing course materials contact UMonline at [umonline-help@umontana.edu](mailto:umonline-help@umontana.edu) or 406.243.4999 or 866.225.1641.