



BIOL 2585

Division: Natural Science and Mathematics

Department: Biology

Course: BIOL 2585

Title: Introduction to Soil Science Lab

Catalog Description:

The Introduction to Soil Science Laboratory component allows for student application of the principles learned in Introduction to Soil Science lecture with an emphasis on investigative learning and collaboration.

General Education Requirements: Life Science Lab

Semesters Offered: Spring

Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 2

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Corequisites: BIOL 2580

Justification:

Soil science is an interdisciplinary science; it includes principles from chemistry, physics, and biology. This course is designed to transfer as an equivalent course to the introductory soil science courses taught at Utah State University, Weber State University, Southern Utah University, and Brigham Young University. This course is a required core class or elective for many majors programs offered at the aforementioned universities. This course may also partly fulfill the Life Science Lab general education requirement.

Student Learning Outcomes:

As a result of taking this course, students will:

- be able to identify different types of soils in the local area
- be able to determine the texture of a soil
- be able to use data from the U.S. Geological Survey to understand, analyze, and evaluate soils in different areas
- be able to use equipment that would be used by a professional soil scientist
- be able to understand the interrelationship between soils and the vegetation growing on soils.

Content:

Biology 2585 covers the following topics:

- Determination of soil texture using Bouyoucos (hydrometer method)
- Determination of soil texture using the feel method
- Determination of bulk density using soil cores
- Gravimetric soil moisture content
- Properties of common soil clay minerals
- Examination of salt affected soils
- Using the Soil Survey and soil classification
- Determination of soil organic matter content
- Extraction of humic and fulvic acids from soils
- Determination of fungi, bacteria, actinomycete, and nematode counts
- Fertilizer calculations and fertilizer analysis
- Soil testing for N, P, and K

General Education Outcomes:

7) Apply scientific reasoning to a variety of contexts.

Students will demonstrate scientific reasoning through the various topics considered in course content for the laboratory in their responses to lab reports, quizzes, and discussions. They will receive feedback from the instructor on these activities.

Key Performance Indicators:

Students will be assessed through lab reports (70%), field trip participation (10%), and quizzes (20%). Percentages are approximate.

Representative Text and/or Supplies:

Materials will be provided as needed by the instructor.

Optimum Class Size: 20

Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

Luis Gordillo, PhD, Associate Professor

I hereby find this course consistent with the goals and resources of the Biology Department:

Allan Stevens, , Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)