



Course Syllabus: GEOS 3134 Mineralogy

Kimbell School of Geoscience

GEOS 3134 Section 101 BO 117
Fall 2026

Contact Information

Instructor: Dr. Jonathan Price

Office: 101B

Office hours: M 1:30 -3:30 | T 1-2 | W 1:30 -3:30 | By appointment

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Course Objectives

Mineralogy introduces students to the crystalline components found in rocks. Students successfully completing the course will be able to identify common minerals by their macro- and microscopic properties. Moreover, students completing the course will understand natural crystallization processes and products, their relationship to rock-forming processes, and how minerals record their formation and alteration.

Textbook & Instructional Materials

- Minerals: Their constitution and origin, 2ed. ISBN: 9781107514041
- Key for Identification of Rock-Forming Minerals ISBN: 1138001147
- Laboratory Manual for Mineralogy (distributed in class)
- Mindat.org

Furthermore

Mineralogy ranks is one of the most challenging classes within the undergraduate geoscience curriculum. It covers a number of abstract concepts. It incorporates attributes of inorganic chemistry, solid-state physics, and geometry. It relies heavily on largely non-intuitive, frequently arcane, and always cumbersome nomenclature. In short, this important class is demanding by nature – dedicate yourself to daily progress and work with your professor to stay on track.

But...

Although I expect a high-level of engagement from students, I am fully aware that this class presents serious challenges. Most is novel material that you've never encountered. Few students master all components of the class. Full understanding of the topic is honestly beyond the average undergraduate (most of us require more exposure past the semester). As such, it has a high potential to make students feel lost, frustrated, insecure, behind, and incapable. These are natural and normal feelings.

DON'T GIVE UP! Please talk to me about your concerns should you feel overwhelmed.

We can chart a way forward.

Lab

Weekly meetings, F1-2:50 BO 125 | Instructor: Ricardo Duran

Grading and components

Student accrue points with completion of components in this course. A standard letter grade will be earned from accumulated points at the end of the class.

Points allocated to each component

Components	Points
Project	120
Field Trip 1	100
Field Trip 2	50
Exam 1	100
Exam 2	130
Quizzes	50
Lab assessments	350
Lab final exam	100
Total	1000

Total points and grade

Points	Grade
900	A
800 to 899	B
700 to 799	C
600 to 699	D
Less than 600	F

Work submission

Assignments may be remitted in class to the professor, in person, or to mailbox in Bolin 101. You may also scan and submit your work through 2DL. Select assignments will require submission only through D2L.

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 the explicit written permission of me in advance.

Quizzes

We will have a quiz that opens online approximately every other Friday (check schedule and look for frequent reminders). These will become available Friday and close at 11:59 the following Monday. Quizzes are timed at 20 minutes or longer at the discretion of the professor. There are six on the proposed schedule. Quizzes will use D2L.

Exams

Exam 1 will be a 50-minute test covering the first half of the semester. Exam 2 will be a 2-hour comprehensive test, covering the entire semester. Both are online. The lab final exam is an in-person 1 hour and 50-minute exam on systematic mineral identification.

Projects Required

A term project will cover an individually-assigned topic approved by your instructor. The project will focus on delivering information about minerals in an accessible format.

Colloquium

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

Field trips

The class plans on completing a weekend trip and a day trip as part of its programming. Note dates on the schedule and make yourself available for these powerful learning experiences. In the event of a missed trip, a makeup assignment will be offered for full credit.

Late Work

Late submitted assignments are the bane of our mutual existence: they are disadvantageous to you, because you fall behind the class. They are detrimental to the class, because they hold up grading. They are inefficient to me, because they require my return of a previously graded assignment.

In an attempt to prevent tardy assignments, you will receive 10% points on the assignment for handing it in at the due time. Any late submission will result not receive this 10%. You may continue to lose 10% for each week the assignment remains late. In effect, you lose a letter grade each week your assignment is late.

Needless to say, penalties will not be an issue if you complete your assignments well ahead of the due date.

Make Up - Participation/Quizzes/Tests

An excused absence is required to make up. Excuse requests are typically accepted provided that the professor is notified prior to the absence. Excuses are rarely issued if the professor is notified after the absence. Excuse requests need not be elaborate; contact the professor by email or through D2L.

For quizzes, the professor will may extend the quiz deadline such that completion falls after the excuse. For examination, the student must work out with the professor an agreeable date and time for the makeup prior to the exam

Important Dates

- Last Day to drop with a grade of "W:" November 23
- Refer to: [Drops, Withdrawals & Void](#)

Policies

Instructor Class Policies

Dr. Price is committed to providing a forum for learning and endeavors. This class will be a safe, open, and supporting space for all students. Dr. Price 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.

- The Student Engagement Center cultivates "a sense of belonging for all students at MSU Texas by facilitating student access to critical resources and opportunities, supporting student success and advocating for constant improvement in the way we meet students' needs across our campus.

<https://msutexas.edu/student-life/engagement-center/>

- Sexual misconduct and discrimination or harassment should be reported to our Title IX office.
<https://msutexas.edu/titleix/>
- Policies for general student complaints are available at <https://msutexas.edu/student-life/dean/general.php> . General student complaints should start with the informal process form https://cm.maxient.com/reportingform.php?MSUTexas&layout_id=4

Attendance

Students are expected to attend all meetings of the classes in which they are enrolled. Students are graded on intellectual effort, performance, and engagement rather than attendance, but absences or tardiness from lecture tend to affect these. This is an upper-level class, and as such, it is part of career-specific coursework. So treat it like a job...if you are not going to be there, then let me know.

Note: you are still responsible for missed assignments and quizzes (most labs include an assignment and/or quiz).

Illness

Contagious pathogens are an ongoing concern. The instructor would appreciate your thoughtful engagement of the class, including respecting the health, safety, and concerns of your colleagues.

Illness is an excused absence. Please follow university guidance regarding the illness. If you are feeling ill, then you shouldn't be out and about (stay home, get better). If illness interferes with your participating in class, then you should do the following:

1. Email the professor through D2L; use "ill" in the subject line
2. Contact your health provider

Recording of Classes/Labs

Recording classes is prohibited without the professor's explicit permission, or alternatively through approval of Disability Support Services, as per the Americans with Disabilities Act. Such recordings, when permitted, are for personal use only and may not be uploaded to the internet or otherwise shared, transmitted, or published without the professor's prior consent.

Academic Misconduct

Academic Dishonesty: Cheating, collusion, and plagiarism are, of course, forbidden in this class. Plagiarism need not be willful copying, so be careful to accurately cite any and all sources from where you draw information. Additional guidelines on procedures in these matters may be found in the Office of Student Conduct. Academic dishonesty will not be tolerated. Such behavior will result in lost credit or more severe penalties.

[Office of Student Conduct](#)

Artificial Intelligence Use

Chatbots (like ChatGPT) have recently grown in sophistication and accessibility. They can be useful tools to assist in drafting out responses or providing illustrations. They require intense oversight. They should be an assistance, not a substitute for your thought.

You'll find AI is not up to many of the tasks in this class; try it out – see its limitations. For the time being, jobs making sense of Earth materials are not at risk from AI. Earth Science is a beautifully diverse field; you need to find your own voice to engage others in it. Any creative input in this class is an opportunity to test and refine that; avoid shortchanging yourself the feedback you deserve.

Finally, in all academic work, ideas and contributions from others must be acknowledged. Using an AI-content generator to complete coursework without proper attribution or authorization is a form of academic dishonesty. For this class, use of AI-content with appropriate citation is permitted, but should be used sparingly.

Resources

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.

Study Hours and Tutoring Assistance

This is challenging material; true mastery takes multiple passes and much time. So, although many of our upper-level and grad students completed the course, they may not recall of the elements – that's normal, it will happen to you. You can try the Tutoring & Academic Support Programs (TASP) is on the first floor of the library.

<https://msutexas.edu/academics/tasp/> - the tutor has completed mineralogy and is pretty sharp; don't expect them to recall it all, though. Likewise, the Lab TA may be able to help as well, but it's reasonable that they too may not know all of the needed attributes. These folks and others may be able to point you to helpful resources. It's worth asking.

The professor realizes that part of his job is to assist you. He's pretty enamored with subject, so he likes it when you ask questions. Please do not hesitate to solicit his help.

Moffett Library

Moffett Library provides resources and services to support student's studies and assignments, including books, peer-reviewed journals, databases, and multimedia materials accessible both on campus and remotely. The library offers media equipment checkout, reservable study rooms, and research assistance from librarians to help students effectively find, evaluate, and use information. Get started on this [Moffett Library webpage](#) to explore these resources and learn how to best utilize the library.

Student Handbook

Refer to: [Student Handbook](#)

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 Student Wellness Center, (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](#).

Emergency Aid Resources for Basic Needs

Unexpected life circumstances can affect anyone. If you are experiencing challenges meeting basic needs—such as housing, utilities, food, transportation, healthcare, technology, textbooks or other life necessities, resources may be available to help. Visit the [Student Emergency Support and Resources webpage](#) to learn more, and explore emergency support opportunities through MSU and how to access them. For additional information, please contact the Office of Student Affairs: Clark Student Center #108, (940) 397-7500, student.affairs@mstueexas.edu.

MSU Policies

Campus Carry Rules/Policies

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

Smoking/Tobacco Policy

Midwestern State University seeks to provide a safe, healthy, pleasant environment for its faculty, staff, and students. To this end, the use of all tobacco products is prohibited in class, lab, or related activities.

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Please review the information provided by MSU Police Department regarding

the options and strategies we can all use to stay safe during difficult situations. For more information, visit [MSUReady – Active Shooter](#).

Grade Appeal Process

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

***Notice:** Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

GEOS 3134 Schedule:

Day	Date	Set	Topic	Wenk & Bulahk	Lab	Q&E
M	24-Aug	1	Introduction to class	None	NA	None
W	26-Aug	L1	Symmetry	Chapter 8	NA	None
F	28-Aug	2	Introduction to minerals and the planet	Chapter 1	The one about symmetry	None
M	31-Aug	L2	Lattice attributes	Chapter 7	NA	None
W	2-Sep	3	Atoms	Chapter 2	NA	Quiz 1
F	4-Sep	4	Quantum Mechanics	Chapter 2	The one about symmetry - cont	None
W	9-Sep	L3	Projections	Chapter 8	NA	None
F	11-Sep	NA	Lab review	NA	The one about 3D representations	None
M	14-Sep	5	Ions and Periods	Chapter 2	NA	None
W	16-Sep	L4A	Crystal diffraction	Chapter 11	NA	None
F	18-Sep	L4B	Element fluorescence	Chapter 16	The one on lattices	Quiz 2
M	21-Sep	6	Chemical Bonding	Chapter 7	NA	None
W	23-Sep	NA	Catch-up	NA	NA	None
F	25-Sep	7	Packing & Coordination	Chapter 2	The one about analytical techniques	None
M	28-Sep	8	Pauling's Rules - ionic potential	Chapter 2	NA	None
W	30-Sep	9	Isomorphism, solid solutions, and polymorphism	Chapter 3	NA	None
F	2-Oct	L5A	Optical Mineralogy	Chapters 13	The one about mineral properties	Quiz 3
M	5-Oct	L5B	Optical Microanalysis	Chapters 14	NA	None
W	7-Oct	10	Growth- nucleation and defects	Chapter 10	NA	None
F	9-Oct	11	Growth-twins-polymorphs	Chapter 9	The one about microscopes	Exam 1
M	12-Oct	12	Growth-zoning & polycrystals	Chapter 18	NA	None

Day	Date	Set	Topic	Wenk & Bulahk	Lab	Q&E
W	14-Oct	13	Phases and stability	Chapter 19	NA	None
F	16-Oct	13	Diagrammatic thermodynamics	Chapter 20	The one about silicates	None
M	19-Oct	14	Chemical transfer	Chapter 20	NA	None
W	21-Oct	14	Chemical transfer	Chapter 20	NA	None
F	23-Oct	15	Framework silicates	Chapter 21	The other one about silicates	Quiz 4
M	26-Oct	16	Framework silicates	Chapter 21	NA	None
W	28-Oct	17	Native elements and primitives	Chapter 22	NA	None
F	30-Oct	18	Halides and salts	Chapter 23	The third one on silicates	None
FT	1-Nov	WS	Field Trip: Wichita Mountains	NA	NA	None
M	2-Nov	19	Carbonates	Chapter 24	NA	None
W	4-Nov	20	Carbonates	Chapter 24	NA	None
F	6-Nov	21	Sulfates & phosphates	Chapter 25	The one on ore minerals	Quiz 5
M	9-Nov	22	Sulfides	Chapter 26	NA	None
W	11-Nov	23	Oxides and hydroxides	Chapter 27	NA	None
F	13-Nov	24	Ortho and ring silicates	Chapter 28	The one about carbon- and sulfates	None
M	16-Nov	25	Sheet silicates - micas	Chapter 29	NA	None
W	18-Nov	26	Chain silicates - single chains	Chapter 30	NA	None
F	20-Nov	27	Chain silicates - double chains	Chapter 30	The one about the rest of classes	Quiz 6
S	21-Nov	WS	Field Trip: Dallas Gem and Mineral Show	NA	NA	None
M	24-Nov	GS	Gemstones	Chapter 34	NA	None
M	30-Nov	28	Geotime	NA	NA	None
W	2-Dec	29	Sustainability and minerals	NA	NA	None
F	4-Dec	NA	Project	NA	Lab final	None
M	7-Dec	FRV	Review	NA	NA	Exam 2