Course Title: Soil Science  
Prefix and Course Number: ENVS 210

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