



## **Course Syllabus: Mineralogy**

McCoy College of Science, Mathematics, and Engineering

GEOS 3134-101 | Fall 2021

### **Contact Information**

Instructor: Dr. Jonathan D. Price

Pronouns: he/him

Office: Bolin 102

Office hours: MWF 9-10a | 11a-12p | by appointment

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Graduate Teaching Assistant: Mr. Chad Hamilton

### **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 macroscopic 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 the environments of formation and subsequent 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 by D2L)

### **Room**

Bolin 115 is both the meeting room and workroom for the course. Access by valid student ID card.

### **Student Handbook**

Refer to: [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Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given).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.

## Grading

Table 1: Assignment weights

| Assignments                  | Percent |
|------------------------------|---------|
| Research activity and report | 15%     |
| Exam 1                       | 15%     |
| Exam 2                       | 20%     |
| Lab quizzes                  | 5%      |
| Lab assignments              | 35%     |
| Lab final exam               | 10%     |

Table 2: Total percentage points for final grade.

| Grade | Points       |
|-------|--------------|
| A     | 90+          |
| B     | 80 to 89.9   |
| C     | 70 to 79.9   |
| D     | 60 to 69.9   |
| F     | Less than 60 |

## Work submission

Assignments may be remitted in class to the professor or TA, in person or to mailboxes in Bolin 102. You may also scan and submit your work through email. Some assignments may require submission through 2DL.

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 and the other instructor involved in advance.

## 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. The lab final exam is 1 hour and 50 minutes and covers systematic mineral identification.

## Projects Required

A term project will cover an individually-assigned topic approved by your instructor.

## Writing Center

Begin drafting papers as early as possible and take advantage of the MSU Writing Center, located off the 2nd floor atrium of Prothro-Yeager! Tutoring is available Monday through Thursday from 9am to 4pm; you can also find a tutor at the satellite location in Moffett Library Honors Lounge, Sunday and Thursday from 6pm to 9pm. Writing tutors will not edit your papers for you, but they will provide support and feedback at every stage of the writing process, from brainstorming to drafting, revising to proofreading.

## Colloquium

Unfortunately on hiatus for Fall 20.

## 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 my grading. They are disconcerting to me, because they require my reexamination 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 will 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, this will not be an issue if you complete your assignments well ahead of the due date.

## 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

Students are expected to attend all meetings of the classes in which they are enrolled. Students are graded on intellectual effort and performance rather than attendance, but absences or tardiness from lecture may result in a lower grade.

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

## 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 Euclidean geometry. 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) exists 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.

MOSAIC Cross Cultural Center: a “support, resource, and advocacy center providing multicultural opportunities for the MSU Community that promotes self-awareness, identity, and culture” <https://msutexas.edu/student-life/mosaic/index.php>

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](https://cm.maxient.com/reportingform.php?MSUTexas&layout_id=4)

Sexual misconduct is handled by the Title IX Coordinator, and misconduct information and reporting is [https://msutexas.edu/human-resources/policy/4-general-university-policies/4.161-A-Title IX Sexual Misconduct.asp](https://msutexas.edu/human-resources/policy/4-general-university-policies/4.161-A-Title_IX_Sexual_Misconduct.asp)

Anonymous complaints can be made through EthicsPoint: <https://secure.ethicspoint.com/domain/media/en/gui/45483/index.html>

### **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](#).

### **University-Wide Policies: Campus Carry**

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](#)

**Pandemic**

The pandemic 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. So is isolation and quarantining.

Please report positive tests and exposures to COVID-19 to

[https://cm.maxient.com/reportingform.php?MSUTexas&layout\\_id=9](https://cm.maxient.com/reportingform.php?MSUTexas&layout_id=9). I will work with you to stay current in this class in the case of absences.

Distancing, masks, and hygiene are highly encouraged when area infection rates are high. We're not a big class, thankfully reduces our risk of serving as disease vectors.

Vaccination is key to disarming the virus. Vaccines remain free and widely available. The following are suggested resources:

- Vinson Health Center by appointment (940-397-4231).
- Local retail pharmacy location such as CVS, United Supermarkets and Market Street, and Walgreens.
- Your primary care physician.
- Find a vaccine location statewide: [COVIDvaccine.texas.gov](https://COVIDvaccine.texas.gov) or call 833-832-7067 for assistance.

**Notice**

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor. This is not business-as-usual this semester...anticipate thoughtful changes as we move forward.

## Course Schedule

| MSUTexas - Mineralogy - GEOS 3134 |       |  |                  | Fall 2021                           |
|-----------------------------------|-------|--|------------------|-------------------------------------|
| D                                 | Date  | Lecture subject                                | Wenk and Bulakh  | Lab topic                           |
| M                                 | 8/23  | Introduction to class                          | None             |                                     |
| W                                 | 8/25  | Introduction to minerals and the planet        | Chapter 1        | The one about symmetry              |
| F                                 | 8/27  | Mohs exploration                               | Chapter 1        |                                     |
| M                                 | 8/30  | Atoms - light and energy                       | Chapter 2        |                                     |
| W                                 | 9/1   | Atoms - electron structure                     | Chapter 2        | The one on lattices                 |
| F                                 | 9/3   | Bonding Atoms - ionization and covalence       | Chapter 2        |                                     |
| W                                 | 9/8   | Pauling's Rules                                | Chapter 2        |                                     |
| F                                 | 9/10  | Lattices, packing, and symmetry                | Chapter 7        | No lab                              |
| M                                 | 9/13  | Isomorphism, solid solutions, and polymorphism | Chapter 3        |                                     |
| W                                 | 9/15  | Crystal growth                                 | Chapter 10       | The one about 3D representations    |
| F                                 | 9/17  | Crystal growth - twinning, defects,            | Chapter 9        |                                     |
| M                                 | 9/20  | Optical Mineralogy                             | Chapters 13      |                                     |
| W                                 | 9/22  | Optical Microanalysis                          | Chapters 14      | The one about analytical techniques |
| F                                 | 9/24  | Crystal diffraction                            | Chapter 11       |                                     |
| M                                 | 9/27  | Element fluorescence                           | Chapter 16       |                                     |
| W                                 | 9/29  | Mineral environments                           | Chapter 18       | The one about mineral properties    |
| F                                 | 10/1  | Phases and stability                           | Chapter 19       |                                     |
| M                                 | 10/4  | More stability                                 | Chapter 20       |                                     |
| W                                 | 10/6  | Chemical transfer                              | Chapter 20       | The one about microscopes           |
| F                                 | 10/8  | Chemical transfer                              | Chapter 20       |                                     |
| M                                 | 10/11 | Review video                                   | Online           |                                     |
| W                                 | 10/13 | <b>Exam 1</b>                                  | <b>See above</b> | The other one about microscopes     |
| F                                 | 10/15 | Framework silicates                            | Chapter 21       |                                     |
| M                                 | 10/18 | Framework silicates                            | Chapter 21       |                                     |
| W                                 | 10/20 | Framework silicates                            | Chapter 21       | The one about silicates             |
| F                                 | 10/22 | Native elements and primitives                 | Chapter 22       |                                     |
| M                                 | 10/25 | Halides  | Chapter 23       |                                     |
| W                                 | 10/27 | Carbonates                                     | Chapter 24       | The other one about silicates       |
| F                                 | 10/29 | Carbonates                                     | Chapter 24       |                                     |
| M                                 | 11/1  | Sulfates & phosphates                          | Chapter 25       |                                     |
| W                                 | 11/3  | Sulfates & phosphates                          | Chapter 25       | The third one on silicates          |
| F                                 | 11/5  | Sulfides                                       | Chapter 26       |                                     |
| M                                 | 11/8  | Oxides and hydroxides                          | Chapter 27       |                                     |
| W                                 | 11/10 | Ortho and ring silicates                       | Chapter 28       | The one on ore minerals             |
| F                                 | 11/12 | Sheet silicates - micas                        | Chapter 29       |                                     |
| M                                 | 11/15 | Sheet silicates - clays                        | Chapter 29       |                                     |
| W                                 | 11/17 | Chain silicates - single chains                | Chapter 30       | The one about carbon- and sulf-ates |
| F                                 | 11/19 | Chain silicates - single double chains         | Chapter 30       |                                     |
| S                                 | 11/20 | Field Trip: Dallas Gem and Mineral Show        |                  |                                     |

|          |             |                             |            |  |
|----------|-------------|-----------------------------|------------|--|
| M        | 11/22       | Gemstones                   | Chapter 34 | The one about the rest of the categories |
| M        | 11/29       | Sustainability and minerals | -          |  |
| W        | 12/1        | Sustainability and minerals | -          | Lab final                                |
| F        | 12/3        | Sustainability and minerals | -          |  |
| <b>W</b> | <b>12/8</b> | <b>Exam 2</b>               |            |  |