



Course Syllabus: Petrology  
Kimbell School of Geosciences  
GEOS 3234 Section 201  
Spring 2023

### Contact Information

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### Course Description

Petrology introduces students to the nature and origin of rocks, the solid materials of the Earth's crust and mantle. Students successfully completing the course will be able to identify common rocks by their macroscopic and microscopic properties. Moreover, students completing the course will understand natural crystallization, weathering, erosion, sedimentation, and lithification processes and products.

Students will:

- Understand the nature of rock and similar materials
- Learn the classification system based on texture, mineral/chemical composition, and association
- Examine rock-forming processes and environments.
- Discover the physical characteristics, chemical composition, and common origins of several dozen of the most common rocks.
- Learn the nature of crystallization, lithification, weathering, erosion, and soil formation.
- Recognize information about the origins and alteration of earth materials over time

### Textbook & Instructional Materials

Strongly Recommended: Raymond, *Petrology* (\$43.18 to \$81.00) 2<sup>nd</sup> ed ISBN: 9781577665205

Recommended: Intro to the Rock-Forming Minerals Edition: 3<sup>rd</sup> edition ISBN: 9780903056274

Lab assignments will be disseminated online.

### Academic Misconduct Policy & Procedures

Academic Dishonesty, which includes cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for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), undermines the integrity of the class, the programs, and the university. Any infraction may be met with the minimal penalty of a zero credit on the evaluation. Further additional penalties, such as a failing grade for the course, or dismissal from the academic program will be applied at the discretion of the instructors. Additional guidelines on procedures in these matters may be found in the [Student Handbook](#) .

### Grading

Grading follow the following points system and scheme.

Table 1: Points allocated to each class segment

Assignments	Points
Midterm examination	15%
Final examination	15%
Assignments	35%
Lab final	10%
Project	15%
Field Trip Assignment	10%

Table 2: Total points for final grade.

Grade	Percentage
A	>90%
B	80-90%
C	70-79%
D	60-69%
F	<60%

### Assignment Submission

I will issue specific assignments in class and lab, and try to replicate these on D2L. Completed work may be remitted to the professor in person, through his office mailbox (Bolin 102), or by electronic submission.

Note: You may not submit a paper for a grade in this class that already has been (or will be) submitted for a grade in another course, unless you obtain my advance, explicit written permission and the permission of the other instructor

### Projects Required

I'm hoping to provide a research-based project where each student evaluates a specific rock or system using the on-campus facilities. Specific direction will be issued later in the semester.

### **Mid-Term Exam**

The class requires completion of a mid-term examination. This is a timed exam; the mid-term is an in-class 50 minute exam. The instructor will provide additional information a week prior to the scheduled date.

### **Final Exam**

The class requires completion of a final examination. This is a timed exam; the final is an in-class 120 minute exam.

### **Extra Credit**

There may be extra credit for satisfactory completion of assigned extra tasks.

### **Late Work**

Late assignments slow the grading down and therefore penalize the whole class. They will be provisionally accepted and at discounted credit. For most assignments, you will receive 10% of the grade for submitting your assignment on or before the prescribed time it is due. Late submissions, if accepted, will automatically lose that 10%. I will not take any late assignment after I returned the evaluated materials to the rest of the class.

### **Make Up Work/Tests**

I will only make up exams for excused absences made prior to the exam.

### **Colloquium**

The Kimbell School of Geosciences will host three to four speakers this semester. Your attendance at these events is a part of this class.

### **Important Dates**

Last day for term schedule changes: January 20

Deadline to file for graduation: February 20

Last Day to drop with a grade of "W:" March 27

### **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.

### **Attendance**

As upper-level students, you should realize that it is common courtesy to let your instructor know of a pending absence. Rarely will I not excuse an absence if I'm informed prior to the occurrence. More generally, you need to develop the habit

of informing those impacted by your absence if you are to retain fruitful employment.

But don't show up ill – if you are sick, stay home. Absenteeism will be addressed on an individual basis, and the professor reserves the right to drop students with poor attendance. Students missing three lab sessions will be automatically dropped at the discretion of the instructor.

### **Other Policies to Note**

The Geosciences Program puts together a colloquium series for the benefit of its students. There are typically three of these scheduled each semester. As part of participating in this class, you are required to attend.

Petrology ranks among the most challenging classes within the undergraduate geoscience curriculum. It covers a number of abstract concepts. It incorporates attributes of inorganic chemistry and solid-state physics. It relies heavily on largely non-intuitive, frequently arcane, and always cumbersome nomenclature. In short, plan on spending a good portion of each week on this class.

### **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).

### **Learning environment**

Dr. Price is committed to providing an equitable and inclusive forum for learning and endeavors to keep this class an open, supporting, and safe space for all students. He is available and willing to address your issues and concerns. He also wants you to be aware of the following supporting structures that assist in this environment.

To help achieve the vision of "STEM leadership--Diverse scholarship," the McCoy College of Science, Mathematics, and Engineering (MCOSME) students benefit from the numerous offices and student services available on the MSU campus.

Links to resources and information are here:

[https://msutexas.edu/academics/scienceandmath/student\\_resources.php](https://msutexas.edu/academics/scienceandmath/student_resources.php).

### 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](#).

### Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

### Grade Appeal Process

Update as needed. Students who wish to appeal a grade should consult the Midwestern State University [Undergraduate Catalog](#).

### Covid-19

Covid-19 and the emergence of new strains remains a concern. The instructor would appreciate your thoughtful engagement of the class, including respecting the health, safety, and concerns of your colleagues. As always – illness is an excused absence.

### Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. We are still adapting to the pandemic – anticipate changes and frequently check D2L for updates.

### Proposed Schedule

#### Petrology GEOS 3234 - Topic Schedule for Spring 2023

Week	Day	Date	Topic	Text	Lab
1	W	1/18	Intro	none	none
	F	1/20	Igneous environments	1	none
2	M	1/23	Igneous environments	2	none
	W	1/25	Igneous minerals and textures	2	Phase diagrams
	F	1/27	Igneous minerals and textures	2	none
3	M	1/30	physio-chemical constraints	3	none
	W	2/1	physio-chemical constraints	3	RFMs, optics, and thins
	F	2/3	physio-chemical constraints	3	none

<b>Week</b>	<b>Day</b>	<b>Date</b>	<b>Topic</b>	<b>Text</b>	<b>Lab</b>
4	M	2/6	Guest - Jay Thomas	4	none
	W	2/8	Volcanism	4	Ultramafic rocks
	F	2/10	Volcanism	4	none
5	M	2/13	Partial melting	5	none
	W	2/15	Crystallization	6	Mafic rocks
	F	2/17	Crystallization	6	none
6	M	2/20	Your planet's mantle	7	none
	W	2/22	Your planet's mantle	7	Intermediate rocks
	F	2/24	Oceanic lithosphere	8	none
7	M	2/27	Oceanic lithosphere	8	none
	W	3/1	Convergent magmatism	9	Felsic rocks
	F	3/3	Continental lithosphere	10	none
8	M	3/6	Continental lithosphere	10	none
	W	3/8	Continental lithosphere	10	Wichitas
	<b>F</b>	<b>3/10</b>	<b>Midterm Exam</b>	<b>1 to 10</b>	<b>none</b>
9	M	3/20	Sedimentary deposits	11	none
	W	3/22	Weathering and soils	12	Detrital rocks
	F	3/24	Coarse clastics	13	none
10	M	3/27	Coarse clastics	13	none
	W	3/29	Mudrocks	14	Carbonate rocks
	F	3/31	Mudrocks	14	none
11	M	4/3	Limestones and dolomites	15	none
	W	4/5	Limestones and dolomites	15	Evaporitic rocks
12	M	4/10	Limestones and dolomites	15	none
	W	4/12	Other sed rocks	16	San Juan Basin
	F	4/14	Field Prep	none	none
T	Sat	4/15	Field Trip - Llano	none	none
	Sun	4/16	Field Trip - Llano	none	none
13	M	4/17	Other sed rocks	16	none
	W	4/19	Metamorph P-T space	17	Nonfoliated rocks
	F	4/21	Rock properties	18	none
14	W	4/24	Metabasic and ultrabasic	19	none
	M	4/26	Metapelites	20	Foliated rocks
	F	4/28	Metcalcareous	21	none
15	M	5/1	Tectonics	21	none
	W	5/2	Collision	22	<b>Lab final</b>
	F	5/3	Rock cycle	23	none
<b>F</b>	<b>M</b>	<b>5/8</b>	<b>Final Exam - 10:30 AM</b>	<b>all</b>	<b>none</b>