

Course Syllabus Final: Physical Geology Campus
McCoy College of Science, Mathematics, and Engineering
GEOS 1134 Section 101
Fall 2022

Contact Information

Instructor: Dr. W. Scott Meddaugh

Office: Bolin 307F via Zoom

Office hours: Posted in D2L Course Information folder. "Drop in" office visits will usually be handled via a Zoom appointment unless an in-person meeting is necessary. Masks are expected for any in person meeting.

Office phone: (940) 397-4469. Messages may be left, but email is preferred as it tends to be answered quicker.

Please use the D2L email given below:

D2L e-mail: william.meddaugh@d2lmail.msutexas.edu Make sure you start the subject line with "GEOS1134-Campus"

University e-mail: scott.meddaugh@mwsu.edu

Course Instructional Mode (as of August 1, 2022)

This course is presented on campus subject to change based on status of Covid-19 protocols set by the university. All lectures, homework, and course reviews are in D2L as standard printable .pdf files. All lectures and labs will be done on campus subject to change if needed. Note that all D2L-related technical issues 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.

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.

Recommended Textbook, Required Lab Manual and Instructional Materials

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. There are many excellent online textbooks (for example, <https://open.umn.edu/opentextbooks/textbooks/physical-geology>).

The lab manual, however, is required. The lab uses *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.

Note that many students find either an online textbook substitute or a buy/rent a lower cost textbook.

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 readings will be included on exams. The "lecture" portion of the course will account for 50% of your final course grade. The "lab/homework/discussion" portion of your grade will account for a total 40% of your final course grade. The assessments will help you assess your mastery of both the lab and the lecture material. See the table below for details). Although you will receive a numerical assessment grade, the assessments are "graded" as completed or not as far as your final course grade is concerned. If you complete 75% of the assessments, your assessment component "grade" for the semester is 75%; if you complete only 40% of the assessments, your assessment "grade" for the semester is 40%. Completion of all homework and lab assignments on time is expected. Lab assignments are submitted to your Lab TA and due per the syllabus. If you will miss a lab assignment due date you must email Dr. Meddaugh and the Lab TA, in advance. Given appropriate notice, labs must be made up within a week or two and a lab exercise grade penalty may be imposed (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. Lab assignments are given in the syllabus. Homework assignments will also be given during the course of the semester. The homework assignments will be posted in D2L. The homework assignments will include questions to answer that focus on lecture and/or lab content. The individual homework assignments have a due date posted in the syllabus. These should be submitted to your Lab TA for grading. A grade penalty may be 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 due dates are listed in the syllabus at the end of this document. Lecture Portion of course = 55% 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 in advance that you would miss the exam or quiz. 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 (Mineral and Rock Identification, respectively) 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 via the D2L Dropbox. 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 12/3/2022. The Table below (next page) summarizes the grading policy for this course. 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 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. The topic for your Research Paper is due per the syllabus schedule. Note: No work may be submitted after 12/3/2022. Note that 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 89.8% 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
Lecture Exams 1 and 2 (each)	15%
Lecture Exam 3 (Final Exam)	20%
Lab Assignments (11 in total) and Lab Quizzes	30% (total)
Homework Assignments (12 in total)	4% (total)
Research Paper	5%
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 will be provided via D2L.** Details regarding the “open” period for completing the exams will be provided at least one week prior to exam completion dates given in the syllabus schedule. Exams given online via D2L will be open for a minimum of 48 hours. Note that students will normally have 55 minutes to complete each of the first two exams and 110 minutes to complete the Final Exam

Student who have worked with DSS will be given additional time to complete exams provided appropriate documentation from DSS is provided in at least two days in advance of an exam open time/date.

Research Paper

Research paper grade is 5% of final course grade. Research papers must be between 2250 and 3250 words (about 5-7 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) 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. **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 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 follow the length requirement may result in an additional 10% grade deduction. Failure to properly cite your sources (in text and in figures/illustrations captions) may result in another 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. Finally, failure to state why you chose the particular topic will be an automatic 5% grade deduction. Students are encouraged to place the “why I chose this topic” sentence in both the abstract and introduction.

Papers are due as per the syllabus schedule. Grade penalties of 10% per day late may apply.

Note: No work may be submitted after 12/3/2022. 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 12/3/2022. However, the following penalties will apply in cases of late submittals excluding late submittal of Research Paper (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 12/5/2022. All assignments missing as of 12/5/2022 will be given a grade of zero.

Important Dates

Last Day to drop with a grade of "W:" 4pm, October 24, 2022

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 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 are due by the due date, and personal computer technical difficulties may not be considered as a reason for the instructor to allow students extra time to submit assignments, tests, 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 upon having computer 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) exist 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](#)

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 and Course Schedule

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.

The course schedule detail given on the next five pages. The first table lists lecture topics and associated textbook readings. The second table lists the dates for the three exams as well as the lab, research paper, homework, and self-assessment assignments submission deadlines. **Note that course schedule may be changed by the instructor at any time. Changes will posted in D2L and an updated syllabus provided in D2L.**

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

Date	Topic and Topic Number	Textbook Pages
22-Aug	Course Overview and “Mechanics” (Topic 0). What is Science? What is the Scientific Method? Geology as a Science. Why Study Geology? (Topic 1)	Pages 2-13
24-Aug	Time and Geology - Relative Time, Absolute Time, Age of the Earth. (Topic 2)	Pages 272-281
26-Aug	Seismology and the Gross Internal Structure of the Earth (Topic 3)	Pages 19-35 and Pages 362-385
29-Aug	Plate Tectonics as the Unifying Principle for Geology - Part 1 (Topic 4)	Pages 36-71
31-Aug	Plate Tectonics as the Unifying Principle for Geology - Part 2 (topic 4)	Pages 36-71
5-Sep	Labor Day Holiday	
7-Sep	Mineralogy - Part 1. Basic Concepts (Topic 5)	Pages 72-105
9-Sep	Mineralogy - Part 2. Important Mineral Classes and Specific Minerals (Topic 5)	Pages 72-105
12-Sep	Igneous Rocks - Part 1. Introduction (Topic 6)	Pages 106-139
14-Sep	Igneous Rocks - Part 2. Magma and Intrusive Igneous Activity (Topic 6)	Pages 106-139
16-Sep	Igneous Rocks - Part 2. Magma and Intrusive Igneous Activity (Topic 6)	Pages 106-139
19-Sep	Igneous Rocks - Part 3. Volcanoes and Associated Hazards and Economic Geology of Igneous Rocks (Topic 7, 8)	Pages 140-179
21-Sep	Weathering and Soil Formation (Topic 9)	Pages 180-209
23-Sep	Sedimentary Rocks - Part 1. (Topic 10)	Pages 210-239
26-Sep	Sedimentary Rocks - Part 2. (Topic 10)	Pages 210-239

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

Date	Topic and Topic Number	Textbook Pages
28-Sep	Sedimentary Rocks - Part 3. Sedimentary Textures and Depositional Environments (Topic 10)	Pages 210-239
30-Sep	Sedimentary Rocks - Part 4. Diagenesis and Lithification; Economic Geology of Sedimentary Rocks excluding Oil and Gas* (Topic 11)	Pages 210-239
3-Oct	Review 1	
5-Oct	FIRST EXAM (will cover all material through October 4) - 15% of grade. Exam open/close time TBA.	
7-Oct	Sedimentary Rocks - Part 5. Geology of Oil and Natural Gas (Topic 11)	TBA
10-Oct	Metamorphic Rocks - Part 1. Metamorphism, Metamorphic Textures, Common Metamorphic Rocks (Topic 12)	Pages 240-271
12-Oct	Metamorphic Rocks - Part 2. Burial/Regional Metamorphism (Topic 12)	Pages 240-271
14-Oct	Metamorphic Rocks - Part 3. Contact and Hydrothermal Metamorphism; Economic Geology of Metamorphic Rocks (Topic 12)	Pages 240-271
17-Oct	Crustal Processes - Surface Geological Observations; Deformation - Folds and Fractures (Topic 14)	Pages 302-325
19-Oct	Crustal Processes - Surface Geological Observations; Deformation - Folds and Fractures (Topic 14)	Pages 302-325
21-Oct	Crustal Processes - Earthquakes (Topic 13)	Pages 326-361
24-Oct	Crustal Processes – Oceans (Topic 15)	Pages 386-417

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

Date	Topic and Topic Number	Textbook Pages
26-Oct	Crustal Processes – Mountains (Topic 16)	Pages 418-441
28-Oct	Crustal Processes - Mass Wasting (Topic 17)	Pages 442-465
31-Oct	Crustal Processes - Mass Wasting (Topic 17)	Pages 442-465
2-Nov	Crustal Processes - Surface and Running Water (Topic 18)	Pages 466-499
4-Nov	Crustal Processes - Surface and Running Water (Topic 18)	Pages 466-499
7-Nov	Crustal Processes - Ground Water (Topic 19), Review 2 (in D2L)	Pages 500-531
9-Nov	SECOND EXAM (will cover all material presented or assigned through November 8) - 15% of grade. Exam open/close time TBA.	
11-Nov	Crustal Processes - Ground Water (Topic 19)	Pages 500-531
14-Nov	Crustal Processes – Glaciers (Topic 20); Research Paper Topic is due.	Pages 532-569
16-Nov	Crustal Processes - Oceans and Shorelines (Topic 21)	Pages 570-593
18-Nov	Crustal Processes - Winds and Deserts (Topic 22)	Pages 594-629
21-Nov	Climate Change - Experimenting on a Small Planet (Topic 23)	Pages 630-665
23-25-Nov	No Class – Thanksgiving Break	
28-Nov	Climate Change - Experimenting on a Small Planet (Topic 23)	Pages 630-665
30-Nov	Climate Change Mitigation (Topic 24)	Pages 666-701;
2-Dec	A Very Short Version of Earth's Geological History (Topic 25). Last Day to Submit Labs, Homework, Research Paper	
6-Dec	THIRD EXAM – FINAL EXAM (course comprehensive) 20% of grade. Review in D2L. Exam open/close time TBA.	

Course Schedule –Due Dates for Labs, Homework, Research Paper, and Self-Assessments (Page 1 of 2) by Week. Assignments are due on Fridays.

Date – Week Starting ...	Lab Topic and/or Assignment Due Dates	Homework and Self-Assessment Assignments Due Dates (end of week)
8/22/2022	No Lab This Week	No Homework This Week
8/29/2022	Lab A: Geological Age Dating	HW 1 and Assessment 1
9/5/2022	Lab B: Mineral Identification	HW 2 and Assessment 2
9/12/2022	Lab B: Mineral Identification (continued)	HW 3 and Assessment 3
9/19/2022	Mineral Identification Quiz Lab C: Igneous Rock Classification	HW 4 and Assessment 4
9/26/2022	Lab D: Sedimentary Rock Classification	HW 5 and Assessment 5
10/3/2022	Lab E: Metamorphic Rock Classification	HW 6 and Assessment 6
10/10/2022	Rock Identification Quiz and Lab F: Plate Tectonics and Earthquakes	HW 7 and Assessment 7
10/17/2022	Lab G: Mass Wasting/Angle of Repose Research Paper Topic	HW 8 and Assessment 8
10/24/2022	Lab H: Fluvial Processes and Landforms	HW 9 and Assessment 9
10/31/2022	Lab I: Groundwater	HW 10 and Assessment 10
11/7/2022	Lab J: Wind and Desert Landforms	HW 11 and Assessment 11
11/14/2022	Lab K: Topographic and Geological Maps	HW 12 and Assessment 12
11/21/2022	No Lab – Thanksgiving Break	
11/28/2022	Lab Final Quiz. Research Paper Due by 4pm December 2	
12/4/2022	Last Day to Submit Any Late Assignments for Partial Credit	Items due by 11pm CST

End of course syllabus