### http://kingsriverlife.com/wp-content/uploads/2014/10/reedleycollege.jpg

###  *Spring 2016*

### PLS 14

### Plant Nutrition

### Syllabus

**Instructor:** Audrey Bonomi

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**Class Meeting:**

**Period 5:** Monday, Tuesday, Friday 1:03-2:01pm

Wednesday Block 1:15-3:05, Thursday Block 1:26-3:05pm

**Period 6:** Monday, Tuesday, Friday 2:07-3:05pm

Wednesday Block 1:15-3:05, Thursday Block 1:26-3:05pm

**Room**: 1000

**Units:** 03

**Prerequisites:** None

**Course Description:**

This course is designed to study of soil, plant, and nutrient relationships. The composition, value, selection, and use of fertilizer materials, soil amendments, and cover crops.

**Course Goals:**

* Explain the needs of plants for elements in key metabolic processes.
* Recommend materials that satisfy nutritional requirements and comply with ecomomical constraints.
* Interpret soil and plant tissue analysis results and recommend effective corrective solutions.

**Primary Learning Outcomes:**

The student will:

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* Develop an understanding of the plant nutrients necessary to sustain plant growth.
* Understand the economics of proper plant nutrition, including cost per unit equations.
* Calculate cost per unit in determining the economics of a nutrient’s application.
* Link theory to practical application in selecting nutrient materials to specific soil types, irrigation methods, and crop types.
* Review chemical reactions and processes associated with fertilizer elements.
* Perform analyses of plant and soil nutrients and interpret the levels relative to crop needs.
* Relate nutrient rates and timing to climatic conditions and cultural operations to avoid fertilizer pollution in the environment.
* 8. Identify nutrient deficiency symptoms in plants.
* 9. Discover GIS, GPS, and precision agriculture applications to fertilizer application and nutrient sampling.

**Lab Dress:** Work clothes, or coveralls. No loose clothing. Long hair must be restrained. Closed toe shoes and pants are required. Safety glasses will be worn at all times when in a lab situation and teacher requires. You may get dirty in class so please dress appropriate.

**Required Text:**

Western Fertilizer Handbook,9th ed. California Plant Health Association , 2002

Students are expected to have read the assigned reading before lecture.

**Students Responsibility:**

* Students are strongly advised not to miss labs since this time may be difficult or impossible to make them up.
* No makeup’s will be allowed unless by prior permission of the instructor.
* Cleanup of the shop is part of the laboratory exercise. Students not participating in shop cleanup will have points deducted from their project grades.
* Late assignments are subject to a 25% penalty every week late.. No lab projects will be accepted after the final exam.
* Handouts/Google Classroom Assignments will be given in every class or laboratory.

**Tentative Schedule:**

\***You will be responsible for completing the discussion questions at the end of each assigned chapter. Due Dates are listed below for the readings and lab dates**

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| **Week/Date** | **Unit** | **Lab/Topics** |
|  **Week 1** | **Soils and Plant Growth** | **Soil Labs** |
| **Week 2** | **Soils and Plant Growth** | **Soil Testing** |
|  **Week 3** | **Water and Plant** **Growth** | **Water Sampling and Testing** |
| **Week 4** | **Principles of Plant Growth** | **Plant Growth Lab** |
| **Week 5** | **Essential Plant Nutrients** | **Nutrient Testing** |
| **Week 6** | **Fertilizers****A Source of Plant Nutrients** | **Nutrient Analysis** |
| **Week 8-9** | **Fertilizer Formulation** | **Nutrient/Fertilization Calculations** |
| **Week 10** | **Fertilizer** **Chemicals/Organics** | **Practice Application** |
| **Week 11** | **Fertilizer Application** | **Calibration and Calculations** |
| **Week 12** | **Fertilizer/Application Technology** | **Equipment and Technology** |
| **Week 13** | **Fertilizer Storage** **And Handling** | **Dry and Fluid Material** |
| **Week 14** | **Foliar Nutrients** | **Efficiency and History** |
| **Week 15** | **Soil and Tissue Testing** | **Soil and Plant Sampling** |
| **Week 16** | **Nutritional Soil Amendments** | **Acid/Alkali Soils** |
| **Week 17** | **Economics and Fertilizer Usage** | **GIS and GPS application** |
| **Week 18** | **Fertilizer and the Environment** | **Impacts/Reports and BMPs** |

**Subject to Change:**

 This syllabus and schedule are subject to change. If you are absent from class, it is your responsibility to check on any changes made while you were absent.

**Evaluation:**

Students will be evaluated on the basis of their performance on quizzes (announced and unannounced), written assignments, unit tests, lab projects and final examination according to the following scale.

Assignments 35%

 Tests & Quizzes 10%

 Lab projects 35%

Mid-Term /Final Exam 20%

Your grade in this course will be based on the following scale:

 A – 90 – 100%

 B – 80 – 89%

 C – 70 – 79%

 D – 60 – 69%

 F – 59% and below

**Attendance**

Lecture: Attendance is required and roll will be taken at each class meeting. There is no difference between an “excused” or “unexcused” absence. Any student who misses more than two weeks of class meetings within the first 9 weeks of class may be dropped from the class by the instructor.

Lab: Attendance in all labs is mandatory. Students must make prior arrangements with the instructor to be excused from lab. At that time, the instructor will determine, if any, make-up work will be appropriate.

Quizzes: Students must make prior arrangements with the instructor to make up any quizzes.

Tests: Make-up tests are limited to students who have made arrangements with the instructor prior to the required testing period or those students who have been excused by the SCCCD Dean of Admissions, Dr. John Cummings.

**Grading Policy/Scales/Evaluation Criteria**

For maximum point consideration, all written assignments and term reports should be typed and double-spaced. Lecture assignments (homework) will be completed on google classroom and turned in on time or will be penalized 20% each week it is late. Late laboratory assignments turned in within one week of the required due date will be accepted with a penalty equal to 20% of the maximum points. Any lab assignment turned in after that time up to the last regular class meeting will be accepted with a 50% penalty.

**College Policies:**

**Cheating & Plagiarism**

In keeping with the philosophy that students are entitled to the best education available, and in compliance with Board Policy 5410, each student is expected to exert an entirely honest effort toward attaining an education. Violations of this policy will result in disqualification for the course.

**Accommodations for Students with Disabilities**

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

**Work Ethic -** Most students are enrolled in college classes to obtain a quality job or to enhance their skills for advancement with their current employment situation. Employers look for a punctual, responsible individual who is prepared to go to work. Our goal is to replicate the workplace environment where a student can develop and demonstrate these desirable traits.

* Punctual: It is customary to arrive on time or before class starts.
* Responsible: It is expected than an employee work every scheduled work day.
* Prepared: It is expected that an employee be prepared with he/she arrives for work. Students must have appropriate clothing, safety glasses, and appropriate footwear to participate in the laboratory. Student is also required to have class material, such as ipad, textbook, paper and other class supplies to write and take notes with.

**Language -** English is expected to be spoken in class for the following reasons:

* All course content and materials are presented in English and class discussions all take place in English.
* All lab activities are conducted in groups and must have effective communication between all group members.
* Shop activities can be hazardous and it is vital that instructors receive feedback in English to ensure safe practices.
* This policy is designed so that instructors and all students may communicate in a common language.
* All individuals must have freedom of expression and are allowed and encouraged to communicate in the language of their choice outside of class times, including breaks.

**Behavioral Standards**

* Each student is responsible for his/her own work. Written assignments are not group assignments and no credit will be awarded for students who turn in the same work. Students suspected of cheating on tests and quizzes will receive no credit for that particular assignment and may be removed from the class.
* It is considered polite to turn off cell phones when in the classroom or shop. Please do so.

**Important Dates**

* Martin Luther King January 18th
* President Holiday February 15th
* Spring Break March 21-28

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| **FINAL EXAM: – Thursday, June 9, at 10:57 a.m. for Per 5 and** **Friday, June 10, at 10:57 am for Per 6** |