

Dr. Kelsch, Office: WSB 316

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Office Hours: Mon 11-noon, 2-3; Tue 11-noon, 2-3; Wed 11-noon; Thur 11-noon

ENVIRONMENTAL GEOLOGY – GEOL 1305, Spring 2024; MWF 1-1:50

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 all parts of geology 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 energy resources, 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.

Materials required:

Text: Keller, E.A., Environmental Geology. I use the 9th edition but earlier editions are acceptable.

General 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
3. An understanding of hazardous earth processes
4. An understanding of how the extraction and use of natural resources affects our environment
5. A general knowledge of Earth climate and changes to this climate

Student Learning Objectives: Each student will demonstrate the ability to:

1. Identify and interpret common rocks and minerals, understand soils
2. Describe the basic concepts of the connection between the biology and geology
3. Interpret natural hazards, including these related to river systems, landslides, earthquakes, volcanoes, coasts and meteorite impacts
4. Explain current issues pertaining to water resources, water pollution, and the impacts on these from mineral and energy resource extraction and use
5. Evaluate basic issues pertaining to climate change

Grading:

- Exercises: Four exercises on the topics of earthquakes, volcanoes, water resources, and water pollution are part of the course grade at 10% each (40% total).
- Concept sketches: Students will draw and annotate six single-page concept sketches at 5% of the course grade each (30% total).
- Exams: Three section exams will be dispersed through the semester. Each is worth 10% of the course grade (30% total).

	points for each	number of each	total points	percent of grade
Sketch assignments	5	6	30	30%
Exercises	10	4	40	40%
Section exams	10	3	30	30%

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 TEN 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.

THECB/SACS Core Curriculum Core Competencies Objectives:

Personal Responsibility – Students will develop principles of personal responsibility for living in a diverse world; to include intercultural competency, knowledge of civic responsibility, and the ability to engage effectively in regional, national and global communities

Social Responsibility – Students will develop principles of social responsibility for living in a diverse world, to include the ability to connect choices, actions, and consequences to ethical decision-making

ADA Statement

SRSU Disability Services. Sul Ross State University (SRSU) is committed to equal access in compliance with 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. Alpine Students seeking accessibility/accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's

Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email mschwartz@sulross.edu. Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

Library Information

The Bryan Wildenthal Memorial Library in Alpine offers 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. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

Academic Integrity

Students in this class 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 is appreciated. Examples of academic dishonesty include but are not limited to: 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.

Diversity Statement

I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could 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 an inclusive 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	W	1/17	1	Introduction to Environmental Geology	
	F	1/19		The Earth System	<u>1: Earth system</u>
2	M	1/22		__(((Dr. K out: no 1305 today)))	
	W	1/24	2	Earth Materials, Processes, and Cycles 1: Plate Tectonics	
	F	1/26	2	" 2: Rocks and Minerals	
3	M	1/29	2	" 3: Rock strength and structures	
	W	1/31	2	" 4: Water cycle	<u>2: Water cycle</u>
	F	2/2	2	" 5: Carbon cycle and other biogeochemical cycles	
4	M	2/5	3	Soils	
	W	2/7	3	Soils	
	F	2/9	4	Ecology and Geology	
5	M	2/12	4	Ecology and Geology	
	W	2/14	5	Natural Hazards: Slope failure	<u>3: Slope failure</u>
	F	2/16	7	Natural Hazards: Earthquakes	
6	M	2/19	7	Earthquakes: <i>in-class exercise (bring laptop)</i>	
	W	2/21	7	Earthquakes	
	F	2/23		<u>Exam I</u>	
7	M	2/26	6	Natural Hazards: River flooding	
	W	2/28	6	River flooding	<u>4: River systems</u>
	F	3/1	6	River flooding	
8	M	3/4	9	Natural Hazards: Volcanoes	
	W	3/6	9	Volcanoes	
	F	3/8	9	Volcanoes: <i>in-class exercise (bring laptop)</i>	
9		3/11 - 3/15		__(((Spring break: no classes)))	
10	M	3/18	10	Natural Hazards: Coastal processes	
	W	3/20	10	Coastal processes	<u>5: Coastal processes</u>
	F	3/22	10	Coastal processes	
11	M	3/25	12	Water Resources:	
	W	3/27	12	Water Resources: <i>in-class exercise (bring laptop)</i>	
	F	3/29	12	Water Resources:	
12	M	4/1		<u>Exam II</u>	
	W	4/3	13	Water Pollution	
	F	4/5	17	Solid waste	
13	M	4/8	14	Energy resources	
	W	4/10		__(((Dr. K out: no 1305 today)))__ <i>Water pollution project</i>	
	F	4/12		__(((Dr. K out: no 1305 today)))__	
14	M	4/15		__(((Dr. K out: no 1305 today)))__	
	W	4/17	16	Climate change	
	F	4/19	16	Climate change	
15	M	4/22	16	Global warming	<u>6: Energy budget</u>
	W	4/24	16	Global warming	
	F	4/26	16	Global warming	
16	M	4/29	17	Future	
	W	5/1	17	Future	
				<u>Exam III (during final exam time)</u>	