

# PST-2310: SOIL TECHNOLOGY

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## Cuyahoga Community College

**Viewing: PST-2310 : Soil Technology**

**Board of Trustees:**

January 2023

**Academic Term:**

Fall 2023

**Subject Code**

PST - Plant Science/Landscape Tech.

**Course Number:**

2310

**Title:**

Soil Technology

**Catalog Description:**

Examination of the critical role soil plays in horticulture, agriculture, and construction. Emphasis on soil testing, analysis, and building healthier soils.

**Credit Hour(s):**

3

**Lecture Hour(s):**

2

**Lab Hour(s):**

3

**Other Hour(s):**

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## Requisites

**Prerequisite and Corequisite**

CHEM-1000 Everyday Chemistry, or concurrent enrollment; or BIO-1060 Environment, Ecology, and Evolution or concurrent enrollment; and ENG-0995 Applied College Literacies; or appropriate score on English Placement Test.

Note: ENG-0990 Language Fundamentals II taken prior to Fall 2021 will also meet prerequisite requirements.

## Outcomes

**Course Outcome(s):**

Evaluate soil conditions on various landscape sites.

**Objective(s):**

- a. Distinguish different soil types.
- b. Discuss various factors that affect soil formation.
- c. Perform soil tests in laboratory setting.
- d. Perform soil tests in the field.
- e. Determine best recommendations for soil amendments based on soil tests.

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**Course Outcome(s):**

Utilize soil management techniques to build healthier soils for agriculture, horticulture, and construction.

**Objective(s):**

- a. Consider drainage recommendations.
- b. Demonstrate knowledge of soil conservation practices and their impact on the landscape industry.
- c. Understand basic soil structure and physics by interpreting a soil analysis report and providing a summary of site use based on physical properties.

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**Course Outcome(s):**

Make soil recommendations to homeowners and professionals.

**Objective(s):**

- a. Determine recommendations for soil amendments based on soil test results.
- b. Describe the results of soil testing and explain the impact of those results on a specific area.

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**Methods of Evaluation:**

- a. Laboratory exercises
- b. Quizzes
- c. Midterm
- d. Final exam

**Course Content Outline:**

- a. Soil texture
- b. Soil type
- c. Factors affecting soil formation
  - i. Human factors
  - ii. Natural factors
- d. Soil amendments
  - i. Organic
  - ii. Inorganic
- e. Soil evaluation
  - i. Field testing
  - ii. Laboratory testing
  - iii. Test evaluation
  - iv. Understanding results and recommendations
- f. Soil management
  - i. Construction site management
  - ii. Erosion
  - iii. Drainage
  - iv. Conservation

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**Resources**

Plaster, Edward J. *Soil Science Management*. 6th ed. Delmar, 2013.

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G. Sposito. *The Chemistry of Soils*. 2. Oxford University Press, 2008.

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J. Lowenfells. *Teaming with Microbes: The Organic Gardener's Guide to the Soil Food Web*. Revised. Timber Press, 2010.

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J. Elsas, J. Jansson, J. Trevors. *Modern Soil Microbiology*. 3. CRC Press, 2021.

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R. Weil & N. Brady. *Elements of the Nature and Properties of Soils*. 4th Edition. Pearson, 2021.

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R. Weil & N. Brady. *Nature and Properties of Soils*. 15. Pearson, 2017.

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**Resources Other**

- a. Current Ohio State University County Extension Bulletins.
- b. Soil Erosion and Hydroseeding, Professional Journal Published Monthly.

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