
Soils: NRM 2305

Sul Ross State University

Fall 2026

Instructor Information:

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Class Meeting Times:

Lecture: Monday & Wednesday 2:00 – 2:50 PM

Lab: Wednesday 3:00 – 4:50 PM

Recommended Texts:

- Elements of the Nature and Properties of Soils 4th Edition by Nyle C. Brady and Ray R. Weil.
- Dirt: The Erosion of Civilizations by David R. Montgomery
- The Soil Will Save Us by Kristin Ohlson
- Building Soil: A Down to Earth Approach by Elizabeth Murphy

Course Description:

An introduction to the origin, formation, and classification of soils, with emphasis on their physical, chemical, and biological properties. The course also explores soil organic matter, moisture, and soil fertility management.

Course Objectives:

1. Explain the importance of soils and their role in ecosystem function.
2. Describe and interpret the key physical and chemical properties of soils and how they influence soil behavior.
3. Apply knowledge of soil properties to agricultural, rangeland, and other natural resource management contexts.

Student Learning Outcomes:

By the end of this course, students will be expected to develop the following skills through both lecture and lab:

- **Collaboration:** Work productively with peers to compare, analyze, and interpret soil data and observations.
- **Communication:** Effectively communicate soil science concepts through written reports, discussions and presentations.
- **Quantitative Reasoning:** Collect, analyze, and interpret soil data using appropriate calculations and scientific methods.
- **Critical Thinking:** Evaluate soil-related challenges and apply scientific reasoning to solve real-world land management problems.

Course Outline:

Week #	Lecture Topic	Lab #	Lab Topic
1 (8/24 & 8/26)	Importance of Soils	-	No lab
2 (8/31 & 9/2)	Soil Parent Materials	1	Landscape Relationships
3 (No Class)	No lecture this week, lab is at home	2	Web Soil Survey (at home)
4 (9/14 & 9/16)	Soil Classification	3	Soil Sample Collection and Field Bulk Density
5 (9/21 & 9/23)	Soil Architecture and Physical Properties	4	Sample Prep and Morphology
6 (9/28 & 9/30)	Soil Water: Characteristics and Behavior	5	Soil Water
7 (10/5 & 10/7)	Soil and the Hydrologic Cycle	6	Bulk Density
8 (10/12 & 10/14)	Soil Aeration and Temperature; The Colloidal Fraction	7	Particle Size and Texture
9 (10/19)	Midterms (No Class on Wednesday)	-	No lab
10 (10/26 & 10/28)	Soil Acidity, Alkalinity, Salinity & Sodicity	8/9	pH and Salinity Calcium Carbonate

11 (11/2 & 11/4)	Organisms and Ecology of the Soil	10	Biological Activity and Organic N
12 (11/9 & 11/11)	Soil Organic Matter	11	Soil Microbiology
13 (11/16 & 11/18)	Nutrient Cycles and Soil Fertility	12	Make up labs and Q&A
14 (11/23)	Nutrient Management (No Class Wednesday)	13	No lab
15 (11/30 & 12/2)	Soil Erosion and Its Control	14	Lab Final
16 (12/7)	Final poster upload	15	

Grading:

You can monitor your progress throughout the semester by checking the Gradebook in Blackboard. There you will find your scores, instructor feedback, and comments on discussions and laboratory activities.

Grade assignment: <60 = F; 60-69 = D; 70-79 = C; 80-89 = B; 90-100 = A

Grade Breakdown:

Lecture (70% of grade)

Discussions	10%
Quizzes	15%
Midterm	20%
Final Poster	25%

Lab (30% of grade)

Participation	5%
Veemaps	15%
Final Practical	10%

Lecture Assignments Overview:

Lecture activities are designed to help students develop a strong understanding of soil science concepts and their applications to agriculture, rangelands, and natural resource management. Throughout the semester, students will complete quizzes and online discussions, and demonstrate their understanding through a midterm exam and a final poster.

Quizzes will assess the students' understanding of lecture material. Some quizzes may include calculations related to soil physical and chemical properties, so students should bring a calculator to class when instructed.

Discussions will be posted on Blackboard and are used to encourage critical thinking and application of soil science concepts. Students are expected to participate in online discussions.

The **Midterm Exam** will evaluate students' understanding of the concepts covered during the first half of the course.

The **Final Poster** provides students with the opportunity to investigate an applied soil science topic in greater depth. Students will prepare a scientific poster summarizing their topic, incorporating information from course materials and outside sources. Additional instructions and grading criteria will be provided during the semester.

Lab Assignments Overview:

The lab is designed to reinforce lecture concepts through hands-on activities and observation. Students will investigate the physical, chemical, and biological properties of soils while developing practical laboratory and data interpretation skills.

Laboratory Participation is expected each week. Students should come prepared, actively engage in lab activities, and contribute to group work.

VeeMaps will be completed throughout the semester to help students organize observations, interpret lab results, and connect lab activities with the scientific concepts discussed in lecture.

The **Final Lab Practical** will assess students' ability to identify soil properties, use laboratory techniques, interpret observations, and apply concepts learned throughout the semester.

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. To help protect confidentiality, students seeking accessibility/accommodation(s) services must submit the Accommodation Request Form located on our website. Students are welcome to call the Office of Accessibility Services at 432-837-8203 or stop by Ferguson Hall Room 112 if they have any additional questions regarding the process. Our mailing address is PO Box C-122; Alpine, TX; 79832.

Counseling:

Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/356 support by visiting [Timelycare/SRSU](https://www.timelycare.com/srsu). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

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. In this course, every element of class assignments must be fully prepared by the student. The use of generative AI tools for any part of your work will be treated as plagiarism. If you have questions, please contact me.

Library Resources:

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/. 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 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/ or ask a librarian by emailing srsulibrary@sulross.edu. Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as InterLibrary Loan (ILL), ScanIt, and Direct Mail to get materials delivered to you at home or via email.

