SOIL SCIENCE (SOIL)

SOIL 101 Soil and Society
Description: Soils and civilization. Soil disasters due to erosion, salinization or contamination. Historical failures in soil conservation. Dependence of highways, building foundations and waste treatment on soil behavior. Ecological functions of soil. Soils as the source of food and fiber production.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC
Prerequisite for: NRES 438, NRES 838

SOIL 153 Soil Resources
Crosslisted with: AGRO 153, HORT 153
Prerequisites: High school chemistry or one semester college chemistry.
Description: Characteristics of soils in relation to their appropriate uses and protection. Principles and practices using cooperative exercises including discussion, assessment, planning, problem-solving, writing, and presentation involving all aspects of soils.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: AGEN 431, AGRO 431, MSYM 431; AGRO 204; AGRO 269, SOIL 269; AGRO 327, HORT 327, TLMT 327; AGRO 361, GEOL 361, NRES 361, SOIL 361, WATS 361; AGRO 366, SOIL 366; AGRO 453, HORT 453, LARC 453, SOIL 453; AGRO 455, AGRO 855, NRES 455, NRES 855, SOIL 455, AGRO 472, AGRO 872, NRES 472, NRES 872, SOIL 472, WATS 472; LARC 487, NRES 487; MSYM 354, SOIL 354, WATS 354; NRES 245, AGRO 245; NRES 319

SOIL 269 Principles of Soil Management
Crosslisted with: AGRO 269
Prerequisites: AGRO 153.
Description: Principles of soil management under dryland and irrigated conditions. Relationships of soil and climate resources to soil erosion, movement and storage of soil water, soil organic matter, and irrigation practice. Special problem topics such as acidity, alkali, drainage, and soil testing.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: AGRO 405

SOIL 279 Soil Evaluation
Crosslisted with: AGRO 279, NRES 279
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 3
Format: LEC

SOIL 295 Internship in Agronomy
Crosslisted with: AGRO 295, RNGE 295
Prerequisites: Sophomore standing and completion of internship approval form. The internship proposal is subject to approval by the department.
Description: Participation in agronomic applications and in agronomy-related areas of agribusiness; agronomic research in lab, greenhouse, or field; participation in farming practices other than those in which the student has had previous experience; or preparation of teaching materials.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 5
Format: FLD

SOIL 354 Soil Conservation and Watershed Management
Crosslisted with: MSYM 354, WATS 354
Prerequisites: AGRO/SOIL 153; and MSYM 109 or PHYS 141 or PHYS 151 or PHYS 211
Description: Watershed hydrology, soil erosion, erosion control, water management, and land surveying and mapping. Includes rainfall-runoff relationships; determination of watershed characteristics; terraces, waterways, vegetative filters, and residue management; ponds, wetlands, non-point source pollution control, and water conservation; profile and topographic surveying.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Offered: FALL

SOIL 361 Soils, Environment and Water Quality
Crosslisted with: AGRO 361, GEOL 361, NRES 361, WATS 361
Prerequisites: AGRO/HORT/SOIL 153; MATH 102 or 103; two semesters chemistry (CHEM 105, 106 or CHEM 109,110) and WATS/GEOG/NRES 281
Description: Chemical and physical processes that influence the fate and transport of contaminants (inorganic, organic, microbial) in soil-water environments. Extent, fate, mitigation and impact of various sources of pollution. Remedial technologies used for environmental restoration of contaminated environments.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: AGRO 458, AGRO 858, NRES 458, NRES 858, SOIL 458

SOIL 366 Soil Nutrient Relationships
Crosslisted with: AGRO 366
Prerequisites: AGRO 153.
Description: Use of fertilizers as plant nutrient sources to produce healthy and nutritious plants, improve profit, insure enterprise sustainability, fulfill legal requirements, and protect soil and water quality. Addresses issues from production agriculture, natural resource utilization and preservation, and ornamental plant culture.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
SOIL 453 Urban Soil Properties and Management
Crosslisted with: AGRO 453, HORT 453, LARC 453
Prerequisites: AGRO/HORT/SOIL 153.
Description: Characteristics of soils in urban settings. Evaluation of soils intended for intensive human uses. Manipulation and remediation of soils subject to construction and other stresses.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

SOIL 455 Soil Chemistry and Mineralogy
Crosslisted with: AGRO 455, AGRO 855, NRES 455, NRES 855
Prerequisites: AGRO/HORT/SOIL 153 or GEOL 101; CHEM 109 and 110; CHEM 221 or 251; or equivalent.
Description: Chemical and mineralogical properties of soil components. Inorganic colloidal fraction. Structures of soil minerals as a means of understanding properties, such as ion exchange and equilibria; release and supply of nutrient and toxic materials; and soil acidity and alkalinity.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

SOIL 458 Soil Physical Determinations
Crosslisted with: AGRO 458, AGRO 858, NRES 458, NRES 858
Prerequisites: SOIL/AGRO/GEOL/WATS 361; PHYS 141 or equivalent; MATH 102 or 103.
Description: Survey of measurement techniques and principles used in characterizing the physical properties of soils. Includes analysis of experimental design and sources of experimental error. Techniques include: particle size analysis, soil water content, pore size analysis, field sampling techniques, soil strength, and saturated hydraulic conductivity.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

SOIL 460 Soil Microbiology
Crosslisted with: AGRO 460, BIOS 460, NRES 460, AGRO 860, BIOS 860, NRES 860
Prerequisites: One semester microbiology; one semester biochemistry or organic chemistry.
Description: Soil from a microbe's perspective-growth, activity and survival strategies; principles governing methods to study microorganisms and biochemical processes in soil; mechanisms controlling organic matter cycling and stabilization with reference to C, N, S, and P; microbial interactions with plants and animals; and agronomic and environmental applications of soil microorganisms.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Offered: SPRING
SOIL 495 Grasslands Seminar
Crosslisted with: AGRO 495, ENTO 495, GRAS 495, HORT 495, NRES 495, RNGE 495
Prerequisites: Junior standing.
Description: Topic varies and deals with different aspects of forage and/or range and/or livestock, turf and/or landscape grasses, natural habitats, and wetlands.
Credit Hours: 1-2
Min credits per semester: 1
Max credits per semester: 2
Max credits per degree: 4
Format: LEC

SOIL 496 Independent Study
Crosslisted with: AGRO 496, AGRO 896, RNGE 496
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 12
Format: IND

SOIL 498 Senior Project
Crosslisted with: AGRO 498
Prerequisites: Senior standing.
Notes: A two-semester sequence. Students should select one credit hour the first semester and three credits the second semester. The first semester will be used for planning, topic selection, and identifying a project adviser. The second semester will be used to carry out the research project, prepare a written report, and possibly an oral presentation.
Description: Carry out and report on a research project.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Format: IND

SOIL 499H Honors Thesis
Crosslisted with: AGRO 499H, RNGE 499H
Prerequisites: Admission to the University Honors Program and permission.
Notes: AGRI 299H recommended.
Description: Conduct a scholarly research project and write a University Honors Program or undergraduate thesis.
Credit Hours: 3-6
Min credits per semester: 3
Max credits per semester: 6
Max credits per degree: 6
Format: IND