

GEOLOGY 2405
MINERALOGY LAB (CRYSTALLOGRAPHY AND OPTICAL MINERALOGY)

FALL 2022

Biology, Geology and Physical Sciences Department
 Sul Ross State University

MWF 11:00-11:50 Lab Tue 2-5

Dr. E Measures

measures@sulross.edu
 432-837-8117; office WSB 315

Main office WSN 216; mail drop box
 Mail office phone 837-8112

Office hours:

Mon 2 pm to 4 pm
 Tues Thrs 11 am to noon
 Thrs Fri 3 pm to 5 pm

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

Course Description

Introduction to crystallography, crystal chemistry, and optical mineralogy. Identification of minerals by physical, optical, and x-ray diffraction techniques. (as written in 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 specimen, rock hand sample and thin section using simple physical tests, optical behavior, and other analytical techniques.
- 2) provide students with a background in the vocabulary and notation used in crystallography, optical mineralogy and geochemistry 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 course consists of three hours (minimum) of lab work per week.

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

Required Texts (see Blackboard for ISBN's)

any picture book of minerals in **thin section**
 Mineralogy text is on Reserve in the Library

Reference Materials

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

Course Materials

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

Attendance Policy and Conduct Policy

Students are expected to be in lab every scheduled class day; arrive on time and stay for the duration of the class period. Material will be turned-in at the end of each lab period.

Students are expected to be engaged, awake, on task, and to take notes and do what is need to understand the material.

Lab will take a MINIMUM of 3 hours per week; the more hours spent on lab, the better the material will be understood.

Lab material will be available during lab time and, if needed, during scheduled extra lab time.

Lab and materials will be locked and inaccessible during all other times.

Tardiness and not staying until the end of lab are not acceptable for other than legitimate reasons, which are determined by the instructor. Legitimate reasons include rapid onset of

events, or unexpected events, such as illness (hangovers are not an illness), vehicle issues, family emergency, caregiver responsibilities, emergency responder calls, medical/dental appointments **with specialists**.

Schedule appointments around lab time.

Texting in class will not be tolerated; students texting will leave for the remainder of the class period. Points will be deducted from lab assignments.

Laptop/notebook/notepad usage is to be limited to note-taking. Surfing the internet, playing games, checking email or working on a different class will not be tolerated; students will leave for the remainder of the class period. Points will be deducted from lab assignments.

Electronics Policy

Electronics/cell phones/smart phones/ i-pods are to be turned OFF and put in book bags/purses. They are not to be held in laps or placed in a pocket of clothing or placed face down on top of the table or desk.

To be exempted from this policy, the instructor must be provided with a written, detailed explanation and need for access to a phone, or text capable device.

Student Responsibility

Students are expected to get notes from another student IF class is missed.

Students are expected to check Sul Ross email once a day.

Students are expected to do any missed labs prior to the next scheduled lab period. This requires coordinating with the instructor ASAP.

Disabilities Accommodation

ADA (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 Rebecca Greathouse-Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (leave a message and they will get back to you as soon as possible during working hours), or email rebecca.wren@sulross.edu. The office is located on the first floor of Ferguson Hall, Suite 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.

Grading/Course Requirements

Requirements:

Practicals (2) 30%
 Labs 60%
 Other 10%
 quizzes
 partic/behavior
 attend

Standard grading scheme:

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

Practicals

Covers the previous 4 to 4.5 weeks of material. Some material carries through so practicals are comprehensive to an extent. Exam material is hands-on demonstration of techniques, procedures, and knowledge of physical materials.

Labs

Weekly assignments dealing with hands-on testing, observation and identification of minerals in hand samples, rocks, and thin sections

Field trip

Optional; 1 or 2 trips offered toward end of the semester. Trips probably day-long but may be overnight. Applies identification of minerals and minerals as seen in the field.

Quizzes

Short questions over class material.

The following schedule is approximate and subject to change:

Tuesday - LAB	
Aug 23	Review Mineral Physical Properties as covered in Physical Geology
Aug 30	hand samples 1 – Physical Prop
Sept 6	hand samples 2 – Physical Prop hand samples 1 – ID
Sept 13	hand samples 3 – Physical Prop hand samples 2 – ID
Sept 20	hand samples 4 – Physical Prop & ID hand samples 3 – ID
Sept 27	hand samples 5 – Physical Prop & ID
Oct 4	Lab Practical 1
Oct 11	Scope Intro Thin Sections 1
Oct 18	Thin Sections 2
Oct 25	Thin Sections 3
Nov 1	Thin Sections 4
Nov 8	Thin Sections 5
Nov 15	Thin Sections 6
Nov 22	Thin Sections 7
Nov 29	Lab Practical 2

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.

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 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.

Geology Undergraduate (BS) Student Marketable Skills:

1. The student will be able to conduct field work.
2. The student will be able to use field equipment.
3. The student will be able to use lab equipment.
4. The student will be able to use library resources.
5. The student will be able to communicate in written and oral format.

Library

The Bryan Wildenthal Memorial Library offers FREE resources and services to the entire community. The library's website, library.sulross.edu, has information on how to borrow or electronically access books, articles, and more. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for coursework and can be reached by email (srsulibrary@sulross.edu) or phone (432-837-8123).

Academic Integrity

Students are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. 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.

Classroom Climate Of Respect

This class should foster free expression, critical investigation, and open discussion of ideas. All people 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. Discourse will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Diversity Statement

This course should be a learning environment for students that supports diversity of thoughts, perspectives and experiences, and honors identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). It is understood that COVID, economic disparity, and health concerns, or even unexpected life events could impact conditions necessary for students to succeed. The student will be given assistance to meet the course's learning objectives. This demonstrates commitment to the student and the mission of Sul Ross State University to create an inclusive environment and the whole student as part of the Sul Ross Familia. Class performance can be impacted by experiences outside of class and resources are available to the student for dealing with them.