

**ZIRCONS AND GEOLOGIC DATING
GEOLOGY 5101 – Graduate Seminar
FALL 2021**

Dept of Biology, Geology, and Physical Sciences; Sul Ross State University
Tuesday 9:30 to 10:30

Dr. Liz Measures

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Office hours:

Mon 2 pm to 4 pm
Tues 11 am to 12:30 pm
Thrs 9:30 to 11 am & 3 pm to 5 pm
Fri 3 pm to 5 pm
or by appointment; call or email to arrange

Course Description

The course will cover the mineralogy of zircons, radiometric dating, processing zircons for radiometric dating, and the use of zircons in geochronology.

Method(s) of Instruction

1 lecture/discussion/demonstration a week
possible Friday or weekend field trip(s)

Text(s)

No required text
articles from journals and other books as assigned

Attendance, etc.

Come to class on time, do not leave during class time.
Turn OFF all electronics. Exceptions are devices used for note-taking or recording of lecture.
Participate in classroom discussions of articles.

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

Participation (20%)/	A	≥90%
Homework (20%)/	B	80-89%
Discussions (20%)/	C	70-79%
Paper (20%)/	D	60-69%
Presentation (20%) 100%	F	≤59%

The following schedule is tentative and subject to change

Tuesday	
8/24	Organization
8/31	Zircon mineralogy/crystallography
9/7	Zircon mineralogy/crystallography
9/14	Radiometric dating
9/21	Radiometric dating
9/28	Processing samples for zircons
10/5	Processing samples for zircons
10/12	Issues with zircon geochronology
10/19	Issues with zircon geochronology
10/26	Examples of zircon geochronology papers
11/2	Examples of zircon geochronology papers
11/9	Examples of zircon geochronology papers
11/16	Examples of zircon geochronology papers
11/23	Examples of zircon geochronology papers
11/30	Examples of zircon geochronology papers
MON Dec 6: presentations 8 to 10 am	

Geology Graduate (MS) Student Learning Objectives (SLO's):

1. The student will be able to apply diverse bodies of Geologic information in the area of **advanced sedimentary geology**.
2. The student will be able to apply diverse bodies of Geologic information in the area of **advanced igneous/metamorphic processes, structure and tectonics**.
3. The student will be able to apply diverse bodies of Geologic information to **field and lab research and techniques**.
4. The student will be able to communicate diverse bodies of Geologic information through **the standard scientific format of an oral presentation based on a written paper**.

Expected Course/Learning Objectives:

At the end of the semester, the successful student will be able to identify, compare/contrast, synthesize and apply bodies of geologic information to:

- * researching, writing, and presenting a topic of study. (SLO 4)
- * apply zircon geochronology to sedimentary geology, igneous/metamorphic geology, and structural geology. (SLO 1 and SLO 2)
- * analyzing and discussing current research papers/fields in the geosciences. (SLO 1, SLO 2, and SLO 4)

Geology Graduate (MS) Student Marketable Skills:

1. Student will be able to conduct field work.
2. Student will be able to use field equipment and lab resources.
3. Student will be able to use library resources.
4. 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.