

Course Syllabus Final: Physical Geology Online
McCoy College of Science, Mathematics, and Engineering
GEOS 1134 Section X20
Fall 2023

Contact Information

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Office hours: Not Applicable; e-mail via D2L is checked several times a day M-F.

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Course Instructional Mode

This course is presented fully online in D2L with occasional links to non-university websites. All lectures and course reviews are in D2L as voice-over video files and printable .pdf files. All Lab Exercises Lectures, Course Reviews, Homework, and Self-Assessments are provided in D2L. Other course materials that may be used (e.g. videos) will also be posted in D2L or links provided. All exams are administered online using D2L. You will generally have a 3- or 4-day window to take the exams. All homework, lab, and miscellaneous assignments must be submitted to the appropriate D2L dropbox. If you have questions that are course schedule or content related please contact the instructor by email.

This is an asynchronous course. This means that you may work ahead of the course schedule given in this document as your schedule permits.

There are penalties, however, should you fall behind schedule (see grading section for more information)

Note that all D2L-related issues and technical problems should be handled via D2L support at this link: <https://msutexas.edu/distance/online-courses.php>

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 or textbook of choice. This course outline/syllabus contains a detailed schedule including a list of specific topics and corresponding textbook readings. We will also visit other geology-related topics including climate change and the fossil record of life on Earth.

The Lab portion of the course includes projects ranging from mineral and rock identification (using pictures and property descriptions) 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. 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 as well as the issues associated with Climate Change.

Textbook & Instructional Materials

Earth: An Introduction to Physical Geology (Tarbuck, 12th Edition or more recent versions) is the recommended textbook. Note that the purpose of the textbook is to provide a reference for you 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 at much lower cost to you than the recommended textbook. Note that many students find either an online textbook substitute (link below) or a buy/rent a lower cost textbook.

<https://open.umn.edu/opentextbooks/textbooks/physical-geology>)

Due to excessive cost and decreased quality of rock/mineral samples, a physical lab kit is not used this semester. Equivalent lab exercises are posted in D2L that cover the range of topics from mineral and rock identification to volcanoes and earthquakes to climate change.

In addition to the lectures there may be additional assigned readings and/or videos to view. Notices for these mandatory "extras" will be posted in D2L "News" as needed. Some exam questions may be based on the posted news items. Also, there may be an occasional assignment based on the geology in the news items or other items of interest. These extra readings focus on current geological events such as volcano eruptions, earthquakes, and climate change.

Student Handbook

Refer to: <https://msutexas.edu/student-life/assets/files/handbook.pdf> or most recent MSUTexas Student Handbook

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 also in the Student Handbook.

Grading

There will be three lecture exams, the first two will each determine 15% of your final grade and the third ("final") exam will determine 20% of your course grade. Note that all lecture exams are "cumulative and comprehensive"; all prior material covered in lecture and lab, textbook readings, and any assigned *Geology in the News* readings will be included on exams. The "lecture" portion of the course will account for 50% of your final course grade. The "lab exercises, homework assignments, and geology in the news" will account for a total 40% of your final course grade. A significant research paper on a topic of your choice that is clearly related to the geology topics addressed in this course will make up the final 10% of your overall grade. Note that you cannot get an "A" in the course without submitting an appropriate research paper.

The self-assessments will help you assess your mastery of both the lab and the lecture material. Although you will receive a numerical self-assessment grade, the assessments are counted as completed or not as far as your final course grade is concerned. If you complete 75% of the assessments, your self-assessment component "grade" for the semester is 75%; if you complete only 40% of the self-assessments, your assessment "grade" for the semester is 40%. Completion of all lab and homework assignments on time is expected. Late work may be penalized as noted below.

Lab assignments are posted in D2L. Completed lab assignments are also submitted via D2L drop boxes and due per the syllabus. Labs submitted after the due date are subject to a late penalty of 10% for one week past due; 20% for two weeks past due; 30% for three weeks past due). After three weeks, a missed lab may be given a grade of zero. All labs are provided in D2L. Completed labs must be submitted to the proper D2L dropbox

Homework assignments are also given during the semester. The homework assignments are posted in D2L. The homework assignments include questions that focus on both lecture and lab content. The homework assignments have a due date

as listed in the syllabus and a grade penalty assessed for late assignments as follows: 10% for one week past due; 20% for two weeks past due; after three weeks a grade of zero for the missed homework may be recorded. Homework must be submitted via D2L (look for assignment specific dropboxes!). Homework due dates are listed in the syllabus at the end of this document.

Finally, your Research Paper (details in separate section below) will account for the remaining 10% of your final grade. An electronic (MSWord or .pdf) version of your completed Research Paper is due per the syllabus schedule. The penalty for late submission of the research paper via D2L is as follows: 10% for one day past due; 20% for two days past due; 30% for days weeks past due; after three days a grade of zero may be recorded for the Research Paper grade.

Note: No work may be submitted after 12/10/2023. Also, 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% will be rounded up to a final course grade of 90%.

Table 1: Points allocated to the various graded items or item groups

Graded Items	Contribution to the Final Course Grade
Exams 1 and 2 (each)	15%
Exam 3 (Final Exam)	20%
Lab Assignments (11 in total)	30% (total)
Homework Assignments (12 in total)	4% (total)
Research Paper	10%
Discussion Questions	2% (if applicable)
Self-Assessments (12 in total)	4% (total)

Table 2: Final grades determination)

Grade	Calculated Points or Percent (%)
A	90
B	80-89
C	70-79
D	60-69
F	Less than 60

Homework

See Grading Section for details – All Homework must be submitted via the appropriate and specific D2L dropbox.

Lab Assignments

See Grading Section for details – All Lab Assignments must be submitted via the appropriate and specific D2L dropbox.

Exams

See Grading Section for details – **All Exams are online and are provided in D2L.** Details regarding the “open” period for completing the exams are provided in the Grading Section above. All exams will have a time limit of 55 minutes for the two “midterm” Exams and 110 minutes for the final Exam. The exams will be open for a minimum of 48 hours. Student who have worked with DSS will be given additional time to complete exams.

Research Paper

Your Research paper grade is 10% of final course grade. Research papers must be between 2250 and 3250 words (about 6-8 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. Figures and/or tables with captions including source may be included within text or at end of paper (*proper credit must be given for figures, maps, pictures that you include in your report*). Format for the report is MS Word or pdf file. The digital copy to be submitted per the course schedule/syllabus via D2L. **Your paper must be organized as follows:**

1. **Title** and author name on front page. Nothing else on the front page, please!
2. **Abstract** – 250 word limit summarizing your paper including a sentence on why you chose the particular topic.
3. **Introduction** – Opening paragraphs of your paper that describe the topic in general, its importance or application to you and the community, and a sentence or two about why you choose the particular topic.
4. **Main Body** – Discussion of what your research revealed to you and what you want to share. Note that references are also required in the Main Body, usually one or more per paragraph.
5. **Conclusion(s)** – The key messages or “take-away” points that you expect the reader to remember.
6. **References** – List of references you used to research and write your paper. The minimum number of references is three.

Failure to follow the organizational and heading structure given above is an automatic 10% grade deduction! Failure to meet the length requirement may result in additional 10% grade deduction. Failure to properly cite your sources (in both the text, generally one per paragraph and figures/illustration captions) may result in a 10% grade reduction. Please make sure that for any map, picture, graph, or other illustrations that you have used in your paper that you provide the source/reference in the item’s caption.

Papers are due as per the syllabus schedule. Grade penalties of one letter grade per day late may apply. All papers must be submitted via D2L.

Note: All Research Papers must be submitted in Microsoft Word or PDF format via the appropriate and specific D2L dropbox.

Extra Credit

There are no Extra Credit opportunities in this course though that may be changed by the instructor without notice.

Late Work

Late work will be accepted through 12/10/2023. However, the following penalties will apply in all cases of late submittals (unless other arrangements have been made in advance): 10% for one week past due; 20% for two weeks past due; 30% for three weeks days past due. Submissions four weeks overdue may be given a grade of zero. **No course assignments will be accepted after 12/10/2023.** All assignments missing as of 12/10/2023 will be given a grade of zero.

Important Dates

Last Day to drop with a grade of "W:" 4pm, October 30, 2023

Refer to: [Drops, Withdrawals & Void](#)

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. 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.

Online Computer Requirements

Taking an online class requires you to have access to a computer with reasonable (quality/speed/dependability) internet access to complete and upload your assignments. It is your responsibility to have (or have access to) a working computer in this class. Assignments and tests must be submitted by the due date or late penalties may apply, and personal computer technical difficulties may not be considered as a reason for the instructor to allow students extra time to submit assignments, tests, homework, labs, or discussion postings. Computers are available on campus in various areas of the buildings as well as the Academic Success Center. Your computer being down is not an excuse for missing a deadline! There are many places to access your class! Our online classes can be accessed from any computer in the world which is connected to the internet. Contact your instructor immediately by email if you are having computer/internet trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The college cannot work directly on student computers due to

both liability and resource limitations however they are able to help you get connected to our online services. For help, log into [D2L](#).

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, or by phone at (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](#)

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.

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.

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

The course schedule detail is given next five pages. The first table lists lecture topics and associated recommended textbook readings. The second table lists the dates for the exams as well as the lab, research paper, homework, and self-assessment assignment submission deadlines. **Note that the course schedule and/or content may be changed by the instructor at any time. Changes will be posted in D2L at least three days prior to a change and significant changes will also be made in an updated syllabus in D2L.**

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

Date	Topic and Topic Number	Textbook Pages
28-Aug	Course Overview. What is Science? What is the Scientific Method? Geology as a Science. Why Study Geology? (Topic 1)	Pages 2-13
30-Aug	Time and Geology - Relative Time, Absolute Time, Age of the Earth. (Topic 2)	Pages 272-281
1-Sep	Seismology and the Gross Internal Structure of the Earth (Topic 3)	Pages 19-35 and Pages 362-385
4-Sep	Labor Day Holiday – No Class	
6-Sep	Plate Tectonics as the Unifying Principle for Geology - Part 1 (Topic 4)	Pages 36-71
8-Sep	Plate Tectonics as the Unifying Principle for Geology - Part 2 (topic 4)	Pages 36-71
11-Sep	Mineralogy - Part 1. Basic Concepts (Topic 5)	Pages 72-105
13-Sep	Mineralogy - Part 2. Important Mineral Classes and Specific Minerals (Topic 5)	Pages 72-105
15-Sep	Igneous Rocks - Part 1. Introduction (Topic 6)	Pages 72-105
18-Sep	Igneous Rocks - Part 2. Magma and Intrusive Igneous Activity (Topic 6)	Pages 106-139
20-Sep	Igneous Rocks - Part 2. Magma and Intrusive Igneous Activity (Topic 6)	Pages 106-139
22-Sep	Igneous Rocks - Part 3. Volcanoes and Associated Hazards and Economic Geology of Igneous Rocks (Topic 7, 8)	Pages 106-139
25-Sep	Weathering and Soil Formation (Topic 9)	Pages 140-179
27-Sep	Sedimentary Rocks - Part 1. (Topic 10)	Pages 180-209
29-Sep	Sedimentary Rocks - Part 2. (Topic 10)	Pages 210-239
2-Oct	Sedimentary Rocks - Part 3. Sedimentary Textures and Depositional Environments (Topic 10)	Pages 210-239

Course Schedule – Lecture Topics and Exams, Text Reading (Page 2 of 3)

Date	Topic and Topic Number	Textbook Pages
4-Oct	Sedimentary Rocks - Part 4. Diagenesis and Lithification; Economic Geology of Sedimentary Rocks including Oil and Gas* (Topic 11)	Pages 210-239
6-Oct	Review 1	None
9-Oct	FIRST EXAM (will cover all material through October 4) - 15% of grade. Exam open/close time TBA.	None
11-Oct	Metamorphic Rocks - Part 1. Metamorphism, Metamorphic Textures, Common Metamorphic Rocks (Topic 12)	Pages 240-271
13-Oct	Metamorphic Rocks - Part 2. Burial/Regional Metamorphism (Topic 12)	Pages 240-271
16-Oct	Metamorphic Rocks - Part 3. Contact and Hydrothermal Metamorphism; Economic Geology of Metamorphic Rocks (Topic 12)	Pages 240-271
18-Oct	Crustal Processes - Surface Geological Observations; Deformation - Folds and Fractures (Topic 14)	Pages 302-325
16-Oct	Crustal Processes - Earthquakes (Topic 13)	Pages 326-361
18-Oct	Crustal Processes – Oceans (Topic 15)	Pages 386-441
20-Oct	Crustal Processes – Mountains (Topic 16) and Crustal Processes - Mass Wasting (Topic 17)	Pages 386-441
23-Oct	Crustal Processes - Surface and Running Water (Topic 18) and Crustal Processes - Ground Water (Topic 19)	Pages 442-465; Pages 466-531
25-Oct	Review 2	None
27-Oct	SECOND EXAM (will cover all material through October 25) - 15% of grade. Exam open/close time TBA.	None

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

Date	Topic and Topic Number	Textbook Pages
30-Oct	LAST DAY TO DROP COURSE WITH A "W"	None
1-Nov	Crustal Processes – Glaciers (Topic 20)	
3-Nov	Crustal Processes - Oceans and Shorelines (Topic 21)	Pages 532-569
6-Nov	Crustal Processes - Winds and Deserts (Topic 22)	Pages 570-593
8-Nov	The Earth's Climate System (Topic 23)	Pages 570-593
10-Nov	The Earth's Climate System (Topic 23)	Pages 594-629
13-Nov	The Earth's Climate System (Topic 23)	Pages 594-629
15-Nov	The Earth's Climate System (Topic 23)	Pages 594-629
17-Nov	Climate Change – Impacts and Mitigation (Topic 24)	Pages 594-629
20-Nov	Climate Change – Impacts and Mitigation (Topic 24)	Pages 594-629
21-Nov	Thanksgiving Break – Starts 10pm on November 21	
27-Nov	Climate Change – Impacts and Mitigation (Topic 24)	Pages 594-629
	Climate Change – Impacts and Mitigation (Topic 24)	Pages 594-629
29-Nov	Climate Change – Impacts and Mitigation (Topic 24)	Pages 594-629
29-Nov	A Very Short Version of Earth's Geological History (Topic 25)	Pages 666-701
1-Dec	A Very Short Version of Earth's Geological History (Topic 25)	Pages 666-701
4-Dec	Review 3	
6-Dec		None
8-Dec	THIRD/FINAL EXAM (will cover all material presented in the lecture and the lab section of the course as well as Geology in the	

Date	Topic and Topic Number	Textbook Pages
	News items) - 20% of grade. Exam open/close time TBA.	

Course Schedule –Due Dates for Labs, Homework, Research Paper, and Assessments by Week. Assignments are due in the appropriate D2L Dropbox by 11pm of the End of the Week as listed below.

Date	Lab Assignment Due Dates	Homework (HW) and Self-Assessment Completion Note Due Dates
8/28/2023	No lab this week.	None
9/4/2023	No lab this week.	HW 1 and Assessment 1
9/11/2023	Lab A: Geological Age Dating – Relative and Actual/Real Time	HW 2 and Assessment 2
9/18/2023	Lab B: Mineral Identification	HW 3 and Assessment 3
9/25/2023	Lab C: Igneous Rock Identification	HW 4 and Assessment 4
10/2/2023	Lab D: Sedimentary Rock Identification	HW 5 and Assessment 5
10/9/2023	Lab E: Metamorphic Rock identification	HW 6 and Assessment 6
10/16/2023	Lab F: Plate Tectonics and Earthquakes	HW 7 and Assessment 7
10/23/2023	Lab K: Topographic and Geological Maps	HW 8 and Assessment 8
10/30/2023	No Lab Due	No HW or Assessment Due
11/6/2023	Lab G: Mass Wasting/Angle of Repose.	HW 9 and Assessment 9
11/13/2023	Lab H: Fluvial Processes and Landforms)	HW 10 and Assessment 10
11/20/2023	Lab I: Groundwater	HW 11 and Assessment 11
11/27/2023	Lab J: Wind, Desert Landforms	HW 12 and Assessment 12
12/4/2023	Lab L: Stratigraphy	None
12/7/2023	Research Paper Due by 11pm.	
12/10/2023	Last Day to Submit Any Late Assignments for Partial Credit by 11pm.	

Date	Lab Assignment Due Dates	Homework (HW) and Self-Assessment Completion Note Due Dates
	Grade penalties per the course syllabus may apply.	

End of course syllabus