



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: N/A

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 used as a required core class or elective for many majors programs offered at the aforementioned universities. Note that although these courses are labeled at the 300 level at USU, WSU and SUU, they are intended to be taught to sophomore level students. Note that BIO 2580 (and BIO 2585) may be used as a transfer class for Utah State University's general education course SOIL 2000.

Student Learning Outcomes:

As a result of taking this course, students will:

- be able to identify different types of soils in Sanpete County.
- be able to determine the texture of a soil
- be able to use the U.S. Soil Survey
- 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:

BIOL 2585

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:

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.

Laboratory students will use microscopes, other lab equipment and supplies, and computers to obtain and analyze data.

7) Apply scientific reasoning to a variety of contexts.

Students will demonstrate scientific reasoning throughout the various topics considered in course content for the laboratory in their responses to lab reports, quizzes, discussions, etc.

Key Performance Indicators:

Students are assessed 100% on lab reports and quizzes.

Students cannot miss more than two labs. Students missing more than two laboratories will fail the course.

Representative Text and/or Supplies:

Soils Laboratory Manual by Allan R. Stevens, current edition

Optimum Class Size: 24
Maximum Class Size: 24

Signatures:

I hereby submit this course syllabus:

Allan Stevens, , 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)