

## GEOLOGY 2405 MINERALOGY (CRYSTALLOGRAPHY AND OPTICAL MINERALOGY)

SPRING 2026

Geology Program, Natural Sciences Dept, ALPS College  
Sul Ross State University

**Lab Tues 2 to 4:30**

**MonWedFri 11:00-11:50**

### Dr. E Measures

**office WSB 315**

**432-837-8117**

**[measures@sulross.edu](mailto:measures@sulross.edu)**

### Office hours:

**MW 2:30 to 4:30**

**Thr 3 - to 4:30**

**or by appointment; call or email to arrange;  
weekly schedule is posted next to office door**

### Course Description

*Introduction to crystallography, crystal chemistry, and optical mineralogy. Identification of minerals by physical, optical, and x-ray diffraction techniques. Taken from SRSU Course Catalog*

Mineralogy is a fundamental class required for a degree in Geology. It provides a content foundation that is prerequisite for other, more advanced topics such as lithology, petrology, petrography, and geochemistry. This class will:

- 1) provide students with the skills needed to identify minerals in hand specimens and rock hand samples using simple physical tests, and identify minerals in thin section using optical behavior;
- 2) provide students with a background in the vocabulary and notation used in crystallography and mineralogy in order to understand technical literature.

### Prerequisites/Co-requisites

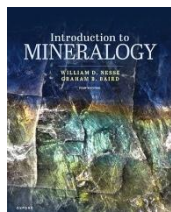
GEOL 1303/1103 Physical Geology; CHEM 1311/1111 General Chemistry I

### Method(s) of Instruction

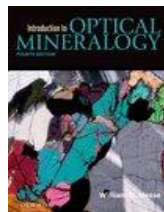
The **lab** consists of three hours of hands-on work during the scheduled lab time each week. Open lab hours will be offered in case students want more time to work on the samples.

### Required Texts

**Nesse & Baird  
2023  
Introduction to  
Mineralogy 4<sup>th</sup> ed.  
9780197614600**



**Nesse  
2012 or 2013  
Introduction to  
Optical  
Mineralogy 4<sup>th</sup> ed  
9780199846276**



### Reference Books/Texts

Other books to be used for reference will be available in the lab.

### Reference Websites

handbookofmineralogy.org  
mindat.org  
msaweb.org (formerly minsocam.org)  
webmineral.com  
minerals.net

### Materials

notebook/paper	pencils	hand lens	small stapler
tracing paper	pasteboard (8½ by 11)	flat-headed tack	

### Field Trip(s)

One-day field trip(s) could be offered during the semester. At least one may be required.

### Student Responsibilities Statement

All full-time and part-time students are responsible for familiarizing themselves with the **Student Handbook** and the **Undergraduate & Graduate Catalog** and for abiding by the **University rules and regulations**. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to familiarize him/herself with the requirements of such laws.

## Attendance Policy and Conduct- Expectations and Requirements

- ★ Be on time to lecture and lab, attend all lectures and labs, and stay throughout the entire designated period.
- ★ Be engaged, awake, and on task.
- ★ Do not work on another class during this class.
- ★ Multitasking during lecture is not a good idea.
- ★ For every hour spent in lecture, at least 2 to 3 hours should be spent outside class studying.
- ★ Where possible, schedule routine medical/dental appointments around lecture/lab times.
- ★ Keep instructor informed either **before** anticipated absence or **soon after** unplanned absence.
- ★ If you are going to miss a lecture, or have missed a lecture, written notification (email) and documentation must be provided as soon as possible. **Be sure to get the notes from another student in the class.**
- ★ Legitimate reasons for tardiness, leaving and returning during class, or leaving class early are, but are not limited to, illness, appointment with specialist, family emergency, caregiver duties, and emergency responder calls.
- ★ Inform instructor **prior** to class if conditions exist that may cause you to leave periodically during class or leave before the end of class.
- ★ Arrangements for missed assignments and exams must be made, and the make-up done, within one week of the scheduled due date. Points will be deducted for late work on assignments other than exams.
- ★ Late assignments will not be accepted once graded papers are returned.
- ★ You are expected to check your SR email at least 3 times a day; morning, noon, and evening,
- ★ You are expected to observe the University's Code of Student Conduct (see the Student Handbook).

## Electronics Policy

- ★ Texting, checking email, playing games, surfing the internet, working on another class during lectures is not acceptable.
- ★ Smart phones and earbuds can be used during labs.
- ★ **Use of any AI on any lab assignment will result in a grade of zero on the assignment.**

## Grading and Assignments

Requirements:

Practical (1 or 2) .....	30%
Lab .....	60%
Other .....	10%
quizzes & hwork	
partic & behavior	
attend & other	
field trips)	

Standard grading scheme:

A .....	≥90%
B .....	80-89%
C .....	70-79%
(D and lower does not count for majors)	
D .....	60-69%
F .....	≤59%

Practical(s)

Exam material is hands-on demonstration of techniques, procedures, and knowledge of physical materials.

Labs

Up to 13 individual labs. Weekly assignments consist of hands-on testing, observation and identification of minerals in hand samples, rocks, and thin sections

Quizzes

Short questions over class material.

The following schedule is approximate and subject to change:

Tuesday - LAB	
Jan 20	✦ Physical Properties of Minerals
Jan 27	✦ hand samples 1 - Physical Prop
Feb 3	✦ hand samples 2 - Physical Prop ✦ h. samp 1 - ID
Feb 10	✦ hand samples 3 - Physical Prop ✦ h. samp 2 - ID
Feb 17	✦ hand samples 4 - Physical Prop ✦ h. samp 3 - ID
Feb 24	✦ hand samples 5 - Physical Prop
Mar 3	✦ h. samples 4 and 5 - ID
<b>March 9 through March 13 SPRING BREAK</b>	
Mar 17	✦ Scope Intro
Mar 24	✦ Thin Sections 1 relief/op prop & 2 carbonates
Mar 31	✦ Thin Sections 3 Silicates I
Apr 7	✦ Thin Sections 4 Silicates II
Apr 14	✦ Thin Sections 4 Silicates II & 5 Inter Figs
Apr 21	✦ Thin Sections 5 Inter Figs & 6 Length fast/slow
Apr 28	<b>Lab Practical</b>

## Disabilities Accommodation ADA statement (Americans with Disabilities Act)

Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class for accessibility services. Students seeking accessibility/accommodation services must contact Ronnie Harris, LPC, SRSU's Accessibility Services Director at 432-837-8203 or email [ronnie.harris@sulross.edu](mailto:ronnie.harris@sulross.edu). The Administrative Specialist is Grace Knight and can also be reached at 432-837-8203. The office is located on the first floor of Ferguson Hall, room 112. The mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

You will be provided with an accommodation letter which must be given to the instructor as early as possible in the semester.

## Expected Course Learning Objectives:

At the end of the semester, the successful student will be able to:

- ★ identify rock-forming minerals, accessory minerals, and ore minerals in the lab and in the field both in hand sample and in thin section; SLO # 2 ... *to apply a diverse body of Geologic information in the area of mineralogy and petrology*; SLO # 5 ... *to apply a diverse body of Geologic information in the area of field techniques*.
- ★ identify, interpret and explain the optical behavior of a mineral; SLO # 2 ... *to apply a diverse body of Geologic information in the area of mineralogy and petrology*.
- ★ demonstrate application of physical and optical properties to minerals in rock samples and thin section; SLO # 2 ... *to apply a diverse body of Geologic information in the area of mineralogy and petrology*; SLO # 5 ... *to apply a diverse body of Geologic information in the area of field techniques*.
- ★ interpret and apply common notation and symbology used in mineralogy; SLO # 2 ... *to apply a diverse body of Geologic information in the area of mineralogy and petrology*.
- ★ integrate crystallography and mineralogy to explain physical and optical properties of minerals; SLO # 2 ... *to apply a diverse body of Geologic information in the area of mineralogy and petrology*.

## BS Geology Student Learning Outcomes (SLO's):

1. The student will be able to apply a diverse body of Geologic information in the area of Earth history.
2. The student will be able to apply a diverse body of Geologic information in the area of mineralogy and petrology.
3. The student will be able to apply a diverse body of Geologic information in the area of structural geology and tectonics.
4. The student will be able to apply a diverse body of Geologic information in the area of stratigraphy.
5. The student will be able to apply a diverse body of Geologic information in the area of field techniques.

## Geology Undergraduate (BS) Student Marketable Skills:

- ★ The student will be able to conduct field work.
- ★ The student will be able to use field equipment.
- ★ The student will be able to use lab equipment.
- ★ The student will be able to use library resources.
- ★ The student will be able to communicate in written and oral format.

## Academic Integrity

Students are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation contributes to learning.

Examples of academic dishonesty include, but are not limited to:

- ⊗ Turning in work as original that was used in whole or in part for another course and/or professor;
- ⊗ Turning in another's person's work as one's own;
- ⊗ Copying from professional works or internet sites without citation;
- ⊗ Collaborating on a course assignment, exam, or quiz when collaboration is forbidden;
- ⊗ **Using AI for an assignment.**

Violations of academic integrity can result in failing an assignment, failing the class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

## Classroom Climate of Respect

This class fosters free expression, critical investigation, and open discussion of ideas. Everyone in the class must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, all people in the class must learn how to probe, oppose, and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference.

## SRSU Required AI Statement (it is not applicable since use of AI is not allowed in this course)

The University does not recommend or endorse any specific AI tools or resources. Students should be aware that many generative AI tools (e.g., ChatGPT, Google Gemini, Microsoft Copilot) store user input and may use this data to train future models. For this reason, students should never upload or share personal, confidential, or identifiable information — such as names, ID numbers, health data, or assignment submissions containing such details — into any generative AI platform. When using AI tools, students should verify whether the tool complies with student privacy standards as indicated by the University. Faculty may recommend specific tools that better align with institutional data privacy policies, but ultimate responsibility for data protection rests with the users. Students are encouraged to use faculty-recommended platforms when engaging in coursework involving generative AI. The University is not liable for any adverse experience or impact when students interact with these tools.