

Clackamas Community College

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Section #1 General Course Information**Department:**Horticulture**Submitter**

First Name: Renee

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Course Prefix and Number:HOR - 140

Credits:3**Contact hours**

Lecture (# of hours): 33

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 33

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title:Soils**Course Description:**

Soil characteristics and management, including nutritional elements and the relationship between the soil and plant growth.

Type of Course:Career Technical Preparatory

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s): Horticulture AAS & Certificate, Landscape AAS & Certificate, Urban Ag Certificate

Are there prerequisites to this course?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

No

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit: Yes

When do you plan to offer this course?

✓ **Spring**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. identify soil texture, soil structure and soil profiles;
2. determine benefits and potential problems of various soil textures,
3. describe soil colloids and their significance to soil properties,
4. describe how to manage and reduce soil compaction,
5. make sound decisions concerning maintenance needs of plants in different soil types,
6. calculate the proper quantities of fertilizer to apply in order to meet recommendations,
7. describe methods of reducing soil erosion,
8. discuss the relationships between soil particles, soil organisms and the environment.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. The Soil in Perspective.
 - a. Soil defined.
 - b. Soil testing.
 - c. Soil profile.
 - d. Soil classification.
 - e. Soil components including organic matter, water, and air.
2. Physical Properties of Mineral Soils.
 - a. Classification.
 - b. Soil textural classes.
 - c. Silicate clays.
 - d. Soil structure.
 - e. Tillth and tillage equipment.
3. Soil Judging.
 - a. Surface soil.
 - b. Subsoil.
 - c. Whole soil.
 - d. Management practices.
4. Supply and Availability of Plant Nutrients.
 - a. Factors controlling plant growth.
 - b. The essential elements.
 - c. Transfer of plant elements to available forms.
 - d. Plant up take of essential elements.
 - e. Nutritional importance.
5. Soil Colloids: The Nature and Practical Significance.
 - a. Colloid response to essential element ions.

- b. Anion relationship.
- c. Cation exchange.
- d. Percentage base saturation.
- 6. Soil Reaction: Acidity and Alkalinity.
 - a. pH defined.
 - b. Acidity vs. alkalinity and their relationship to plant growth.
 - c. Buffering of soils.
- 7. Analyzing a Soil Test.
 - a. Conversion of parts per million and milliequivalent to pounds per acre.
 - b. Calibration of equipment.
 - c. Fertilizer calculations.
- 8. Soil Organisms.
 - a. Macroorganisms and their relationship to plant growth.
 - b. Microorganisms and their relationship to plant growth.
 - c. Soil organism activity.
- 9. Organic Matter of Mineral Soils.
 - a. Sources of soil organic matter.
 - b. Effects of organic matter on soil fertility and plant growth.
 - c. Carbon nitrogen ratio and its significance.
- 10. Lime and Its Soil-Plant Relationship.
 - a. Liming materials.
 - b. Effects of lime on soil.
 - c. Plant crop response to liming.
 - d. Forms, amounts, and methods of applying lime.
- 11. Improving Soil's Productive Capacity.
 - a. Practices which destroy soil structure or productivity.
 - b. Practices to improve soil structure.
- 12. Soil Erosion and Its Control.
 - a. Erosion defined.
 - b. Types of soil erosion.
 - c. Erosion prevention methods and practices.

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|------------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | Yes |
| 4. Clean up natural environment | No |
| 5. Supports green services | No |

Percent of course: **15%**

First term to be offered:

Specify term: Spring 2014
