

**SRSU ENVIRONMENTAL GEOLOGY – GEOL 1305**, Fall 2024; Tue Thur 11-12:15

Professor: Dr. Jesse Kelsch

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Office Hours: Mon, Tue, Thur 1:30-3:00 pm; Wed 2:00-3:00 pm; or by appointment

### **GENERAL DESCRIPTION OF THE COURSE:**

This course is designed to teach the student the fundamental concepts of environmental geology. Environmental geology can be thought of as applied geology, or as all the parts of Earth Science with which human society interacts. This course has no prerequisites, so we start with the fundamental geologic topics of Earth materials, processes, and cycles. We then learn about soils, ecology, natural hazards like volcanoes and floods, natural resources like water, minerals, and 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, and it has its own syllabus and will build on content discussed in this lecture class.

### **Textbook recommended:**

Keller, E.A., Environmental Geology. I use the 9<sup>th</sup> edition but earlier editions are acceptable. Two copies are on reserve in the campus library.

### **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 water pollution are part of the course grade at 10% each (30% total).
- Concept sketches: Students will draw and annotate five single-page concept sketches 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	number 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 participation			5	5%

### **Letter grading:**

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 (well, you know what, let's not have any of those...)

### **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 during the whole class time, and stay current on your assignments.

### **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.

### **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 Schwartz Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu) or [ronnie.harris@sulross.edu](mailto:ronnie.harris@sulross.edu). RGC students can also contact Alejandra Valdez, at 830-758-5006 or email [alejandra.valdez@sulross.edu](mailto:alejandra.valdez@sulross.edu). Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

## Library Information

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, [library.sulross.edu/](http://library.sulross.edu/). Off-campus access requires logging in with your Lobold and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email ([srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu)), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting [library.sulross.edu/find-and-borrow/texshare/](http://library.sulross.edu/find-and-borrow/texshare/) or ask a librarian by emailing [srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu).

## 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.

## Supportive Statement

I aim to create a learning environment for my students that supports various perspectives and experiences. I understand that the recent pandemic, economic disparity, and health concerns, or even unexpected life events may impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

## 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 for before Spring Break.



Semester schedule:

Wk	Day	Date	Chapter	Topic, <i>Exercise</i> , <i>Exam</i>	Concept sketch
1	Tue	27-Aug	1	Introduction to Environmental Geology; The Earth System	
	Thur	29-Aug		Earth Materials, Processes, and Cycles 1: Plate Tectonics	<a href="#">1: Earth system</a>
2	Tue	3-Sep		" 2: Rocks and Minerals	
	Thur	5-Sep	2	" 3: Rock strength and structures	
3	Tue	10-Sep	2	" 4: Water cycle	<a href="#">2: Water cycle</a>
	Thur	12-Sep	2	" 5: Carbon cycle and other biogeochemical cycles	
4	Tue	17-Sep	2	Soils and Ecology	
	Thur	19-Sep	2	Ecology and Geology	
5	Tue	24-Sep	3	<a href="#">Exam I</a>	
	Thur	26-Sep	3	Natural Hazards	
6	Tue	1-Oct	4	Natural Hazards: Earthquakes	
	Thur	3-Oct	4	<a href="#">Earthquakes: in-class exercise (bring laptop)</a>	<a href="#">3: River systems</a>
7	Tue	8-Oct	5	River systems	
	Thur	10-Oct	7	Natural Hazards: River flooding	
8	Tue	15-Oct	7	River flooding	
	Thur	17-Oct	7	Natural Hazards: Volcanoes	
9	Tue	22-Oct		<a href="#">Volcanoes: in-class exercise (bring laptop)</a>	
	Thur	24-Oct	6	Natural Hazards: Coastal processes	
10	Tue	29-Oct	6	<a href="#">Exam II</a>	
	Thur	31-Oct	6	Water Resources	<a href="#">4: Water Resources</a>
11	Tue	5-Nov	9	Water Resources	
	Thur	7-Nov	9	Water Pollution and waste sources	
12	Tue	12-Nov	9	Energy resources	
		14-Nov	10	Energy resources	
13		19-Nov	10	Earth's Climate System	<a href="#">5: Energy budget</a>
		21-Nov	10	Climate changes and Earth's energy budget	
14		26-Nov	12	Global warming	
		<b>28-Nov</b>	12	No class: Thanksgiving Break Nov 27 - Nov 29	
15		3-Dec	12	Global warming	
				<a href="#">Exam III during final exam week</a>	