

# Crop and Soil Sciences (BS): Soil Science

To see more about what you will learn in this program, visit the Learning Outcomes website (<https://apps.oirp.ncsu.edu/pgas/>)!

The Bachelor of Science in *Crop and Soil Sciences* degree with a concentration in *Soil Science* is an interdisciplinary program that goes way beyond agriculture. The program bridges geology, chemistry, biology, physics and statistics. As the human population expands, making wise choices on land use impacts the entire world. If you enjoy the diversity of earthly places and are interested in land stewardship, *Soil Science* is an exceptional path to a rewarding career.

## Plan Requirements

Code	Title	Hours	Counts towards
<b>Orientation</b>			
ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences	1	
or ALS 303	Transfer Transitions and Diversity in Agriculture & Life Sciences		
<b>Mathematics &amp; Natural Sciences</b>			
MA 121	Elements of Calculus	3	
ST 311	Introduction to Statistics	3	
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4	
CH 101	Chemistry - A Molecular Science	3	
CH 102	General Chemistry Laboratory	1	
MEA 101	Geology I: Physical	3	
MEA 110	Geology I Laboratory	1	
PB 321	Introduction to Whole Plant Physiology	3	
PY 131	Conceptual Physics	4	
BIO 183	Introductory Biology: Cellular and Molecular Biology	4	
or PB 200	Plant Life		
<b>Communication/Advanced Writing</b>			
COM 110	Public Speaking	3	

or COM 112	Interpersonal Communication	
Select one of the following:		3
AEE 311	Communication Methods and Media	
ENG 331	Communication for Engineering and Technology	
ENG 332	Communication for Business and Management	
ENG 333	Communication for Science and Research	

### Required Courses within Major

ARE 201	Introduction to Agricultural & Resource Economics	3
CSSC 290	Professional Development in Crop & Soil Sciences	1
SSC 200	Soil Science <sup>1</sup>	3
SSC 201	Soil Science Laboratory <sup>1</sup>	1
SSC 332	Environmental Soil Microbiology	3
SSC 341	Soil Fertility and Nutrient Management	3
SSC 342	Soil and Plant Nutrient Analysis	1
SSC 442	Soil and Environmental Biogeochemistry	3
SSC 452	Soil Classification	4
SSC 461	Soil Physical Properties and Plant Growth	3
CSSC 490	Senior Seminar in Crop Science and Soil Science	1

### Concentration Electives

Foundation Elective (select one):		3
FW 221	Conservation of Natural Resources	
SSC 185	Land and Life	
Soil Science Electives (p. 2)		6
Economics, Management & Policy Electives (p. 2)		6
Experiential Learning (select one):		3

CSSC 492	Professional Internship Experience in Crop and Soil Sciences	
CSSC 493	Research Experience in Crop and Soil Sciences	
Restricted Electives (p. 3)		15
<b>GEP Courses</b>		
ENG 101	Academic Writing and Research <sup>1</sup>	4
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		6
GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )		3
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		2
GEP Additional Breadth ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> ) (Humanities/Social Sciences/Visual and Performing Arts)		3
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )		2
GEP U.S. Diversity ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/</a> ) (verify requirement)		
GEP Global Knowledge ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/</a> ) (verify requirement)		
Foreign Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/</a> ) (verify requirement)		
<b>Free Electives</b>		
Free Electives (12 Hr S/U Lmt) <sup>2</sup>		5
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> A grade of C- or higher is required.

<sup>2</sup> Students should consult their academic advisors to determine which courses fill this requirement.

## Soil Science Electives

Code	Title	Hours	Counts towards
SSC 421	Role of Soils in Environmental Management	3	
SSC 427	Biological Approaches to Sustainable Soil Systems	3	
SSC 440/540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	
SSC 455	Soils, Environmental Quality and Global Challenges	3	
SSC 462	Soil-Crop Management Systems	3	
SSC 470/570	Wetland Soils	3	

## Economics, Management & Policy Electives

Code	Title	Hours	Counts towards
ACC 280	Survey of Financial and Managerial Accounting	3	
AEC 380	Water Resources: Global Issues in Ecology, Policy, Management, and Advocacy	3	
ARE 215	Small Business Accounting	3	
ARE 306	Agricultural Law	3	
ARE 309	Environmental Law & Economic Policy	3	
ARE 312	Agribusiness Marketing	3	
ARE 332	Human Resource Management for Agribusiness	3	
ARE 336	Introduction to Resource and Environmental Economics	3	
CS 418/518	Introduction to Regulatory Science in Agriculture	3	

CS 428/528	Advanced Regulatory Science in Agriculture	3
NR 460/560	Renewable Natural Resource Management and Policy	3
PS 201	American Politics and Government	3
PS 202	State and Local Government	3
PS 320	U.S. Environmental Law and Politics	3
SSC 455	Soils, Environmental Quality and Global Challenges	

## Restricted Electives

Code	Title	Hours	Counts towards
AEC 380	Water Resources: Global Issues in Ecology, Policy, Management, and Advocacy	3	
BAE 325	Introductory Geomatics	3	
BAET 323	Water Management	3	
CS 200	Introduction to Turfgrass Management	4	
CS 211	Plant Genetics	3	
CS 216	Southern Row Crop Production - Cotton, Peanuts, and Tobacco	3	
CS 213	Crop Science	3	
CS 214	Crop Science Laboratory	1	
CS 218	Southern Row Crop Production - Corn, Small Grains and Soybeans	3	
CS 224	Seeds, Biotechnology and Societies	3	
CS 230	Introduction to Agroecology	3	

CS 312	Grassland Management for Natural Resources Conservation	3
CS/HS 410	Community Food Systems	3
CS 411	Crop Ecology	3
CS 414	Weed Science	4
CS 415	Integrated Pest Management	3
CS 424/524	Seed Physiology	3
CS 418/518	Introduction to Regulatory Science in Agriculture	3
CS 428/528	Advanced Regulatory Science in Agriculture	3
CS 430/530	Advanced Agroecology	4
ES 100	Introduction to Environmental Sciences	3
ES 150	Water and the Environment	3
ET 201	Environmental Technology Laboratory I	1
ET 202	Environmental Technology Laboratory II	1
ET 203	Pollution Prevention	1
FOR 420/520	Watershed and Wetlands Hydrology	4
GIS 280	Introduction to GIS	3
MEA 300	Environmental Geology	4
NR 300	Natural Resource Measurements	4
NR 400/500	Natural Resource Management	4
NR 420/520	Watershed and Wetlands Hydrology	4
NR 421/521	Wetland Science and Management	3
NR 460/560	Renewable Natural Resource Management and Policy	3
SSC 410	Soil Judging for Land Evaluation	1

SSC 427	Biological Approaches to Sustainable Soil Systems	3
SSC 428	Service-Learning in Urban Agriculture Systems	1
SSC 455	Soils, Environmental Quality and Global Challenges	3

### Semester Sequence

This is a sample.

#### First Year

Fall Semester		Hours
ALS 103 or ALS 303	Freshman Transitions and Diversity in Agriculture & Life Sciences or Transfer Transitions and Diversity in Agriculture & Life Sciences	1
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
ENG 101	Academic Writing and Research	4
MA 121	Elements of Calculus	3
Foundation Elective (select one):		3
FW 221	Conservation of Natural Resources	
SSC 185	Land and Life	
CSSC 290	Professional Development in Crop & Soil Sciences	1
<b>Hours</b>		<b>16</b>

#### Spring Semester

BIO 183 or PB 200	Introductory Biology: Cellular and Molecular Biology or Plant Life	4
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	1
MEA 101	Geology I: Physical	3
MEA 110	Geology I Laboratory	1
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
<b>Hours</b>		<b>16</b>

#### Second Year

##### Fall Semester

ARE 201	Introduction to Agricultural & Resource Economics	3
SSC 200	Soil Science	3
SSC 201	Soil Science Laboratory	1
COM 110 or COM 112	Public Speaking or Interpersonal Communication	3
ST 311	Introduction to Statistics	3

GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
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**Hours 14**

##### Spring Semester

SSC 332	Environmental Soil Microbiology	3
SSC 452	Soil Classification	4
Restricted Elective (p. 3)		6

**Hours 13**

#### Third Year

##### Fall Semester

SSC 461	Soil Physical Properties and Plant Growth	3
Soil Science Elective (p. )		3
Economics, Management and Policy Elective (p. 2)		3
GEP Additional Breadth ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )		3
Select one of the following:		3

AEE 311	Communication Methods and Media	
ENG 331	Communication for Engineering and Technology	
ENG 332	Communication for Business and Management	
ENG 333	Communication for Science and Research	

**Hours 15**

##### Spring Semester

SSC 341	Soil Fertility and Nutrient Management	3
SSC 442	Soil and Environmental Biogeochemistry	3
PY 131	Conceptual Physics	4
Economics, Management and Policy Elective (p. 2)		3
Restricted Elective (p. 3)		3

**Hours 16**

#### Fourth Year

##### Fall Semester

SSC 342	Soil and Plant Nutrient Analysis	1
GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )		3
Soil Science Elective (p. 2)		3
Restricted Elective (p. 3)		3
Experimental Learning Elective (p. 1)		3
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3

**Hours 16**

##### Spring Semester

PB 321	Introduction to Whole Plant Physiology	3
CSSC 490	Senior Seminar in Crop Science and Soil Science	1

Restrictive Elective (p. 3) 3

GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )		2
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Free Elective 5

**Hours 14**

**Total Hours 120**

## Career Opportunities

The breadth and depth of education and experiences you will gain from our department will set you on a path toward a rewarding career in one of the following specialties:

- Conservationist
- Ecologist
- Environmental Scientist and Specialist
- Extension Agent
- Hydrologist
- Land Use Planner
- Nutrient Management/ Waste Management Specialist
- Restoration Specialist
- Soil Scientist

Learn more about future job prospects, representative salaries, and major employers for each of the above listed careers at [go.ncsu.edu/careers](http://go.ncsu.edu/careers) (<http://go.ncsu.edu/careers/>)