

**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Soil Science

**Prefix and Course Number:** ENVS 210

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- identify and define parts of a soil
- describe the importance, functions and mechanisms of soil ecosystem interactions
- measure and assess soil characteristics
- apply knowledge of plant nutrition
- use the USDA Soil Survey to find information for a wide variety of human uses

**Course Outline:**

- I. Basic Science
  - A. Composition of Matter
  - B. Chemical Reactions
  - C. States of Matter and Physical Reactions
- II. Soil Origin and Development
  - A. Definition and Uses
  - B. Basic Geology
  - C. Soil Formation Processes
  - D. Soil Development
  - E. Soil Horizons and Profiles
- III. Physical Properties of Soils
  - A. Texture
  - B. Density
  - C. Permeability
  - D. Structure
  - E. Consistence
  - F. Tilth
  - G. Color
- IV. Soil Water
  - A. Properties of Water
  - B. Water Use
  - C. Forces on Soil Water
  - D. Types of Soil Water
  - E. Water Retention and Movement
  - F. Measuring Soil Water
  - G. Effects of Soil Water on Forests
  - H. Water Conservation
  - I. Wetland Soils

- V. Soil Life and Organic Matter
  - A. Functions
  - B. Types
  - C. Organic Matter Formation and Functions
- VI. Plant Nutrition
  - A. Plant Nutrients
  - B. Nutrient Sources
  - C. Nutrient Uptake Mechanisms
  - D. Fertilizer Use in Forests
  - E. Soil pH
  - F. Salinity
- VII. Soil Classification and Survey
  - A. General Soil Classification System
  - B. Survey Manuals
  - C. Land Capability Classes
  - D. Woodland Groups