Course Syllabus Final: Physical Geology Campus
McCoy College of Science, Mathematics, and Engineering
GEOS 1134
Fall 2019

Contact Information

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Office hours: Monday-Thursday 11am–noon; 3-4pm. Full class schedule in D2L.
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Course Description

A Lecture-based overview of the Earth, its mineral and rock components, and the variety of physical processes, both surface and subsurface that have operated over the long history of Earth. Lectures, by their very nature are of limited length and cover only the most essential aspects of the 24 topics that comprise this course. These topics include the various components of the earth including minerals, igneous rocks, sedimentary rocks, and metamorphic rocks and their associated mineral and energy deposits. We will also look at the various subsurface processes such as weathering, erosion, mass movement due to water, wind, and gravity that largely shape the Earth's surface. We will also examine the subsurface processes that affect us such as earthquakes and volcanic activity and their associated hazards. Running throughout the course and providing a unifying theory for much of geology is the theory of plate tectonics originally put forward as a hypothesis in the early 1900's and only became widely accepted about 50 years ago. In addition to the PowerPoint-based lectures, you are also expected to read the appropriate chapters in the required course textbook. This course outline/syllabus contains a detailed schedule including a list of specific topics and corresponding textbook readings.

The Lab portion of the course includes hands-on projects ranging from mineral and rock identification to using and understanding maps to studying key surface processes such as mass wasting (landslides and rock falls), impact of water as an agent of weathering and transport medium, and the impact of more dramatic geological processes such as earthquakes and volcanoes. You will use the required Lab Manual in your lab section meetings.

At the end of this course, you will be familiar with the structure of earth, surface and subsurface, the importance of plate tectonics as a unifying theme for geology and as an explanation for the occurrence and distribution of oceans, mountains, earthquakes, volcanoes, and large geologically "quiet" regions such as the eastern portion of the United States. You will also understand the role of rivers, winds, oceans, and gravity that continuously shape the Earth's surface.

Required Textbook & Lab Manual

Earth: An Introduction to Physical Geology (Tarbuck, 12th Edition). Note that the purpose of the textbook is to provide a reference source as well as a convenient way to learn more about topics of particular interest to you. Other geology texts, both online and print, may fulfill this need as well. The lab manual, however, is absolutely required!

Laboratory Manual in Physical Geology (Cronin and Tasa, 11th Edition). Students may "share" a lab manual but are responsible for making their own copies of pages that need to be completed as part of a lab assignment.

Student Handbook

Refer to: Student Handbook 2017-18 or current

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct. See Student Handbook

Grading

Lecture Portion of course = 55% of final grade. Exam 1 = 15% of final grade; Lecture Exam 2 = 20% of final grade; Final Exam = 20% of final grade. Exams and Lab Quizzes may be made up only if (1) you have a written excuse as to why you missed the exam and (2) you notified Dr. Meddaugh and your lab TA as well; in advance that you would miss the exam. A missed exam or quiz must be made up within one week or you may receive a grade of zero. Obviously, there may be extreme circumstances as to why prior notice was not given. These will be evaluated on a case-by-case basis. Note that oversleeping is not an acceptable reason! All lecture exams are cumulative and will include material from the lab assignments and exercises. Lab Portion of course = 40% of final grade. Lab Quizzes 1 and 2 (Rock and Mineral Identification) each determine 5% of your final course grade. The Lab Comprehensive Final Quiz is worth 10% of final course grade (and yes, there will be rocks and minerals to identify on the lab final!). Lab attendance and participation, lab exercise completion, and homework assignment completion (usually one per week) determine your overall Lab Completion grade that is worth 20% of your final course grade. All lab assignments must be turned in within one week of original due date or grade penalties may apply. Late submissions will receive a grade penalty of generally one letter grade per week. After two weeks, a grade of zero may be given for a late/missing assignment. No lab assignments may be submitted after the lab final exam. A missed lab quiz or exam must be made up within one week or you may receive a grade of zero for the lab quiz or exam. In no case may the lab final exam be made up later than the day after of the final lecture exam. Prior notice by email to both Dr. Meddaugh and your lab TA must be given should you

need to miss a lab quiz or exam. The Research Paper grade is 5% of final grade. Research papers must be between 2250 and 3250 words (about 4-6 pages of text based on 11-pt or 12-pt font; word count per MSWord's word count tool) and be no longer than thirteen total pages including illustrations and title page. Papers must contain a summary of no more than 250 words (included in word count), at least three primary, peer reviewed references, and be structured as follows: (1) Title page with title and author; (2) Summary; (3) Introduction (background and rationale for paper topic choice); (4) Discussion (basically what you learned and want to share with your colleagues as a result of your research); (5) Conclusion (highlight or restatement of most important learning's from your perspective and why you chose the particular topic); and (6) references (minimum of five primary references). Figures and/or tables (with captions and references) may be included within the text or at end of paper. Format – MS Word; paper copy and electronic copy to be submitted per the course schedule/syllabus. Papers are due as per the syllabus schedule. Papers submitted one week late will be docked one letter grade (e.g. 10 points; thus a paper that would have received an 85% grade if submitted on time will receive a final grade of 75% if submitted one week late). Research papers submitted more than two weeks late may be given a grade of zero. Papers must be submitted in both printed and electronic form (MS Word). The latter should be submitted via Dr. Meddaugh's university email at scott.meddaugh@msutexas.edu with the words "GEOS Paper Fall 2019" along with your paper title on the email subject line. Failure to submit bot the electronic copy and paper copy may incur a 20% grade penalty. The research paper grade is determined based on format compliance (may be up to 50% of paper grade; see previous paragraph for details) and content/logical reasoning (may be up to 50% of paper grade). Note that the Lecture exams, lab quizzes, and lab completion grades are typically normalized ("curved") by simple arithmetic adjustment so that the class grade average is between 78-81%. Note that the adjustments may be positive or negative. Also, note that lab grades may be normalized by individual lab section. All components of your final grade must be submitted/completed by December 9. The homework assignments will be posted in D2L. The homework assignments will include questions to answer that focus on lecture and lab content. Homework due dates are listed in the syllabus. Note: No homework, lab assignments, or research papers may be submitted after 12/6/2019. The Table below (next page) summarizes the grading policy for this course.

Table 1: Points allocated to graded item or group of items discussed in the Grading Section above.

Graded Items	Contribution to Final Course Grade
Exam 1	15%
Exam 2 and Exam 3 (Final Exam)	40% (total; each 20%)
Lab Overall Grade (includes lab quizzes, lab participation and attendance, homework assignments and assessments	40% (total; each quiz is 5% of final course grade and lab final is 10% of final course grade). The lab participation grade (20% of final course grade) is derived from lab assignments, lab participation and attendance, and homework submittals.
Research Paper	5%

Table 2: Final grade determination (grades are normally rounded up to the nearest integer before assigning the final course letter grade. This means, for example, that a final calculated course grade of 89.4% will be rounded up to a final course grade of 90.)

Grade	Points
A	90 and above
B	80-89
C	70-79
D	60-69
F	Less than 60

Homework

See Grading Section for details – All Homework to be submitted to your lab TA in your regular lab section

Lab Assignments

See Grading Section for details – All Lab Assignments to be submitted to your lab TA during your regular lab section meeting.

Lab Attendance Policy – Important!

Students who miss three or more lab section meetings may be dropped from the course by the instructor. Students are responsible to work with their lab section

TA to make up any missed material in a timely fashion. Students must notify their lab TA and Dr. Meddaugh by email in advance of missing a lab section. **Students who leave lab sections early may be marked absent.**

Exams

See Grading Section for details – Three lecture exams are included in your course grade; see Grades section for details. All exams will have a time limit of 50 minutes for the two "midterm" exams and 110 minutes for the final exam.

Research Paper

See Grading Section for details about content and format. All Research Papers must be submitted in Microsoft Word or PDF format to Dr. Meddaugh at scott.meddaugh@msutexas.edu and paper copy via Dr. Meddaugh's physical mailbox in Bolin 307. **Failure to submit both the electronic copy and paper copy may result in a significant grade penalty.**

Lecture (Attendance) Extra Credit

Limited extra credit opportunities will be available on an irregular and random basis during the lecture portion of the course. Each individual extra credit opportunity will be worth up to one (1.0) extra credit point. Generally, these opportunities will involve a short written response to a question or problem posed during the lecture or more often than not, simply your signature on an attendance sheet. (Therefore, bring paper and pen/pencil to lectures!). Should you miss an extra credit opportunity you will be penalized one extra credit points. Note that your extra credit total will never be less than zero. You may earn up to 4 points added to your final grade via these "regular" extra credit opportunities. There will be 10 to 14 regular extra credit opportunities during the semester.

Special Extra Credit

Special extra credit opportunities may also be announced during the semester. These opportunities, worth up to a total of one (1) special extra credit (added to your final calculated course grade) typically have included the scheduled Geology Colloquium talks or other special lectures or film showings on campus that pertain to geology and/or participation in Undergraduate Research presentations or evaluations.

Late Work

Late work will be accepted through 12/6/2019. However, the following penalties will apply in all cases of late submittals (unless other arrangements have been made): 10% for one day past due; 20% for two days past due; 30% for three days past due; after three days a grade of zero may be recorded. No course assignments will be accepted after 12/62019.

Important Dates

Last Day to drop this course with a grade of "W" is 4pm, October 28, 2019

Refer to: Drops, Withdrawals & Void

Desire-to-Learn (D2L)

The MSU D2L program is a part of this course. Lectures, review materials, and course information is available through D2L. You can log into D2L through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exists in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students With Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to Disability Support Services.

College Policies

Campus Carry Rules/Policies are given here: Campus Carry Rules and Policies

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place, which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Grade Appeal Process

Students who wish to appeal a grade should consult the Midwestern State University Undergraduate Catalog

Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. Changes will be communicated to all students through D2L**.** Please check the course news on a regular basis for schedule updates.

Course schedule detail given on the next five pages. The first table lists lecture topics, textbook readings, and the three lecture exams. The second table lists the dates for the lab topics, three lab quizzes, research paper due date, homework assignment due dates, and self-assessment assignments.

Course Schedule – Lecture Topics and Exams, Text Reading (Page 1 of 3)

Date	Topic and Topic Number	Textbook Pages
26-Aug	Course Overview. What is Science? What is the Scientific Method? Geology as a Science. Why Study Geology?	Pages 2-13
28-Aug	Time and Geology - Relative Time and Absolute Time. Age of the Earth.	Pages 272-281
30-Aug	Seismology and the Gross Internal Structure of the Earth	Pages 19-35 and Pages 362-385
2-Sep	Labor Day - No Classes	None
4-Sep	Plate Tectonics as the Unifying Principle for Geology - Part 1	Pages 36-71
6-Sep	Plate Tectonics as the Unifying Principle for Geology - Part 2	Pages 36-71
9-Sep	Mineralogy - Part 1. Basic Concepts	Pages 72-105
11-Sep	Mineralogy - Part 2. Important Mineral Classes and Specific Minerals	Pages 72-105
13-Sep	Igneous Rocks and Minerals - Part 1. Introduction	Pages 106-139
16-Sep	Igneous Rocks and Minerals - Part 2. Magma and Intrusive Igneous Activity	Pages 106-139
18-Sep	Igneous Rocks and Minerals - Part 2. Magma and Intrusive Igneous Activity (Continued)	Pages 106-139
20-Sep	Igneous Rocks and Minerals - Part 3. Volcanoes and Associated Hazards and Economic Geology of Igneous Rocks*	Pages 140-179
23-Sep	Weathering and Soil Formation	Pages 180-209
25-Sep	Sedimentary Rocks - Part 1.	Pages 210-239
27-Sep	Sedimentary Rocks - Part 2.	Pages 210-239
30-Sep	Sedimentary Rocks - Part 3. (Lecture Video in D2L; No Class)	Pages 210-239
2-Oct	Sedimentary Rocks - Part 4. (Lecture Video in D2L; No Class)	Pages 210-239

Course Schedule – Lecture Topics and Exams, Text Reading (Page 3 of 3)

Date	Topic and Topic Number	Textbook Pages
4-Oct	Review 1	None
7-Oct	**FIRST EXAM** (will cover all material through October 2) - 15% of grade	None
9-Oct	Sedimentary Rocks - Part 5. Geology of Oil and Natural Gas*	TBA
11-Oct	Metamorphic Rocks - Part 1. Metamorphism, Metamorphic Textures, Common Metamorphic Rocks	Pages 240-271
14-Oct	Metamorphic Rocks - Part 2. Burial/Regional Metamorphism	Pages 240-271
16-Oct	Metamorphic Rocks - Part 3. Contact and Hydrothermal Metamorphism; Economic Geology of Metamorphic Rocks*	Pages 240-271
18-Oct	Crustal Processes - Surface Geological Observations; Deformation - Folds and Fractures	Pages 302-325
21-Oct	Crustal Processes - Surface Geological Observations; Deformation - Folds and Fractures (continued)	Pages 302-325
23-Oct	Crustal Processes - Earthquakes	Pages 326-361
25-Oct	**SECOND EXAM** (will cover all material presented or assigned through October 23) - 20% of grade	None
28-Oct	Crustal Processes - Oceans	Pages 386-417
30-Oct	Crustal Processes - Mountains	Pages 418-441
1-Nov	Crustal Processes - Mass Wasting	Pages 442-465
4-Nov	Crustal Processes - Mass Wasting (continued)	Pages 442-465
6-Nov	Crustal Processes - Surface and Running Water	Pages 466-499
8-Nov	Crustal Processes - Surface and Running Water (Continued)	Pages 466-499

Course Schedule – Lecture Topics and Exams, Text Reading (Page 3 of 3)

Date	Topic and Topic Number	Textbook Pages
11-Nov	Crustal Processes - Ground Water	Pages 500-531
13-Nov	Crustal Processes - Ground Water (continued)	Pages 500-531
15-Nov	Crustal Processes - Glaciers	Pages 532-569
18-Nov	Crustal Processes - Oceans and Shorelines	Pages 570-593
20-Nov	Crustal Processes - Winds and Deserts	Pages 594-629
22-Nov	Climate Change - Experimenting on a Small Planet	Pages 630-665
25-Nov	Climate Change - Additional Detail (1)	Pages 630-665
27-Nov	Thanksgiving Break - No Class	
29-Nov	Thanksgiving Break - No Class	
2-Dec	A Very Short Version of Earth's Geological History	Pages 666-701
4-Dec	Lecture Catch Up and/or Course Review	
6-Dec	Course Review	**Last Day to Submit Any Late Assignments! Grade Penalties per the Course Syllabus May Apply. Nothing accepted after 11pm CDT.**
9-Dec	**THIRD EXAM** (will cover all material presented in the lecture and the lab section of the course) - 20% of grade. Room and time per University Final Exam Schedule.	

Course Schedule –for Labs, Lab Quizzes, Homework, Research Paper, and Assessments (Page 1 of 2)

Date (Week of date listed unless otherwise noted as a specific date)	Lab Topic, **Lab Quiz, Research Paper**	Homework and Self-Assessment Assignments
26-Aug	Note: Labs will meet the first week of the term. Lab #1 - Mineral Identification.	None
2-Sep	Lab #2 Mineral Identification. Note that T, Th Labs will meet as scheduled. Monday lab students schedule will be off by one week until Thanksgiving break.	HW 1 and Assessment 1
9-Sep	Lab #3 Mineral Identification	HW 2 and Assessment 2
16-Sep	**Lab Mineral Quiz - 5% of grade**. Also, Lab #4 Introduction to Rocks	HW 3 and Assessment 3
23-Sep	Lab #5 Igneous Rocks	HW 4 and Assessment 4
30-Sep	Lab #6 Sedimentary Rocks	HW 5 and Assessment 5
7-Oct	Lab #7 Metamorphic Rocks	HW 6 and Assessment 6
14-Oct	**Lab Rock and Mineral Quiz - 5% of grade**; Also, Lab #8 Dating of Rocks, Fossils, and Geological Events	HW 7 and Assessment 7
21-Oct	Lab #9 - Topographic Maps and Earthquakes	HW 8 and Assessment 8
28-Oct	Lab #10 - Geological Structures, Block Diagrams, and Maps	HW 9 and Assessment 9
4-Nov	Lab #11 River Processes and Hazards; Groundwater	HW 10 and Assessment 10
11-Nov	#12 Coastal Processes and Desert Landforms	HW 11 and Assessment 11
18-Nov	Monday Lab Catch Up; T-F Labs will have semester review	

Course Schedule –for Labs, Lab Quizzes, Homework, Research Paper, and Assessments (Page 2 of 2)

Date (Week of date listed unless otherwise noted as a specific date)	Lab Topic, **Lab Quiz, Research Paper**	Homework and Self-Assessment Assignments
22-Nov		**Research Paper Due by 4pm. Note: Paper and Electronic (MSWord) Versions Must Be Submitted! 5% of Final Course Grade**
25-Nov	Monday Lab will have semester review; other labs do not meet	HW 12 and Assessment 12
27-Nov	Thanksgiving Break	
2-Dec	**LAB FINAL QUIZ (includes Rocks and Minerals) - 10% of grade**	None
6-Dec		**Last Day to Submit Any Late Assignments! Grade Penalties per the Course Syllabus May Apply. Nothing accepted after 11pm CDT.**

End of course syllabus