

UTEP Spring 2026 • Geology for Engineers

GEOL 3321 (CRN 23053)

Delivery method: In-person

Lecture room: Quinn Hall, Room 212

Meeting day and time: Monday and Wednesday, 10:30 - 11:20 AM

Instructor: Antonio Arribas (Department of Earth, Environmental and Resource Sciences)

Questions/Office hours: contact me any time at aarribas@utep.edu. Not through Blackboard!

Course Goals

This course will expose engineering students to the fascinating world of geology (more widely, the earth, environmental, and resource sciences). Students will learn about the impact of Earth processes on our everyday life, with emphasis on the many uses of geology to engineers. You will leave this course with a basic understanding of the concepts and vocabulary of the geosciences and be exposed to how scientists approach a scientific problem (observe, question, and analyze), distinguish facts from interpretations, and assess sources of information. The lectures, laboratories, and tests will all work toward these goals.

Learning Outcomes

Among other outcomes, at the end of the course students will:

- Understand plate tectonics and the concept of a dynamic planet.
- Recognize various tectonic settings on Earth and predict the nature of seismic and volcanic activity at the different tectonic settings.
- Identify basic minerals and rocks, including soils, and relate them to their environment of formation and the properties that an engineer may be concerned with.
- Understand some key internal (e.g., faults, earthquakes, volcanoes) and surface geologic processes (e.g., sedimentation, soil formation, climate) affect engineering studies.
- Understand the basic controls on climate and climate change, and the science behind human-induced global warming.
- Understand the interrelationship between Earth processes and human development, including the location, exploration and mining of the minerals, energy and water resources that enable society.
- Be able to converse with a geologist and read basic geologic reports.

Course Format – Lectures and Laboratory

This course combines lectures with laboratory; you must be enrolled in both. Laboratory meets in **GEOL 218**.

3321-003 - CRN 23054, Monday 4:30-7:20 pm

3321-005 - CRN 23056, Wednesday 4:30-7:20 pm

3321-004 - CRN 23055, Tuesday 3:00-5:50 pm

3321-006 - CRN 24220, Thursday 3:00-5:50 pm

Teaching Assistants: Katya Esquivel Herrera (kesquivelh@miners.utep.edu), Jose Franco Moraga (jdfrancomor@miners.utep.edu), and Jose J. Cabral (jjcabral@miners.utep.edu).

Textbook / Blackboard

No textbook is required, but I strongly recommend the following:

'Exploring Geology'
Blackboard

By Reynolds, Johnson, Morin, and Carter (now 6th edition; 3rd ed., or later OK)

Weekly lectures and study guides will be uploaded to Blackboard

Grading /Attendance

Attendance will be taken. Grading is based on in-person Exams (55%) and Laboratory assignments (45%).
Class total = 100 pts. Letter grade: A = 90-100, B=80 – 89.9, C = 70-79.9, D = 60-69.9, F = less than 60.

There are no plans for make-up exams or labs in the course, except for excused absences with advanced notice. *If you miss handing in **more than two lab assignments** and do not contact me or your teaching assistant within one week of the lab day, you may be withdrawn from the course with a grade of either W or F.* TAs may deduct points for late labs and decide not to grade labs turned in more than one week late.

CASS / Student Concerns

If you have a disability or if you are experiencing learning disabilities and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Rm 106, or visit www.sa.utep.edu/cass.

Lecture schedule (subject to change)

Lect. dates	Lecture Topics	Laboratory (bring laptop!)	TA
Jan. 21	1. Intro to course		
Jan. 26, 28	2. Geology and Society	1. Geography	JFranco
Feb. 2, 4	3. Plate Tectonics	2. Plate Tectonics	KatyaE
Feb. 9, 11	4. Deformation	3. Deformation & Structural Geology	JoseC
Feb. 16, 18	5. Minerals	4. Minerals	KatyaE
Feb. 23, 25	6. Volcanoes & Igneous Rocks	5. Volcanoes	JoseC
Mar. 2, 4	7. Sedimentary & Metamorphic Rocks	6. Ign., Sediment. & Metamorph. Rocks	JFranco
Mar. 9, 11	8. Earthquakes Exam 1, Wed. Mar. 4		
Mar. 16, 18	Spring Break		
Mar. 23, 25	8. Earthquakes (cont.) 9. Geologic Time	7. Earthquakes	KatyaE
Mar. 30, Apr. 1	10. Geology and Climate		
Apr. 6, 8	11. Climate Change	8. Climate Controls and Climate Change	JoseC
Apr. 13, 15	12. Energy Resources	9. Energy Resources	KatyaE
Apr. 20, 22	13. Water Resources	10. Water Resources	JoseC
Apr. 27, 29	14. Critical Minerals & Exploration	11. Mineral Resources	JFranco
May 4-6	Exam 2, Wed. May 6, class time		
Exams Week	(Exam 2, Option 2?)		