

# MAJOR IN SOIL AND CROP SCIENCES, SUSTAINABLE AGRICULTURAL MANAGEMENT CONCENTRATION

The sustainability of people and our planet relies on continued innovation in the way we grow food. Farming faces numerous complex challenges,

as we need to feed a growing population, enhance the efficiency of agriculture, while addressing issues of soil degradation and pollution.

With a major in Soil and Crop Sciences in the Sustainable Agricultural Management Concentration, students gain a solid foundation of agronomic principles and practices to achieve economic and environmental sustainability while helping design and development the agroecosystems of tomorrow. Students build practical knowledge of farming systems and utilize advanced technologies to drive decision-making in cropping system management, while maintaining or improving soil health.

## Requirements Effective Fall 2022

### Freshman

		AUCC	Credits
AGRI 100	Contemporary Agricultural Systems		1
AREC 202	Agricultural and Resource Economics (GT-SS1)	3C	3
BZ 120	Principles of Plant Biology (GT-SC1)	3A	4
CHEM 107	Fundamentals of Chemistry (GT-SC2)	3A	4
CHEM 108	Fundamentals of Chemistry Laboratory (GT-SC1)	3A	1
CO 150	College Composition (GT-CO2)	1A	3
MATH 117	College Algebra in Context I (GT-MA1)	1B	1
MATH 118	College Algebra in Context II (GT-MA1)	1B	1
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	1B	1
SOCR 100	General Crops		4
SOCR 171/HORT 171	Environmental Issues in Agriculture (GT-SS3)	1C	3
SOCR 193	Introductory Seminar		1
Diversity, Equity, and Inclusion ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion</a> )		1C	3
<b>Total Credits</b>			<b>30</b>

### Sophomore

LAND 220/LIFE 220	Fundamentals of Ecology (GT-SC2)	3A	3
SOCR 210	Microbiome Roles in a Sustainable Earth (GT-SC2)	3A	3
SOCR 221	Crop Production Systems		1
SOCR 240	Introductory Soil Science		4
Select one course from the following:			4
NR 319	Geospatial Applications in Natural Resources		
NR 322	Intro. to Geographic Information Systems		
Select one course from the following:			3
STAT 201	General Statistics (GT-MA1)	1B	
STAT 301	Introduction to Applied Statistical Methods		
Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		3B	6
Social and Behavioral Sciences ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences</a> )		3C	3
Historical Perspectives ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		3D	3
<b>Total Credits</b>			<b>30</b>

### Junior

BZ 440	Plant Physiology		3
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SOCR 320	Forage and Pasture Management		3
SOCR 350	Soil Fertility Management		3
SOCR 351	Soil Fertility Laboratory		1
SOCR 405/ESS 405	Global Agriculture and Environmental Change		3
Select one course from the following:			3
BSPM 361	Elements of Plant Pathology		
SOCR 322	Principles of Microclimatology		
SOCR 441	Soil Ecology		
SOCR 442	Forest and Range Soils		
SOCR 424/HORT 424	Topics in Organic Agriculture		
SOCR 460/HORT 460	Plant Breeding and Biotechnology		
Select 2 of the following courses:			4-7
SOCR 330	Principles of Genetics		
SOCR 343	Composting Principles and Practices		
SOCR 400	Soils and Global Change–Science and Impacts		
SOCR 440	Pedology		
SOCR 455	Soil Microbiology		
Advanced Writing ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> )		2	3
Upper-Division Electives			4-7
<b>Total Credits</b>			<b>30</b>
<b>Senior</b>			
BSPM 302	Applied and General Entomology		2
BSPM 308	Ecology and Management of Weeds		3
SOCR 371	Irrigation of Field Crops		1
SOCR 421	Agroecosystem Management	4A,4B,4C	4
SOCR 425	Internet of Ag Things–Sensors and Data Lab		2
SOCR 492	Preparing for Impact–Your Career Journey	4A,4C	1
Select one course from the following:			1-2
BSPM 303A	Entomology Laboratory: General		
BSPM 303B	Entomology Laboratory: Horticultural		
BSPM 303C	Entomology Laboratory: Agricultural		
Select one course from the following:			1-4
SOCR 330	Principles of Genetics		
SOCR 343	Composting Principles and Practices		
SOCR 400	Soils and Global Change–Science and Impacts		
SOCR 440	Pedology		
SOCR 455	Soil Microbiology		
Select 2 of the following courses:			6
BSPM 361	Elements of Plant Pathology		
SOCR 322	Principles of Microclimatology		
SOCR 424/HORT 424	Topics in Organic Agriculture		
SOCR 441	Soil Ecology		
SOCR 442	Forest and Range Soils		
SOCR 460/HORT 460	Plant Breeding and Biotechnology		
Select one course from the following:			1
SOCR 486	Practicum	4C	
SOCR 487	Internship		

Upper-Division Electives <sup>1</sup>	4-8
<b>Total Credits</b>	<b>30</b>
<b>Program Total Credits:</b>	<b>120</b>

<sup>1</sup> Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

## Major Completion Map

### Freshman

Semester 1		Critical	Recommended	AUCC	Credits
AGRI 100	Contemporary Agricultural Systems	X			1
CO 150	College Composition (GT-CO2)	X		1A	3
MATH 117	College Algebra in Context I (GT-MA1)	X		1B	1
MATH 118	College Algebra in Context II (GT-MA1)	X		1B	1
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	X		1B	1
SOCR 100	General Crops	X			4
SOCR 171/ HORT 171	Environmental Issues in Agriculture (GT-SS3)	X		1C	3

**Total Credits** **14**

Semester 2		Critical	Recommended	AUCC	Credits
AREC 202	Agricultural and Resource Economics (GT-SS1)	X		3C	3
BZ 120	Principles of Plant Biology (GT-SC1)	X		3A	4
CHEM 107	Fundamentals of Chemistry (GT-SC2)	X		3A	4
CHEM 108	Fundamentals of Chemistry Laboratory (GT-SC1)	X		3A	1
SOCR 193	Introductory Seminar	X			1
	Diversity, Equity, and Inclusion ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion</a> )		X	1C	3
	CO 150 and AUCC 1B (Quantitative Reasoning) must be completed by the end of Semester 2.	X			

**Total Credits** **16**

### Sophomore

Semester 3		Critical	Recommended	AUCC	Credits
LAND 220/ LIFE 220	Fundamentals of Ecology (GT-SC2)	X		3A	3
SOCR 221	Crop Production Systems	X			1
	Select one course from the following:	X			3
STAT 201	General Statistics (GT-MA1)			1B	
STAT 301	Introduction to Applied Statistical Methods				
	Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )		X	3B	6
	Social and Behavioral Sciences ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences</a> )		X	3C	3

**Total Credits** **16**

Semester 4		Critical	Recommended	AUCC	Credits
SOCR 210	Microbiome Roles in a Sustainable Earth (GT-SC2)	X		3A	3
SOCR 240	Introductory Soil Science	X			4
	Select one course from the following:	X			4
NR 319	Geospatial Applications in Natural Resources				
NR 322	Intro. to Geographic Information Systems				
	Historical Perspectives ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		X	3D	3

**Total Credits** **14**

<i>Junior</i>					
<b>Semester 5</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
Select 2 of the following courses:		X			4-7
SOCR 330	Principles of Genetics				
SOCR 343	Composting Principles and Practices				
SOCR 400	Soils and Global Change--Science and Impacts				
SOCR 440	Pedology				
SOCR 455	Soil Microbiology				
Advanced Writing ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> )			X	2	3
Upper-Division Electives			X		4-7
<b>Total Credits</b>					<b>14</b>
<b>Semester 6</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
BZ 440	Plant Physiology	X			3
SOCR 320	Forage and Pasture Management	X			3
SOCR 350	Soil Fertility Management	X			3
SOCR 351	Soil Fertility Laboratory	X			1
SOCR 405/ ESS 405	Global Agriculture and Environmental Change	X			3
Select one course from the following:		X			3
BSPM 361	Elements of Plant Pathology				
SOCR 322	Principles of Microclimatology				
SOCR 441	Soil Ecology				
SOCR 442	Forest and Range Soils				
SOCR 424/ HORT 424	Topics in Organic Agriculture				
SOCR 460/ HORT 460	Plant Breeding and Biotechnology				
<b>Total Credits</b>					<b>16</b>
<i>Senior</i>					
<b>Semester 7</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
BSPM 302	Applied and General Entomology	X			2
BSPM 308	Ecology and Management of Weeds	X			3
SOCR 371	Irrigation of Field Crops	X			1
SOCR 421	Agroecosystem Management	X		4A,4B,4C	4
SOCR 492	Preparing for Impact--Your Career Journey	X		4A,4C	1
Select one course from the following:		X			1-2
BSPM 303A	Entomology Laboratory: General				
BSPM 303B	Entomology Laboratory: Horticultural				
BSPM 303C	Entomology Laboratory: Agricultural				
Select one course from the following:		X			1-4
SOCR 330	Principles of Genetics				
SOCR 343	Composting Principles and Practices				
SOCR 400	Soils and Global Change--Science and Impacts				
SOCR 440	Pedology				
SOCR 442	Forest and Range Soils				
SOCR 460/ HORT 460	Plant Breeding and Biotechnology				
<b>Total Credits</b>					<b>13</b>
<b>Semester 8</b>		<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
SOCR 425	Internet of Ag Things--Sensors and Data Lab	X			2
Select 2 of the following courses:		X			6
BSPM 361	Elements of Plant Pathology				

SOCR 322	Principles of Microclimatology			
SOCR 424/ HORT 424	Topics in Organic Agriculture			
SOCR 441	Soil Ecology			
SOCR 442	Forest and Range Soils			
SOCR 460/ HORT 460	Plant Breeding and Biotechnology			
Select one course from the following:		X		1
SOCR 486	Practicum		4C	
SOCR 487	Internship			
Upper-Division Electives			X	4-8
<hr/> <b>Total Credits</b>				<b>17</b>
<hr/> <b>Program Total Credits:</b>				<b>120</b>