

NRM 2305 Soils
Fall 2023

Professor: Dr. Bonnie Warnock

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Office Hours: RAS MW 9:00-10:30 and WSB TT 9 :00-10:30; Other times by appointment

Lab Teaching Assistant: Asia Cornelius

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Office Hours: Tuesday and Thursday 10-2 and 3:30-6

Course description:

The origin, formation, and classification of soils, as well as their physical, chemical, and biological properties. Organic matter, moisture, and soil fertility maintenance are also covered.

Class meetings:

Monday and Wednesday 1:30-3:10 and 4:30-5:05.

Please dress appropriately for lab on Wednesdays. We will be going in the field on several occasions and working with chemicals in the lab. Please wear long pants and closed toe shoes. Be sure to bring a calculator when we are working inside as you will need to perform calculations each week to determine the physical and chemical properties of your soil.

Program Learning Outcomes for a B.S. in Natural Resource Management

The graduating student will be able to demonstrate that he/she is able to:

1. Identify species of wildland plants and wildlife common to the western United States and describe their natural history.
2. Demonstrate knowledge of elements of an ecosystem
3. Communicate about natural resources and conservation both verbally and in writing
4. Conduct range and wildlife inventories in a team setting
5. Apply knowledge of elements of an ecosystem into an appropriate conservation management plan

Course Objectives

1. Students will be able to state the importance of soils in ecosystems
2. Students will be able to understand the important physical and chemical characteristics of the soil.
3. Students will be able to integrate the knowledge of soil characteristics into other areas such as agronomy and range science.

Students will be expected to develop the following skills through both lecture and lab.

1. Team work: Students will learn team work in lecture with a class project on building

- and maintaining a compost pile and all lab work will be conducted in groups.
2. Communication: Students will improve communication skills through group discussions for soil challenges in lecture and in written reports in lab.
 3. Quantitative and empirical skills: Students will develop quantitative skills in both lecture and lab through calculations of soil physical and chemical characteristics.
 4. Critical thinking: Students will practice critical thinking in soil challenges in lecture and in the application of knowledge gained in lab to specific uses for their soil sample.

Recommended Texts:

Elements of the Nature and Properties of Soils (3rd or 4th editions).

Soils in our Environment (11th edition)

Building Soil: A Down to Earth Approach by Elizabeth Murphy

Lab manual, notes and assignments will be on Blackboard.

Tentative Course Outline:

Lec #	Topic	Lab #	Topic
1 (8-28)	Introduction and Definition of Soil Soil Composition and Importance	1	First week no lab
2 (9-4)	Labor Day no lecture	2 (9-6)	Soil Landscape Relationships in the field
3 (9-11)	Soil Parent Materials and Soil Formation	3 (9-13)	Soil Surveys in the computer lab
4 (9-18)	Physical properties of soils	4 (9-20)	Soil Sample Collection and Field Bulk Density
5 (9-25)	Soil Taxonomy	5 (9-27)	Sample prep and morphology
6 (10-2)	Test 1, Paper 1	6 (10-4)	Soil Water in lab
7 (10-9)	Soil Water	7 (10-11)	Soil Bulk Density in lab
8 (10-16)	Soil Aeration and Temperature	8 (10-18)	Soil Particle Size and Texture in lab
9 (10-23)	Soil Reaction, including acidic and salt affected soils	9 (10-25)	Soil pH and Salinity in lab
10 (10-30)	Test 2, Paper 2	10 (11-1)	Soil Calcium content in lab
11 (11-6)	Soil Carbon, Organic Matter and Soil Biota	11 (11-8)	Soil Biological Activity in lab

12 (11-13)	Plant Nutrients and Soil Fertility Mgt	12 (11-15)	Soil Aggregate Stability or Soil Microbiology in lab
13 (11-20)	Soil Erosion and Conservation	13 (11-22)	No Lab Holiday
14 (11-27)	Tillage, Irrigation, and Farming Systems	14 (11-29)	Make up and Q&A lab day
15 (12/4)	Test 3, Paper 3	15 (12-6)	Lab final 11-30
	Final Exam, Final Poster		

Class Organization:

Roll will be taken during each class meeting. The SRSU catalog states "The instructor may, at his discretion, drop a student from a course when the student has a total of nine absences. An absence is defined as non-attendance in fifty minutes of class. Non-attendance in a one and one-half hour class will constitute one and one-half absences." There will be group discussions and assignments in class). These will be graded as part of the soil challenges so **Come to class!**

Cheating on any exam or assignment will result in an F for that material and possible expulsion from the class with a grade of F.

Missed exam policy: No make-up exams will be provided for an unexcused missed exam. If you miss an exam without an excused absence, you will receive a score of 0 for that exam. Makeup exams will be available for authorized absences but must be completed within one week of the original exam date.

Late Work Policy: Late work will be accepted for 1 week after the due date with a 10% penalty for each day late.

If you miss a lecture, you may obtain notes from a willing classmate. Handouts, and assignments may be obtained from me or on Blackboard

It is Sul Ross State University Policy to provide reasonable accommodation to students with disabilities. If you would like to request such accommodations because of physical, mental, or learning disability, please contact the ADA Coordinator at 837 8203 or FH room 112.

Grades:

Option 1:

Three exams @ 100 points each 300 points
 Comprehensive Final 100 points

Option 2:

Three 5 page papers 300 points
 Final Poster 100 points

Option 3:

Online Soil Challenges @ 10 points each 100 points
 Chapter Homework @ 20 points each 200 points
 Final Poster 100 points

Everyone Completes:

Class Attendance & In Class Soil Challenges 100 points

Laboratory	200 points
Participation	50 points
Lab V-maps	100 points
Lab final	50 points

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

Assignments and Lab

Exams and the Final will be multiple choice questions. You will need to bring a calculator to each exam as some questions will require you to complete calculations i.e. volumetric water content, irrigation and fertilizer recommendations etc. These are multiple choice questions but you will need to make sure you read the question carefully and think about what I am asking! The final will be made from questions from the first three tests.

Papers will be written over a topic related to Soils that is covered in the section of class prior to the due date. Papers are due the same date that tests will be administered. The final poster will be on a selected applied Soils topic and will be turned in as a Power Point slide.

Chapter Homework and Soil Challenges are take home and online assignments that must be completed each week. They will all be submitted on Blackboard. The final poster will be on a selected applied Soils topic and will be turned in as a Power Point slide.

Soil Challenges are in class assignments and questions that are designed to test critical thinking skills and your understanding of soil principles. For group discussion assignments in lecture your responses will be graded based on your participation in the group discussion. One of the soil challenges will be building and maintaining a class compost pile. You will be required to work as a group to collect materials and a schedule will be developed for teams of two to turn the pile on a regular basis.

The Lab is designed to develop your understanding of soil by testing and learning about a soil sample that you collect. This will be a team effort and your team will be assigned the first day of lab. Each team will collect a soil sample, describe the area where the sample was collected, and conduct a series of lab tests to determine the physical and chemical properties of your soil sample. An individual weekly report submitted on the Vmap template will be required. A comprehensive written lab report Vmap that summarizes your findings on the soil sample and discusses the strengths and weaknesses of your soil as it applies to agriculture and rangeland will be written by each individual based on the team data collection. Please be sure to bring a calculator to lab each week.

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 at 432-837-8203 or email mschwartz@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.

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 24/7/365 support by visiting [Timelycare/SRSU](https://www.timelycare.com). 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.

Libraries

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 LobolD 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.

New for Fall 2023: 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) and ScanIt to get materials delivered to you at home or via email.