

# Virginia Western Community College

## HRT 205

### Soils

#### COURSE OUTLINE

#### **Prerequisites:**

none

#### **Course Description:**

Teaches theoretical and practical aspects of soils and other growing media. Examines media components, chemical and physical properties and soil organisms. Discusses management and conservation.

**Semester Credits: 3 Lecture Hours: 2 Lab/Recitation Hours: 2**

#### **Required Materials:**

Textbook:

Hartmann Brady, C. Nyle; Weil Ray R., 2019. Elements of the Nature and Properties of Soils, Fourth Edition, Pearson Education Inc., 330 Hudson Street, New York, NY 10013.  
ISBN-10: 0-13-3254459-3; ISBN-13: 978-0-13-325459-4.

VIRGINIA WESTERN COMMUNITY COLLEGE  
3098 Colonial Ave  
Roanoke, VA 24015  
(540)-857-6388



# HRT 205 Soils

## Course Outcomes

**At the completion of this course, the student should be able to:**

- Collect soil samples and analyze soil test results.
- Classify soil samples using textural characteristics.
- Identify soil-less media components and characterize their origin, water-holding capacities and drainage qualities.
- Describe technical data printed on commercial fertilizer containers and use this information to calculate application rates.
- Apply knowledge of pH to soil management practices.
- Describe basic principles of soil conservation.

# HRT 205 Soils

**Topical Description:** (Outline chapters and sections to be covered in the book – may include timeline)

1. Soils in General – Formation, Classification, Physical Properties
  - a. Chapter 1 The Soils Around Us
  - b. Chapter 2 Formation of Soils from Parent Materials
  - c. Chapter 3 Soils Classification
  - d. Chapter 4 Soil architecture and Physical Properties
2. Soil Water
  - a. Chapter 5 Soil Water: Characteristics and Behavior
  - b. Chapter 6 Soil And the Hydrological Cycle
3. Soil Environment
  - a. Chapter 7 Soil Aeration and Temperature
4. Soil Activity - Chemical
  - a. Chapter 8 The Colloidal Fraction: Seat of Soil Chemical and Physical Activity
  - b. Chapter 9 Soil Acidity, Alkalinity, Salinity, and Sodidity
5. Soil Activity – Organic
  - a. Chapter 10 Organisms and Ecology of Soil
  - b. Chapter 11 Soil Organic Matter



6. Soil Nutrition
  - a. Chapter 12 Nutrient Cycles and Soil Fertility
  - b. Chapter 13 Practical Nutrient Management
7. Soil Survival
  - a. Chapter 14 Soil Erosion and Its Control
  - b. Chapter 15 Soil and Chemical Pollution

**Notes to Instructors:**

(List information about optional topics, departmental exams, etc.)

None

