

SOIL-SOIL

SOIL 2110. Introduction to Soil Science

3 Credits (3)

An overview of fundamental concepts in soil science and soils as a natural resource. Students will be introduced to the physical, chemical, and biological properties as it relates to soil management in environmental science, conservation, and agronomy. Prerequisite: (CHEM 1120G or MATH 1215 or higher) or CHEM 1215G

SOIL 2110L. Introduction to Soil Science Laboratory

1 Credit (1)

Morphological, chemical, physical and biological properties of soil in the laboratory and field.

Corequisite(s): SOIL 2110.

SOIL 2996. Special Topics

1-4 Credits

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree. May be repeated up to 9 credits. Consent of Instructor required.

SOIL 300. Special Topics

1-4 Credits

Specific subjects and credits announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree. May be repeated up to 9 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

SOIL 312. Soil Management and Fertility

3 Credits (3)

Management, conservation, and fertility of soils; physical conditions affecting growth, nutrition, and plant production.

Prerequisite(s): SOIL 2110.

Corequisite(s): SOIL 312L.

SOIL 312 L. Soil Management and Fertility Lab

1 Credit (1)

Hands-on experience. Includes field trips, videos, calculations, visiting lecturers and other lab activities as possible.

Prerequisite(s): SOIL 2110.

Corequisite(s): SOIL 312.

SOIL 370. Environmental Soil Science

3 Credits (3)

Continuation of SOIL 2110 that emphasizes soil properties and processes that directly relate to environmental pollution problems. Same as ENVS 370.

Prerequisite: SOIL 2110.

SOIL 391. Internship

1-6 Credits (1-6)

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 6 credits toward a degree. Consent of Instructor required. Graded: S/U Grading (S/U, Audit).

SOIL 424. Soil Chemistry

3 Credits (3)

Basic elements of soil chemistry including clay mineralogy, cation and anion exchange and the chemistry of problem (acid, saline and flooded) soils. Credit not given for both SOIL 424 and SOIL 479.

Prerequisite(s): SOIL 2110L or CHEM 1215G and CHEM 1225G.

SOIL 447. Seminar

1 Credit (1)

Organization, preparation, and presentation of current topics in agronomy, environmental sciences, horticulture, and soil science. Crosslisted with: AGRO 447, HORT 447 and ENVS 447.

SOIL 449. Special Problems

1-3 Credits

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and a grand total of 6 credits. May be repeated up to 6 credits. Consent of Instructor required.

SOIL 450. Special Topics

1-4 Credits

Specific subjects to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a total of 9 credits towards a degree. May be repeated up to 9 credits. Consent of Instructor required.

SOIL 456. Irrigation and Drainage

3 Credits (3)

Principles and practices required for irrigation to exist as a permanent economy. Equipment and methods for measurement and control of water.

SOIL 472. Soil Morphology and Classification

4 Credits (2+2P)

Terminology used to describe soils. Soil classification systems of the world with emphasis on systems used in the United States. Theory of classification and taxonomy as applied to soils. May be repeated up to 4 credits. Crosslisted with: GEOG 472.

Prerequisite(s): SOIL 2110.

SOIL 476. Soil Microbiology

3 Credits (3)

Nature and physiology of soil microorganisms, how they affect plant growth and recycle nutrients. Land farming, bioremediation and other environmental problems as influenced by soil microorganisms. SOIL 2110 and BIOL 311 recommended. Same as BIOL 476.

SOIL 476 L. Soil Microbiology Laboratory

1 Credit (3P)

Enumeration of soil microorganisms, their activities, and transformations they mediate. Same as BIOL 476L.

Prerequisites: SOIL 476 or concurrent enrollment.

SOIL 477. Environmental Soil Physics

3 Credits (3)

A description of the physical characteristics of porous media including soil. Examination of processes describing the transport of water, chemicals, heat and gases through porous media with application to environmental quality, waste management, and crop production.

SOIL 477 L. Environmental Soil Physics Laboratory

1 Credit (1)

Concurrent enrollment with SOIL 477 recommended. Hands on experience with techniques for characterizing soil physical properties such as particle size distribution, bulk density, water retention, hydraulic conductivity and solute transport. Demonstrations of field and laboratory techniques for measuring moisture content, soil water potential, gas/air flow and thermal conductivity.

Prerequisite(s): SOIL 2110.

SOIL 479. Environmental Soil Chemistry

3 Credits (3)

Basic elements of soil chemistry including discussion of clay mineralogy, cation and anion exchange and the chemistry of problem (acid, saline and flooded) soils. Credit not given for both SOIL 424 and SOIL 479.

Prerequisite(s): SOIL 2110L or CHEM 1215G and CHEM 1225G.

SOIL 500. Special Topics**1-4 Credits**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

SOIL 505. Research Orientation**4 Credits (3+2P)**

Training in writing research proposals, presentation of research results, and interpretation of research results. Crosslisted with: HORT 505, AGRO 505 and ENVS 505.

SOIL 525. Scientific Writing- How to be a Productive and Effective Writer**1-3 Credits (1-3)**

Students will learn to improve their writing skills so that their manuscript preparation process is more efficient and productive. Students will also gain experience in peer-review. Crosslisted with: AGRO 525, AGRO 625, HORT 525, HORT 625, SOIL 625 and EPWS 525.

SOIL 590. Graduate Seminar**1 Credit (1)**

Current research discussions presented by master level graduate students. Not more than one credit toward the degree. Same as AGRO/HORT 590. Crosslisted with: AGRO 590 and HORT 590.

SOIL 596. Masters Proposal**1 Credit (1)**

Current research proposal written by masters level graduate students. Consent of Instructor required. Crosslisted with: AGRO 596, ENVS 596, GENE 596 and HORT 596. Students must be a Master level graduate student to enroll in this course. Restricted to: Masters HORT; Masters PLEN majors.

SOIL 597. University Teaching Experience**1-3 Credits (1-3)**

Certain graduate students will be permitted to teach up to one-third of one AGRO/HORT/SOIL/ENVS course. The student will prepare and deliver lectures and will prepare, administer, and grade at least one examination. The professor in charge of the course will attend and evaluate the student's lectures. Consent of instructor required. Crosslisted with: AGRO 597 and HORT 597

SOIL 598. Special Research Programs**1-6 Credits**

Individual investigations, either analytical or experimental. Maximum of 6 credits per semester. No more than 9 credits toward a degree.

SOIL 600. Doctoral Research**1-15 Credits**

Research.

SOIL 625. Scientific Writing- How to be a Productive and Effective Writer**1-3 Credits (1-3)**

Students will learn to improve their writing skills so that their manuscript preparation process is more efficient and productive. Students will also gain experience in peer-review. Students in the 625 course will be required to perform additional research than those students in the 525 cross-listing. Crosslisted with: AGRO 525, HORT 525 and EPWS 525.

SOIL 650. Advanced Topics**1-3 Credits**

Colloquium on contemporary topics associated with agriculture, environmental science and engineering. Multidisciplinary topics will be chosen to encourage participation of students from diverse disciplines. May be repeated for a maximum of 9 credits.

Prerequisite: consent of instructor.

SOIL 652. Advanced Soil Physics**3 Credits (3)**

Advanced treatment of soil physics, modeling, includes working on an existing/new research project, modeling existing or new data, step by step guide on the use of some 1-D and 2-D models. Specific areas of specialization will be field scale variability of soil properties, water flow, solute transport, and plant water relations.

Prerequisite(s): SOIL 477 and computer literacy; or consent of instructor.

SOIL 655. Moisture Heat Contaminant Transport Modeling**3 Credits (3)**

Provides clear coverage of the basic principles of heat, moisture and contaminant transport through porous media, and a step-by-step guidance and hands on application on the use of some spreadsheet based and physically based one-and two-dimensional transport models. A similar course does not exist in the college for students that can encourage them to pursue modeling as a means of solving vadose zone and groundwater contamination and remediation problems. Consent of instructor required.

SOIL 694. Doctoral Seminar**1 Credit (1)**

Current research discussions presented by doctoral level graduate students. Not more than 2 credits toward the degree. Same as AGRO 694.

Prerequisite: doctoral level graduate students.

SOIL 696. Doctoral Proposal**1 Credit (1)**

Current research proposal written by doctoral level graduate students. Not more than 1 credit toward the degree. Same as AGRO 696.

Prerequisite: doctoral level graduate students.

SOIL 697. University Teaching Experience**1-3 Credits (1-3)**

Certain graduate students will be permitted to teach up to one-third of one AGRO/HORT/SOIL/ENVS course. The student will prepare and deliver lectures and will prepare, administer, and grade at least one examination. The professor in charge of the course will attend and evaluate the student's lectures. Consent of instructor required. Crosslisted with: AGRO 697 and HORT 697

SOIL 698. Topics in Agronomy**1-6 Credits**

Topics of current interest, designated by title and credit. Maximum of 6 credits per semester. No more than 9 credits toward a degree.