

Reedley College
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AgNR Department
Plant Science 2

Plant Science 2: Soils - Course Information

Course Description

An introduction to the basic principles of soil science, including the physical, chemical, and biological characteristics of soils. Emphasis during lectures and laboratories is placed on developing practical and effective soil management solutions that preserve soil quality in an irrigated environment.

Units and Hours

3 units; 3 hours lecture - MW 8:00 a.m. to 8:50 a.m.

Final: May 17, 2017 – 8:00-9:50 am

Or

3 units; 3 hours lecture - W 6:00 p.m. to 8:50 p.m.

Final: May 17, 2017 – 6:00-7:50 pm

Textbook

Brady, N.C and Weil, R.R. 2010. *Elements of the Nature and Properties of Soils*. 3rd Edition. Prentice Hall.

Assignments and Grading

Three major tests will be given that correlate to the assigned readings and course lecture notes. Quizzes will be given weekly on the discussed subject matter.

	Point Distribution				
Lecture:	Quizzes				100
	Online-Assignments				200
	2 Midterms				300
	Final Exam				200
Total Points					800
90% = A	80% = B	70% = C	60% = D	Less = F	

<u>Important Dates:</u>	Last Day to Drop Class with Refund:	January 20, 2017
	Last Day to Drop w/o Transcript Record:	January 27, 2017
	Last Day to Change CR/NR:	February 3, 2017
	Last Day to Drop w/o Letter Grade Assigned:	March 19, 2017

Assignments: All assignments are due at the beginning of class on the date due. Late submission of assignments will be assessed a penalty of 50%. No exceptions are made.

Academic Dishonesty: Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper or project; failure in course; and or expulsion from the University. For more information refer to the "Academic Dishonesty" policy in the College Catalog.

Need for Assistance: If you have any condition, such as a physical or learning disability, which will make it difficult for you to carry out the work as I have outlined it, or which will require academic accommodations, please notify me as soon as possible.

Posting of Grades: Final grades will not be posted. If you wish to have your final grade sent to you, please bring a self-addressed, stamped envelope to the final exam.

Attendance

Attendance of lectures and labs is required and roll will be taken at each meeting. A "tardy" is considered an absence unless the student contacts and explains the incident. Students must make prior arrangements with the instructor to be excused from lectures and labs, make-up of missed tests and labs are permitted only with excused absences.

Office Hours - Ag 4

Monday 9:00

Thursday 9:00

Friday 9:00 – Online

Lecture Schedule

<u>Week</u>	<u>Topic</u>	<u>Reading Assignment</u>
1	Introduction Soils Around Us	Chapter 1
2	Formation of Soils from Parent Material	Chapter 2
3	Soil Architecture and Physical Properties	Chapter 4
4	Soil Water: Characteristics and Behavior	Chapter 5
5	Soil and the Hydrologic Cycle	Chapter 6
5	Soil Aeration and Temperature	Chapter 7
6	Review & Midterm	
7	The Colloidal Fraction: Seat of Soil Activity	Chapter 8
8	Soil Acidity, Alkalinity, Aridity and Salinity	Chapter 9
9	Soil Acidity, Alkalinity, Aridity and Salinity	Chapter 9
10	Organisms and Ecology of the Soil	Chapter 10
11	Soil Organic Matter	Chapter 11
12	Soil Classification	Chapter 3
13	Review & Midterm	
14	Nutrient Cycles and Soil Fertility	Chapter 12
15	Practical Nutrient Management	Chapter 13
16	Soil Erosion and Its Control	Chapter 14
17	Soil and Chemical Pollution / Review	Chapter 15
18	Final Exam	

COURSE OUTCOMES

Upon completion of this course, students will be able to:

- A. analyze the various components of soil and summarize the essential, beneficial, and detrimental impacts on the micro to macro scales of influence.
- B. describe, illustrate, and identify physical, chemical and biological properties of soil and processes within soils.
- C. utilize quantitative and qualitative skills in measuring soil properties, and prescribe effective countermeasures to improve soil quality or mitigate detrimental characteristics.

COURSE OBJECTIVES

In the process of completing this course, students will:

- A. develop an understanding of the importance of soil in ecological, agricultural, and social systems.
- B. define and distinguish between the important physical properties of a soil, such as texture, structure, density, color and temperature.
- C. comprehend soil chemical properties such as pH, cation exchange capacity, and the important chemical reactions within soils.
- D. analyze the soil forming factors and their integrated influence on soil development, and utilize the soil classification and taxonomy systems.
- E. discuss and evaluate soil moisture content, and predict its effects on plant development and soil water potential.
- F. describe the complex biosphere within soils and its effect on nutrient cycling, organic matter content and soil quality.
- G. explain the positive and negative outcomes of fertilizer and amendment applications, and management practices on soils and society.
- H. observe and evaluate the relationships of soil nutrition, especially nitrogen, on plants, soil organisms and the environment.
- I. demonstrate sustainable soil management practices.