SOIL SCIENCE - BACHELOR OF SCIENCE IN AGRICULTURE

Soil scientists investigate the physical, chemical and biological characteristics and behaviors of soils, their description and classification, and their management for both agricultural and non-agricultural uses. Career opportunities include: industry jobs; environmental consulting firms; and federal, state and local government careers working on various environmental, agricultural and ecological projects.

Requirements
In addition to the courses listed for each major, you must take 35 credits in the College of Agricultural, Consumer and Environmental Sciences. You must also meet university general education requirements. At least 24 credits of soil science related courses with a grade of C- or above including:

Required Courses
SOIL 252 Soils 3
SOIL 252 L Soils Laboratory 1
SOIL 312 Soil Management and Fertility 3
SOIL 312 L Soil Management and Fertility Lab 1
SOIL 447 Seminar 1
Select 12-13 credits from the following: 12-13
SOIL 424 Soil Chemistry 3
SOIL 456 Irrigation and Drainage 3
SOIL 472 Soil Morphology and Classification 4
SOIL 476 Soil Microbiology 3
SOIL 477 Environmental Soil Physics 3

Other Required Courses
Select two from the following: 6
BIOL 111G Natural History of Life 3
BIOL 211G Cellular and Organismal Biology 3
BIOL 311 General Microbiology 3
CHEM 111G General Chemistry I 4
CHEM 112G General Chemistry II 4
GEOL 111G Introductory Geology 4
MATH 142G Calculus for the Biological and Management Sciences 3
PHYS 211G General Physics I 3
Total Credits 70-71

Soil Science Concentrations
Three concentrations are available in soil science. In each case, your academic advisor has a list of appropriate courses.

Concentration: Environment and Resource Management
Soil science is integrated into the management of the environment and natural resources. Students interested in careers of conservation, environmental management, urban planning, waste disposal and related fields in government and industry may choose from a variety of course offerings. The economic and social implications as well as the technological aspects of resource management are included in the option courses.
Soil Science - Bachelor of Science in Agriculture

**Courses:**

- **HORT 488** Greenhouse Management
- **TOX 361** Basic Toxicology
- **TOX 461** Toxicology I

**Earth, Mineral or Climatic Resources:**

- **AG E 315V** World Agriculture and Food Problems
- **AG E 337V** Natural Resource Economics
- **AG E 384V** Water Resource Economics
- **AG E 385** Applied Production Economics
- **AG E 456** Case Studies in Food and Agribusiness Management

- Any E S course
- Any GEOG course numbered 257-499
- Any GEOL course numbered 295-499
- Any SUR course

**Math, Statistical or Computer Sciences:**

- **A ST 311** Statistical Applications
- Any 300-level BCIS course
- Any 300-level C S course
- Any 300-level CHEM course
- Any 300-level MATH course
- Any 300-level PHYS course
- Any STAT course numbered 311-499

**Total Credits** 30

**Concentration: Soils**

Crop production and plant growth are emphasized in the general soils option. Soil management, soil conservation, and soil reclamation are related to plant growth for those students interested in both private industry and government employment opportunities as well as farm management.

You must select one course from each of the four following subject matter areas and a total of at least ten courses:

**Soil, Water and Agricultural Business Management:**

- **GEOG 381** Cartography and Geographic Information Systems
- **GEOG 481** Fundamentals of Geographic Information Science and Technology (GIS & T)
- **GEOL 353** Geomorphology
- **GEOL 475** Geology of Mineral Resources
- Any AG E course
- Any SOIL course

**Crop Production and Protection:**

- **AGRO 311** Introduction to Weed Science
- **AGRO 365** Principles of Crop Production
- **AGRO 471** Plant Mineral Nutrition
- **AGRO 483** Sustainable Production of Agronomic Crops
- **AGRO 485** Materials from Biorenewable Resources
- **AGRO 492** Diagnosing Plant Disorders
- **HORT 250** Plant Propagation
- **HORT 307** Landscape Design
- **HORT 310** Medicinal Herbs
- **HORT 365** Principles of Crop Production
- **HORT 462** Plant Breeding
- **HORT 465** Landscape Construction and Maintenance
- **HORT 485** Vegetable Crop Management
- Any EPWS course

**Plant Biology and Ecology:**

- **BIOL 301** Principles of Ecology
- **BIOL 312** Plant Taxonomy
- **BIOL 314** Plant Physiology
- **BIOL 408** Ecology of Plants
- **BIOL 462** Conservation Biology
- **BIOL 470** Developmental Biology
- **C E 256** Environmental Engineering and Science
- **C E 355V** Technology and the Global Environment
- **RGSC 294** Rangeland Resource Management
- **RGSC 316** Rangeland Plants
- **RGSC 317** Rangeland Communities
- **RGSC 325** Rangeland Restoration Ecology
- **RGSC 357** Grass Taxonomy and Identification
- **RGSC 440** Rangeland Resource Ecology
- **RGSC 452** Vegetation Measurements for Rangeland Assessment
- **RGSC 460** Rangeland and Natural Resource Planning and Management

**Total Credits** 30

**Concentration: Soil and Water Science**

The soil and water science option is for students interested in careers in water management and water quality. Employment opportunities exist with irrigation districts, consulting firms, and government agencies dealing with water management and quality. The optimum use of water in semi-arid areas is emphasized through selection of courses in the technical and social sciences.

You must select one course from each of the four following subject matter areas and a total of at least ten courses:

**Crop Production and Water Use:**

- **AGRO 365** Principles of Crop Production
- **AGRO 471** Plant Mineral Nutrition
- **AGRO 483** Sustainable Production of Agronomic Crops
- **AGRO 492** Diagnosing Plant Disorders
- **EPWS 311** Introduction to Weed Science
- **EPWS 314** Plant Physiology
- **HORT 307** Landscape Design
- **HORT 315** Crop Physiology
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