

Reedley College  
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AgNR Department  
Plant Science 14

## **Plant Science 14 – Plant Nutrition**

### **Course Description**

The study of soil, plant, and nutrient relationships. The composition, value, selection and use of fertilizer materials, soil amendments, and cover crops.

### **Units and Hours**

3 units; 1.5 hours Lecture - M 6:00 p.m. to 7:30 p.m.  
1.5 hours Online - TBA  
Final: May 15, 2017 – 6:00-7:50 p.m.

### **Textbook**

A. Western Fertilizer Handbook, 9th Edition, 1990

### **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			
1.	Assignments/Quizzes	200			
2.	Online Assignments	200			
3.	Examinations	600			
	Total	1000			
90% = A	80% = B	70% = C	60% = D	Less = F	

<b><u>Important Dates:</u></b>	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.

### **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**

Week	Lecture Topics	Reading Assignments
1	Introductions / Administration	
1	Soil and Plant Growth	Chapter 1
1	Water and Plant Growth	Chapter 2
1	Principles of Plant Growth	Chapter 3
2	Essential Plant Elements	Chapter 4
3	Holiday – MLK	
4	Essential Plant Elements	Chapter 4
5	Essential Plant Elements	Chapter 4
6	Fertilizers – A Source Plant Nutrients	Chapter 5
7	Holiday – Presidents'	
8	Fertilizers – A Source Plant Nutrients	Chapter 5
9	Mid-term Exam 1	
10	Fertilizer Formulation, Storage, Handling	Chapter 6
11	Fertilizer Application	Chapter 7
12	Fertilizer Application	Chapter 7
12	Site/Crop Specific Fertilizer Management	Chapter 8
13	Site/Crop Specific Fertilizer Management	Chapter 8
14	Mid-term Exam 2	
15	Soil and Tissue Testing	Chapter 9
16	Soil and Tissue Testing	Chapter 9
16	Soil Correction with Amendments	Chapter 10
17	Soil Correction with Amendments	Chapter 10
18	Final Exam	

## **Course Outcomes**

- A. Explain the needs of plants for elements in key metabolic processes.
- B. List the essential elements and the forms used by plants
- C. Apply materials that satisfy nutritional requirements in safe, effective, and economical methods.
- D. Interpretation of soil and plant tissue analyses results and recommend effective corrective solutions.
- E. Minimize fertilizer side-effects to the environment.

## **Course Objectives**

- A. Develop an understanding of the plant nutrients necessary to sustain plant growth.
- B. Understand the economics of proper plant nutrition, including cost per unit equations.
- C. Calculate the nutrient cost per unit and determining the most economic fertilizer material and rate.
- D. Link theory to practical application in selecting nutrient materials to specific soil types, irrigation methods, and crop types.
- E. Review chemical reactions and processes associated with fertilizer elements.
- F. Perform analyses of plant and soil nutrients and interpret the levels relative to crop needs.
- G. Relate nutrient rates and timing to climatic conditions and cultural operations to avoid fertilizer pollution in the environment.
- H. Identify nutrient deficiency symptoms in plants.
- I. Discover GIS, GPS, and precision agriculture applications to fertilizer application and nutrient sampling.