

NRM 2305 Soils  
Fall 2014

Instructor:

Dr. Bonnie Warnock

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Office Hours: 1:00-3:00 Tuesday and Thursday; Other times by appointment

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:

Lecture: Monday and Wednesday 1:00-1:50

Lab: Tuesday 3:00-4:50 or Wednesday 11:00-12:50

Please dress appropriately for lab. 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.

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.

Required Text:

Elements of the Nature and Properties of Soils (3<sup>rd</sup> edition). Lab manual, notes and assignments will be on Blackboard.

Tentative Course Outline:

Lecture #	Topic	Lab #	Topic
1	Introduction and Definition of Soil	1	Introduction
2	Soil Composition and Importance	2	Soil Morphology in the field
3-4	Physical properties of soils	3	Soil Sampling in the field
5-6	Soil Water	4	Sample Preparation and Morphology in the lab

7-8	Soil Aeration and Temperature	5	Soil Particle Size and Texture in lab
9-11	Soil Reaction, including acidic and salt affected soils	6	Soil pH and Salinity in lab
12	Test 1 (October 1st)	7	Soil Calcium content in lab
13-14	Soil Carbon, Organic Matter and Soil Biota	8	Soil Bulk Density in lab
15-16	Soil Parent Materials and Soil Formation	9	Soil Carbon and Organic Matter in lab
17-19	Soil Taxonomy	10	Soil Landscape Relationships in the field
20	Test 2 (November 5th)	11	Soil Surveys in the computer lab
21-23	Plant Nutrients and Soil Fertility Mgt	12	Soil Nitrogen in the lab
24-25	Soil Erosion	13	Soil P and K in the lab
26-27	Tillage, Irrigation, and Farming Systems	14	Soil Reports in the lab
28	Soil Conservation	15	Lab Final
29	Test 3 (December 4th)		
	Final. Monday Dec 8th 12:30		

#### 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 (one of which is working as a class to build and maintain a compost pile). 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.

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:

Three exams @ 100 points each	300 points
Comprehensive Final	100 points
Soil Challenges @ 10 points each	100 points
Online homework @10 points each	100 points
Laboratory	300 points
Participation	150 points
Lab results and report	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! You will need to bring a coin to each test.

Soil Challenges are take home and in class assignments and questions that are designed to test critical thinking skills and your understanding of soil principles. These will be given each week. For group discussion assignments in lecture your responses will be graded based on your participation in the group discussion. For take home assignments your response to the challenge will be due the next week for take home assignments. 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. A comprehensive written lab report 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 team.

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

The graduating student will 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 the elements of an ecosystem.
3. Communicate about natural resources and conservation both verbally and in writing.