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GEO 201.01: Geologic Evolution and History of North America

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**GEO 201 01, Geologic History of North America
Fall Semester 2020 Syllabus**

Lecture: Monday, Wednesday, and Friday; 11:00 to 11:50 AM; Skaggs 114

Laboratory: Tuesday; 11:00 AM to 11:50 PM; Skaggs 114

Professor: Marc S. Hendrix; office hours are from 1:00 to 2:00 PM on Monday and Wednesday; other times by appointment. Office is CHCB # XXX; cell phone 406-544-0780; marc.hendrix@umontana.edu

Text: *Earth System History*, 4th edition by Stephen M. Stanley and John A. Luczaj, 2015, ISBN 1-4292-5526-9, W.H. Freeman and Company

Laboratory Manual: *Interpreting Earth History*, 8th edition by Scott Ritter and Morris Peterson, 2015, ISBN 1-4786-1145-6, Waveland Press, Inc.

Course Outcomes: The goal is to provide you with a basic understanding of the processes responsible for evolution of the Earth System through time, with specific emphasis on the North American geologic. The course is divided into two parts. The first, which represents about 55-60% of the lecture time, focuses on examining the dynamic interplay among Earth's geological, hydrological, and biological systems and developing a basic knowledge of the concepts, methods, and evidence geoscientists use to interpret the geologic record of these processes in the ancient past. The second is applying these concepts and methods to examine North America's geologic record of tectonism, surface environment, climate, and biodiversity 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 are basic computer skills.

Lecture, 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, although I will ask you questions frequently to verify that you understand/comprehend materials as they are being presented.

Laboratory attendance: Attendance is required. Laboratories are on Tuesdays, are interactive, and graded. All lab exercises are due at the beginning of class one week after the exercise is assigned, so at the beginning of class each Tuesdays.

Moodle Supplement: Lecture PowerPoints, lecture recordings, and lab assignments will be posted on Moodle as will exam review materials and all official communications related to the course. All lectures in this class will be recorded live and uploaded to the course Moodle page following the end of the lecture.

Lecture topics, Lab Exercises, and Assigned Text Reading:
Part 1: Materials, Processes, and Principles

8/19	<i>Earth as a System</i>	Chapter 1
8/21	<i>Minerals and Rocks</i>	Chapter 2
8/24	<i>Diversity of Life</i>	Chapter 3
8/25	Relative Dating and Unconformities	Lab Exercise 1
8/26	<i>Environments and Life</i>	Chapter 4
8/28	<i>Sedimentary Environments</i>	Chapter 5
	On-line quiz #1	
8/31	<i>Sedimentary Environments, cont.</i>	
9/1	Radiometric Dating	Lab Exercise 2
9/2	First Exam (covers Ch. 1-5)	
9/4	<i>Correlation and Dating of the Rock Record</i>	Chapter 6
9/7	No Class – Labor Day Holiday	
9/8	Analysis of Sedimentary Rocks	Lab Exercise 3
9/9	<i>Organic Evolution</i>	Chapter 7
9/11	<i>Organic Evolution, cont.</i>	
	On-line quiz #2	
9/14	<i>Plate Tectonics</i>	Chapter 8
9/15	Depositional Environments	Lab Exercise 4
9/16	<i>Tectonics and Mountain Chains</i>	Chapter 9
9/18	<i>continued</i>	
	On-line quiz #3	
9/21	<i>Chemical Cycles</i>	Chapter 10
9/22	Stratigraphy	Lab Exercise 5
9/23	<i>Chemical Cycles</i>	
9/25	Second Exam (covers Ch. 1-10)	

Part 2: The North American Geologic Record

9/28	<i>The Hadean and Archean</i>	Chapter 11
9/29	Physical Correlation	Lab Exercise 6
9/30	<i>The Proterozoic</i>	Chapter 12
10/2	<i>Early Paleozoic</i>	Chapter 13
	On-line quiz #4	
10/5	<i>Early Paleozoic cont.</i>	
10/6	Facies Relationships and Sea-Level	Lab Exercise 7
10/7	<i>Middle Paleozoic</i>	Chapter 14
10/9	<i>Middle Paleozoic, cont.</i>	
	On-line quiz #5	
10/12	<i>Middle Paleozoic</i>	Chapter 15
10/13	Fossils and Fossilization	Lab Exercise 8
10/14	<i>Late Paleozoic, cont.</i>	
10/16	<i>Late Paleozoic, cont.</i>	
	On-line quiz #6	
10/19	<i>Late Paleozoic, cont.</i>	

10/20 Evidence of Evolution	Lab Exercise 12
10/21 Third Exam (covers Ch. 1-15)	
10/23 <i>Early Mesozoic</i> <i>On-line quiz #7</i>	Chapter 16
10/26 <i>Early Mesozoic, cont.</i>	
10/27 Interpretation of Geologic Maps	Lab Exercise 13
10/28 <i>The Cretaceous</i>	Chapter 17
10/30 <i>The Cretaceous, cont.</i> <i>On-line quiz #8</i>	Chapter 17
11/2 <i>The Cretaceous, cont.</i> - Remote	Chapter 17
11/3 NO CLASS – Election Day	
11/4 <i>The Paleogene</i> - Remote	Chapter 18
11/6 <i>The Paleogene</i> - Remote <i>On-line quiz #9</i>	
11/9 <i>The Neogene</i>	Chapter 19
11/10 Paleozoic Orogenies of North America	Lab Exercise 15
11/11 NO CLASS – Veteran’s Day	
11/13 <i>The Holocene</i>	
11/16 <i>The Holocene, cont.</i>	
11/17 Cordilleran Orogeny	Lab Exercise 16
11/18 Review for final exam (which is 2 days later)	

Final Exam is Friday, November 20 at 8am. The final exam will be comprehensive.

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 and labs will be counted in determining the final grade in the course.** The weighting to determine the final letter grade is as follows:

% of Final Grade	
30	Laboratory Exercises (12 at 2.5% each)
10	On-line quizzes, (9 @ 1.1% each)
12	First exam
14	Second exam
16	Third exam
18	Final exam
100	Total % for the entire course

Laboratory Exercises: All laboratory exercises are graded. Each weekly exercise counts as 2.5% of your final grade. Labs occur on every Tuesday of the fall semester and are shown in red on the schedule above. Completed lab exercises must be turned in at the beginning of class on Tuesday, one week after the lab is assigned. Late labs will not be accepted. Be very careful to answer every assigned question so as to receive credit, so

you do not receive an incomplete lab grade. (Incomplete lab grades are a common source of point loss.)

On-line quizzes: Nine on-line quizzes will be given throughout the semester on those weeks in which we do not have a regularly-scheduled exam. Each on-line quiz will open on Friday afternoon at 3pm and will close on the following Monday at midnight. Thus, each quiz will remain open for 3 days until it closes. Each quiz will consist of 20 questions that will be a mix of multiple choice (15 questions) and True/False (5 questions). You will be able to take the quiz only once, and once you start you will have one hour to finish before the quiz will close.

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 will be comprehensive, but will focus on the course material covered since the last midterm.** 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 hours. It is scheduled for **Friday, November 20 from 8:00 – 10:00am.** 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. Prior to each exam, a set of study materials will be posted to the moodle site. These materials will include a study guide and a copy of exams given in this class in prior years.

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: <https://www.umt.edu/student-affairs/community-standards/default.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](https://www.umt.edu/dss/) (<https://www.umt.edu/dss/>) or call 406.243.2243 (Voice/Text).

Covid-19 mitigation during class activities:

- 1) Mask use is required within the classroom. [View UM's face covering policy.](#)
- 2) Each student is provided with a Healthy Griz kit. We expect students to clean their personal work space when they arrive for class, and before they leave the classroom.
- 3) Refill stations for cleaning supplies/hand sanitizer will be set up around campus - please learn where they are and use them.

- 4) Classrooms may have one-way entrances / exits to minimize crowding.
- 5) Students are discouraged from congregating outside the classroom before and after class.
- 6) Instructors should assign seating to ensure social distancing and take attendance to support contact tracing efforts.
- 7) Instructors should not allow more students in their classrooms at any time, for any reason, than the [maximum approved capacity](#).
- 8) Additional seating should not be added to classrooms.
- 9) Drinking liquids and eating food (which requires mask removal) is strongly discouraged within the classroom.
- 10) Stay home and contact the Curry Health Center at (406) 243-4330 if you feel sick and/or if exhibiting COVID-19 symptoms.
- 11) If you are diagnosed with COVID-19, follow instructions for quarantine and contact your advisor so they can help you stay on track academically.
- 12) Students, please remain vigilant outside the classroom and help mitigate the spread of COVID-19.