SOIL SCIENCE OPTION

This option is offered within the following major(s):

- Crop and Soil Science - College of Agricultural Sciences (http://catalog.oregonstate.edu/college-departments/agricultural-sciences/crop-soil-science/crop-soil-science-bs-hbs)

Also available at Eastern Oregon University and via Ecampus.

The study of soil as a science provides students with a basic understanding of the physical, chemical, and biological properties of this essential natural resource. Soil is the fundamental substrate for life in terrestrial systems. Our food, fiber, and renewable energy are dependent on soils. Our understanding of soils is critical in the successful siting of buildings and construction of roadways and other transportation infrastructure. Our understanding of global and local ecology depends on an awareness of soil and its properties. Soils are the filters of our water and play active roles in storing carbon and other materials that are essential in human existence. As a soil science student, you will explore issues including water quality and management, organic crop production, erosion and sedimentation, land use and reclamation, and soil quality and sustainability. As a soil science professional you will be able to use your knowledge and skills to solve real-world, sustainable living problems in urban, agricultural, forest, rangeland, and other natural systems. Many soil scientists work for the Natural Resource Conservation Service. Some work for other federal, state, or local government agencies as extension educators, researchers, or surveyors. Others hold teaching or research positions in colleges and universities. Soil scientists also work for fertilizer companies, private research laboratories, environmental service companies, insurance companies, and land appraisal firms.

Code	Title	Hours
Major Core		
General Science Core		
Select one of the following biology series:		12
Series A		
BI 204	*INTRODUCTORY BIOLOGY I	
BI 205	*INTRODUCTORY BIOLOGY II	
BI 206	*INTRODUCTORY BIOLOGY III	
Series B		
BI 211	*PRINCIPLES OF BIOLOGY	
BI 212	*PRINCIPLES OF BIOLOGY	
BI 213	*PRINCIPLES OF BIOLOGY	
Select one of the following chemistry series:		15
Series A		
CH 121	GENERAL CHEMISTRY	
CH 122	*GENERAL CHEMISTRY	
CH 123	*GENERAL CHEMISTRY	
Series B		
CH 231 & CH 261	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 231	
CH 232 & CH 262	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 232	
CH 233 & CH 263	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 233	
MTH 111	*COLLEGE ALGEBRA	4
Orientation		
SOIL 101	INTRODUCTION TO CROP, SOIL, AND INSECT SCIENCE	1
Agricultural Sciences		
ENT 311	INTRODUCTION TO INSECT PEST MANAGEMENT	4
SOIL 205	SOIL SCIENCE	3
Select one of the following:		3-4
BOT 331	PLANT PHYSIOLOGY	
CROP 200	CROP ECOLOGY AND MORPHOLOGY	
HORT 301	GROWTH AND DEVELOPMENT OF HORTICULTURAL CROPS	
Select one of the following:		4
HORT 316	PLANT NUTRITION	
SOIL 316	NUTRIENT CYCLING IN AGROECOSYSTEMS	
Experiential Learning		
SOIL 401	RESEARCH	3
or SOIL 403	THESIS	
or SOIL 410	INTERNSHIP	
SOIL 407	SEMINAR	1
Ecology		
Select one of the following:		3-4
BI 370	ECOLOGY	
BOT 341	PLANT ECOLOGY	
HORT 318	^APPLIED ECOLOGY OF MANAGED ECOSYSTEMS	
RNG 341	RANGELAND ECOLOGY AND MANAGEMENT	
Technology		
SOIL 468	SOIL LANDSCAPE ANALYSIS	4
Writing Intensive Course (WIC)		
Select one WIC course from below:		3
SOIL 395	*WORLD SOIL RESOURCES	
SUS 325	^AG AND ENVIRONMENTAL PREDICAMENTS: A CASE STUDY APPROACH	
Capstone		
SOIL 475	SOIL RESOURCE POTENTIALS	4
Option Requirements		
Select one of the following Tracks:		19-36
Soils Research Track		
General Soils Track		
Soil Science Electives		
Select a minimum of 12 credits from the following:		12
Nutrient Cycling		
AEC 211	AGRICULTURAL AND FOOD MANAGEMENT	
AEC 250	*INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY	
BOT 331	PLANT PHYSIOLOGY	
BOT 547	NUTRIENT CYCLING	
CH 130	GENERAL CHEMISTRY OF LIVING SYSTEMS	
CROP 199	SPECIAL STUDIES: ISSUES IN SUSTAINABLE AGRICULTURE	
FES 365	*ISSUES IN NATURAL RESOURCES CONSERVATION	
FES 435/TOX 435	*GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK	
HORT 316	PLANT NUTRITION	

RNG 341	RANGELAND ECOLOGY AND MANAGEMENT
SOIL 395	*WORLD SOIL RESOURCES
SOIL 525	MINERAL-ORGANIC MATTER INTERACTIONS
TOX 430	CHEMICAL BEHAVIOR IN THE ENVIRONMENT
Soil Biology/Ecology	
ATS 564	INTERACTIONS OF VEGETATION AND ATMOSPHERE
BB 314	CELL AND MOLECULAR BIOLOGY
BI 311	GENETICS
BI 370	ECOLOGY
BOT 331	PLANT PHYSIOLOGY
BOT 332	LABORATORY TECHNIQUES IN PLANT BIOLOGY
BOT 341	PLANT ECOLOGY
CH 331	ORGANIC CHEMISTRY
CH 332	ORGANIC CHEMISTRY
FES 341	FOREST ECOLOGY
FES 435/TOX 435	*GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK
MB 302	GENERAL MICROBIOLOGY
MB 303	GENERAL MICROBIOLOGY LABORATORY
MB 448	MICROBIAL ECOLOGY
SOIL 366	ECOSYSTEMS OF WILDLAND SOILS
Soil Hydrology	
CE 412	HYDROLOGY
CE 413	GIS IN WATER RESOURCES
FE 430	WATERSHED PROCESSES
FE 434	FOREST WATERSHED MANAGEMENT
GEO 487	HYDROGEOLOGY
GEOG 340	*INTRODUCTION TO WATER SCIENCE AND POLICY
GEOG 360	GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY
GEOG 441	INTERNATIONAL WATER RESOURCES MANAGEMENT
MTH 251	*DIFFERENTIAL CALCULUS
MTH 252	INTEGRAL CALCULUS
PH 202	*GENERAL PHYSICS
Spatial Analysis/Land Use	
AEC 250	*INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY
FE 434	FOREST WATERSHED MANAGEMENT
FES 365	*ISSUES IN NATURAL RESOURCES CONSERVATION
GEO 432	APPLIED GEOMORPHOLOGY
GEOG 201	*FOUNDATIONS OF GEOSPATIAL SCIENCE AND GIS
GEOG 340	*INTRODUCTION TO WATER SCIENCE AND POLICY
GEOG 360	GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY
GEOG 450	LAND USE IN THE AMERICAN WEST
HORT 414	PRECISION AGRICULTURE
PH 201	*GENERAL PHYSICS
PH 202	*GENERAL PHYSICS
RNG 341	RANGELAND ECOLOGY AND MANAGEMENT
SOIL 366	ECOSYSTEMS OF WILDLAND SOILS
Sustainable Systems	
AEC 250	*INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY
BI 301	*HUMAN IMPACTS ON ECOSYSTEMS
BOT 350	INTRODUCTORY PLANT PATHOLOGY
CROP 199	SPECIAL STUDIES: ISSUES IN SUSTAINABLE AGRICULTURE
CROP 300	CROP PRODUCTION IN PACIFIC NORTHWEST AGROECOSYSTEMS
CROP 330	*WORLD FOOD CROPS
CROP 440	WEED MANAGEMENT
CROP 460	SEED PRODUCTION
CROP 480	CASE STUDIES IN CROPPING SYSTEMS MANAGEMENT
GEOG 300	*SUSTAINABILITY FOR THE COMMON GOOD
HORT 260	ORGANIC FARMING AND GARDENING
SOIL 499	SPECIAL TOPICS
Z 349	*BIODIVERSITY: CAUSES, CONSEQUENCES, AND CONSERVATION
Water/Watershed Management	
AEC 250	*INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY
AEC 351	*NATURAL RESOURCE ECONOMICS AND POLICY
FE 430	WATERSHED PROCESSES
FE 434	FOREST WATERSHED MANAGEMENT
FES 365	*ISSUES IN NATURAL RESOURCES CONSERVATION
FW 326	INTEGRATED WATERSHED MANAGEMENT
GEO 322	SURFACE PROCESSES
GEOG 340	*INTRODUCTION TO WATER SCIENCE AND POLICY
PS 475	ENVIRONMENTAL POLITICS AND POLICY
RNG 355	DESERT WATERSHED MANAGEMENT
RNG 455	RIPARIAN ECOHYDROLOGY AND MANAGEMENT
SOIL 366	ECOSYSTEMS OF WILDLAND SOILS
Total credits required for graduation	180

* Baccalaureate Core Course (BCC)

^ Writing Intensive Course (WIC)

Soils Research Track

Code	Title	Hours
Select one of the following:		4
GEO 201	*PHYSICAL GEOLOGY	
GEO 202	*EARTH SYSTEMS SCIENCE	
GEO 203	*EVOLUTION OF PLANET EARTH	
MTH 251	*DIFFERENTIAL CALCULUS	4
PH 201 & PH 202	*GENERAL PHYSICS and *GENERAL PHYSICS	10
SOIL 435	ENVIRONMENTAL SOIL PHYSICS	3
SOIL 445	ENVIRONMENTAL SOIL CHEMISTRY	3
SOIL 455	BIOLOGY OF SOIL ECOSYSTEMS	4
SOIL 466	SOIL MORPHOLOGY AND CLASSIFICATION	4

ST 351	INTRODUCTION TO STATISTICAL METHODS	4
Total Hours		36

* Baccalaureate Core Course (BCC)

General Soils Track

Code	Title	Hours
Select one of the following:		4
GEO 201	*PHYSICAL GEOLOGY	
GEO 202	*EARTH SYSTEMS SCIENCE	
GEO 203	*EVOLUTION OF PLANET EARTH	
Select one of the following:		4
MTH 112	*ELEMENTARY FUNCTIONS	
MTH 241	*CALCULUS FOR MANAGEMENT AND SOCIAL SCIENCE	
MTH 245	*MATHEMATICS FOR MANAGEMENT, LIFE, AND SOCIAL SCIENCES	
SOIL 466	SOIL MORPHOLOGY AND CLASSIFICATION	4
ST 351	INTRODUCTION TO STATISTICAL METHODS	4
Select one of the following:		3-4
SOIL 366	ECOSYSTEMS OF WILDLAND SOILS	
SOIL 435	ENVIRONMENTAL SOIL PHYSICS	
SOIL 445	ENVIRONMENTAL SOIL CHEMISTRY	
SOIL 455	BIOLOGY OF SOIL ECOSYSTEMS	
Total Hours		19-20

* Baccalaureate Core Course (BCC)

Option Code: 160