Reedley College
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AG & NR 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, 2010 – 8:00-9:50 am

Or

3 units; 3 hours lecture - W 6:00 p.m. to 8:50 p.m.
Final: May 19, 2010 – 6:00-7:50 pm

Textbook

Gardiner, D.T. and Miller, R. W. 2008. ***Soils in Our Environment***. 10th 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
	2 Midterms	300
	Final Exam	200
Total Points		**600**

90% = A 80% = B 70% = C 60% = D Less = F

Important Dates:

Last Day to Drop Class with Refund:	January 22, 2010
Last Day to Drop w/o Transcript Record:	January 29, 2010
Last Day to Change CR/NR:	February 16, 2010
Last Day to Drop w/o Letter Grade Assigned:	March 12, 2010

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 soil 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.

D. comprehend the influence of soil quality and soil management practices on the sustainability of ecosystems and society.

COURSE OBJECTIVES

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.

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 Wednesday 9:00 Friday 9:00

Lecture Schedule

Week	Topic	Reading Assignment
1	Introduction	Chapter 1
	Soil Composition & Importance	
2	Soil Formation & Morphology	Chapter 6
3	Soil Physical Properties	Chapter 2
4	Soil Physical Properties	Chapter 2
5	Soil Water Properties	Chapter 3
6	**Review & Midterm**	
7	Soil Colloids and Chemical Properties	Chapter 4
8	Organisms and their Residues	Chapter 5
9	Soil Taxonomy	Chapter 7
10	Acidic Soils and Their Management	Chapter 8
11	Salt-Affected Soils and Their Management	Chapter 9
12	Nitrogen, Phosphorus, & Potassium	Chapter 10
	Calcium, Magnesium, Sulfur, and Micronutrients	Chapter 11
13	**Review & Midterm**	
14	Diagnosis of Soils and Plants	Chapter 12
	Fertilizer Management and Precision Agriculture	Chapter 13
15	Tillage Systems	Chapter 14
	Soil Erosion	Chapter 15
16	Water Resources & Irrigation	Chapter 16
	Drainage	Chapter 17
17	Soil Surveys, Interpretations, and Ag & NR Use Planning	Chapter 20
	Final Review	
18	**Final Exam**	