BIOL 2580

Division: Natural Science and Mathematics
Department: Biology
Course: BIOL 2580
Title: Introduction to Soil Science
Catalog Description:

Introduction to Soil Science is a course for sophomore-level students majoring in agriculture, botany, range science, forestry, wildlife biology, and restoration ecology. Concepts covered in this class include; fundamentals of soil formation, soil physical properties, classification, chemistry, microbiology, and fertility. This course is designed to transfer to institutions using equivalent courses as a required, majors or minor elective course.

General Education Requirements: Individual Choice
Semesters Offered: Spring
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: CHEM 1110 or 1210, MATH 1030 or above, or instructors permission.

Corequisites: BIOL 2585

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 examine and understand the role and function of soil in our natural environment

- be able to apply information learned form physics, biology, and chemistry to understanding the interaction of the physical, chemical and biological components of soil

- appreciate the role of science in solving environmental and agricultural problems

- will have an enhanced appreciation of science and of learning as a lifelong pursuit.

Content:

Biology 2580 covers the following topics:

- Soils' place in the world around us
- Formation of soils from parent materials
- Soil classification
- Soil architecture and physical properties
- Soil water: Characteristics and behavior
- Soil and the hydrologic cycle
- Soil aeration and temperature
- Soil colloids: Their nature and practical significance
- Soil acidity, alkalinity, and salinity
- Organisms and ecology of the soil
- Soil organic matter
- Nitrogen and sulfur economy of soils
- Soil phosphorus, potassium, and micronutrients
- Soil erosion and its control

General Education Outcomes:

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

Students are required to conduct research of traditional library materials as well as information from the internet. Students are also required to communicate with the instructor using e-mail.

5) Apply a cultural and historical awareness to a variety of phenomena.

The student will learn historical perspectives of soil formation and land form development. Students will also learn the effects that soil has had on the historical development of settlement and use of natural resources throughout the world.

7) Apply scientific reasoning to a variety of contexts.

Students will be taught the scientific method and should be able to apply the scientific method in a number of situations.

Key Performance Indicators:

Daily quizzes and assignments will be given which consist of short answer and short essay questions. Approximate percentages are 30% - Quizzes, 45% - Tests, 25% - Final

Representative Text and/or Supplies:

Elements of the Nature and Properties of Soils by Brady and Weil current edition. Macmillan

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)