

SRSU ENVIRONMENTAL GEOLOGY – GEOL 1305, Spring 2025; Mon,Wed,Fri 11-11:50

Professor: Dr. Jesse Kelsch

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Office Hours: Monday & Wednesday 1:30-4:00 pm

GENERAL DESCRIPTION OF THE COURSE:

Welcome to GEOL 1305, Environmental Geology at Sul Ross State University. This course is designed to teach you the fundamental concepts of environmental geology, which can be thought of as applied geology, or as all the parts of Earth Science with which human society interacts, including natural hazards and natural resources. This course has no prerequisites, so we start with the fundamental geologic topics of Earth materials, processes, and cycles. We then learn about natural hazards like volcanoes and floods, natural resources like soil, groundwater, metals and other minerals, various energy sources, and global climate change. The content covered is both global and local in scale. The associated lab is a separate, 1-credit class (GEOL 1105), and it has its own syllabus and will build on content discussed in this lecture class.

Course Learning Objectives- Each student will develop:

1. Knowledge about the application of the scientific method as a tool for understanding Earth's processes
2. Knowledge about the composition and formation of common rocks and minerals and soils
3. An understanding of hazardous earth processes
4. An understanding of how the extraction and use of natural resources affects our society and our environment
5. A general knowledge of Earth climate and changes to this climate

GRADING:

- Exercises: Three exercises on the topics of earthquakes, volcanoes, and river flooding are part of the course grade at 10% each (30% total).
- Concept sketches: Students will draw and annotate six single-page concept sketches, and five will be graded at 7% of the course grade each (35% total).
- Exams: Three section exams will be dispersed through the semester. Each is worth 10% of the course grade (30% total).
- Five percent of the total course grade comes from attendance and participation in class discussions

	Points for each	Quantity of each	Total points	Percent of grade
Sketch assignments	7	5	35	35%
Exercises	10	3	30	30%
Section exams	10	3	30	30%
Class attendance and participation			5	5%

Final course grade will be based on a percentage in the standard grading system:
100-90 (A), <90-80 (B); <80-70 (C), <70-60 (D), <60 (F)

THECB/SACS Core Curriculum Core Competencies Objectives:

Empirical and Quantitative discernment – Students will develop empirical and quantitative skills to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Teamwork – Students will develop teamwork skills to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Objectives on students' participation in the class:

I want each student in my class to succeed to their capability in my and their other classes. To this end I intend to meet with each student at least twice during the semester outside of class so that no one falls behind. We will set the first appointment before Spring Break.



Attendance and Make-up Policy:

The only acceptable excuses for missing class are those due to illness, approved Sul Ross sanctioned events, and observation of religious holidays. All excused absences must be documented on paper. Please inform the professor at least 1 week prior to missing class (email, note on office door, etc.). With an appropriate excuse, you must make up missed exams within FIVE days of the last day of the absence or you have failed to meet your course responsibilities and will receive a zero. University policy dictates that your instructor can drop you with an F from the course after 6 absences from TR classes or after 9 absences from MWF classes. Sounds serious! But you can do well in this course if you show up, pay attention and participate during the whole class time, and stay current on your assignments.

ADA Statement

SRSU Accessibility Services. 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. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartze Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartz@sulross.edu or ronnie.harris@sulross.edu. Their office is located on the first floor of Ferguson Hall, room 112, and their mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources **unless permission is expressly given** for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

Semester schedule:

Week	Day	Date	Class topic	Concept sketch or exercise
1	M	-		
	W	1/15/2025	Introduction to Environmental Geology; The Earth System	
	F	1/17/2025	Introduction to Environmental Geology; The Earth System	1: Earth system sketch
2	M	1/20/2025	HOLIDAY	
	W	22-Jan	" 2: Rocks and Minerals	
	F	1/24/2025	" 2: Rocks and Minerals	
3	M	1/27/2025	Earth Materials, Processes, and Cycles 1: Plate Tectonics	
	W	1/29/2025	Earth Materials, Processes, and Cycles 1: Plate Tectonics	2: Tectonic plate boundaries sketch
	F	1/31/2025	" 3: Rock strength and structures	
4	M	2/3/2025	" 3: Rock strength and structures	
	W	2/5/2025	" 4: Water cycle introduction	2: Water cycle sketch #1
	F	2/7/2025	" 5: Carbon cycle and other biogeochemical cycles	
5	M	2/10/2025	" 5: Carbon cycle and other biogeochemical cycles	
	W	2/12/2025	Earth's Climate System	
	F	2/14/2025	Earth's Climate System	
6	M	2/17/2025	Climate changes and Earth's energy budget	4: Energy budget sketch
	W	2/19/2025	Soils	
	F	2/21/2025	Exam I	
7	M	2/24/2025	Natural Hazards	
	W	2/26/2025	Natural Hazards: Earthquakes	
	F	2/28/2025	Earthquakes: in-class exercise (bring laptop)	Earthquakes: in-class exercise (bring laptop)
8	M	3/3/2025	Natural Hazards: Earthquakes	
	W	3/5/2025	Natural Hazards: Earthquakes	
	F	3/7/2025	Natural Hazards: Volcanoes	
9	M	3/10/2025	Volcanoes: in-class exercise (bring laptop)	Volcanoes: in-class exercise (bring laptop)
	W	3/12/2025	Natural Hazards: Volcanoes	
	F	3/14/2025	Natural Hazards: Volcanoes	
10	M	3/24/2025	River systems	5: River systems sketch
	W	3/26/2025	River systems	
	F	3/28/2025	Natural Hazards: River flooding	
11	M	3/31/2025	Natural Hazards: River flooding	
	W	4/2/2025	River flooding: in-class exercise (bring laptop)	River flooding: in-class exercise (bring laptop)
	F	4/4/2025	Exam II	
12	M	4/7/2025	Water Resources	
	W	4/9/2025	Water Resources	6: Water cycle sketch #2
	F	4/11/2025	Water Pollution and waste sources	
13	M	4/14/2025	Water Pollution and waste sources	
	W	4/16/2025	Natural Hazards: Mass wasting	
	F	4/18/2025	Natural Hazards: Mass wasting	
14	M	4/21/2025	Natural Hazards: Mass wasting	
	W	4/23/2025	Natural Hazards: Coastal processes	
	F	4/25/2025	Natural Hazards: Coastal processes	
15	M	4/28/2025	Natural Hazards: Coastal processes	
	W	4/30/2025	Review	
			Exam III: Final exam week	