

## **CROP AND SOIL ENVIRONMENTAL SCIENCES 4134**

### **SOIL GENESIS AND CLASSIFICATION**

#### **CATALOG DESCRIPTION: 4134: SOIL GENESIS AND CLASSIFICATION**

The form and dynamics of soil bodies across the landscape; soil-forming factors and processes; state factor analysis as a predictive tool to explain the evolution of unique soils across the terrain; diagnostic horizons and other important pedological features used in Soil Taxonomy; history and development of soil classification systems. PRE: 4124; (3H, 3C). II. Even years.

#### **PREREQUISITES & COREQUISITES:**

The prerequisite CSES 4124, Soil Survey and Taxonomy, ensures that students receive adequate training in field techniques of soil identification, mapping, and the fundamentals of U.S. Soil Taxonomy needed for the complete comprehension of this course material. Note: Students may take this class without previously taking 4124 with the understanding that significant outside reading will be required.

#### **JUSTIFICATION:**

Comprehension of the major factors governing the form and properties of soils in the field and of differences in soils at various hierarchical levels of classification is fundamental to an understanding of soil science. With this knowledge, the pedologist can intelligently deal with the array of highly contrasting soils on the earth's surface. A basic understanding of soil genesis is fundamental to all aspects of soil mapping, interpretation, and research.

#### **EDUCATIONAL OBJECTIVES:**

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

- a.** Identify and understand the fundamental concepts of soil pedons and polypedons in the soil landscape.
- b.** Understand how the soil-forming factors and processes interact to produce unique soils, which will allow them to further understand the modern system of American Soil Taxonomy.
- c.** Identify and understand lithosequences, toposequences, and drainage sequences and understand their effect on soil genesis.
- d.** Understand the genesis of diagnostic horizons and other important pedological features used in Soil Taxonomy.
- e.** Relate the U.S. system of Soil Taxonomy to others used worldwide and understand its history and development.

**INSTRUCTOR:** W. Lee Daniels (1-7175), 244 Smyth Hall, Office hours: 10 to 12; T-TH

**REQUIRED TEXT:** Fanning, D. S., and C. R. Fanning. 1989. Soil Morphology, Genesis and Classification. John Wiley and Sons, New York, 395 p. Additional References: Articles from the Soil Science journals

**GRADING CRITERIA:**

2 Hourly Tests	50%
Term Paper	20%
Final Exam	30%