GEOLOGY 2405
MINERALOGY LAB (CRYSTALLOGRAPHY AND OPTICAL MINERALOGY)

FALL 2023
Geology Program, Natural Sciences Dept, ALPS College
Sul Ross State University
Lab Tue 2-5 MWF 11:00-11:50

Dr. E Measures
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Program office WSB 216
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Office hours:
Mon 2 pm to 3;30 pm
Tues Thrs 9 am to 10 am
Thrs 2:30 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 lab consists of three-ish hours of work during the scheduled lab time. Open lab hours will be offered. 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; needed mid-October
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
- Be on time to lab, attend all labs, and stay throughout the entire designated period.
- Be engaged, awake, and on task.
- Do not work on another class during this class.
- Keep instructor informed either before anticipated absence or after unplanned absence.
- Where possible, schedule routine medical/dental appointments around lab times.
- If you are going to miss a lab, or have missed a lab, written notification (email) and documentation must be provided as soon as possible. Be sure to get the notes from another student in the class.
- Short breaks can be taken during the lab period.
- Do NOT leave lab before the end of the scheduled lab period.
- Arrangements for missed labs must be made, and the make-up done, within one week of the scheduled due date. Points will be deducted for late work.
- Missed labs must be done prior to the next lab period.
- Late labs will not be accepted once graded labs are returned.
- 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 labs is not acceptable.
- Multitasking is not a good idea.
- Smart phones, cell phones, i-pods, and laptops, can be on the desk during labs if space permits.
- No earbuds to be worn during lab introduction.
- Wearing earbuds during lab work is not recommended; impromptu lectures or discussions could be missed.
- Electronics may be used during lab and for purposes of lab.
- If electronics are accessed during a lab practical, then the practical will receive a grade of zero.
- If an electronic device makes an audible noise during a lab practical, then the practical will receive a grade of zero.
- Use of any AI on any lab will result in a grade of zero on the lab.

Disabilities Accommodation **ADA (Americans with Disabilities Act)** S

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 Mrs. Mary Schwartze Grisham, LPC, SRSU's Accessibility Services Director at 432-837-8203 (leave a message and they will get back to you as soon as possible during working hours), or email mschwartze@sulross.edu. 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.

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

Up to 13. 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 29	Review Mineral Physical Properties as covered in Physical Geology
Sept 5	hand samples 1 – Physical Prop
Sept 12	hand samples 2 – Physical Prop hand samples 1 – ID
Sept 19	hand samples 3 – Physical Prop hand samples 2 – ID
Sept 26	hand samples 4 – Physical Prop & ID hand samples 3 – ID
Oct 3	hand samples 5 – Physical Prop & ID
Oct 10	**Lab Practical 1**
Oct 17	Scope Intro Thin Sections 1 – Relief & Optical Properties
Oct 24	Thin Sections 2 – Carbonates & Silicates
Oct 31	Thin Sections 3 –Silicates
Nov 7	Thin Sections 4 – Silicates
Nov 14	Thin Sections 5 - Silicates
Nov 21	Thin Sections 6 – Length Fast/Length Slow
Nov 28	Thin Sections 7 – Interference Figures
Dec 5	**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:

- 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.

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. 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. Discourse will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Diversity Statement

This course is 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.). Conditions necessary for students to succeed, could be impacted by pandemics, economics, health concerns, or unexpected life events. The student will be given assistance to meet the course's learning objectives. This demonstrates commitment to the student and Sul Ross State University's mission to create an inclusive environment and the whole student. Experiences outside of class may impact class performance and resources are available to the student for dealing with them.