MAJOR IN SOIL AND CROP SCIENCES, PLANT BIOTECHNOLOGY, GENETICS, AND BREEDING CONCENTRATION

No new students are being admitted to this concentration. Please see the Major in Soil and Crop Sciences, Plant Biotechnology Concentration (http://catalog.colostate.edu/general-catalog/colleges/agricultural-sciences/soil-crop-sciences/soil-crop-sciences-major-plant-biotechnology-concentration/).

Requirements Effective Fall 2019

Freshman

		AUCC	Credits
AGRI 192 or 292	Orientation to Agricultural Systems Transfer Seminar		1
CHEM 111	General Chemistry I (GT-SC2)	3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)	3A	1
CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
CO 150	College Composition (GT-CO2)	1A	3
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	4
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	3A	4
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	1B	1
MATH 125	Numerical Trigonometry (GT-MA1)	1B	1
MATH 126	Analytic Trigonometry (GT-MA1)	1B	1
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	4
SOCR 100	General Crops		4
	Total Credits		**32**

Sophomore

Select one from the following:			3
AGRI 116/IE 116	Plants and Civilizations (GT-SS3)	1C	
AGRI 270/IE 270	World Interdependence-Population and Food (GT-SS3)	1C	
AREC 202	Agricultural and Resource Economics (GT-SS1)	3C	3
CHEM 245	Fundamentals of Organic Chemistry		4
CHEM 246	Fundamentals of Organic Chemistry Laboratory		1
FSHN 125 or 150	Food and Nutrition in Health Survey of Human Nutrition		2-3
PH 110	Physics of Everyday Phenomena (GT-SC2)	3A	3
PHIL 110	Logic and Critical Thinking (GT-AH3)	3B	3
SOCR 240	Introductory Soil Science		4
SOCR 330	Principles of Genetics		3
SPCM 200	Public Speaking		3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
	Total Credits		**32-33**

Junior

BC 351	Principles of Biochemistry		4
BZ 310	Cell Biology		4
JTC 300	Strategic Writing and Communication (GT-CO3)	2	3

STAT 301 or 307	Introduction to Applied Statistical Methods Introduction to Biostatistics		3
Select eight credits from the following:			8
BC 463	Molecular Genetics		
BSPM 450	Molecular Plant-Microbe Interaction		
BSPM 451			
BZ 346	Population and Evolutionary Genetics		
BZ 476/BZ 576	Genetics of Model Organisms		
HORT 401	Medicinal and Value-Added Uses of Plants		
HORT 424/SOCR 424	Topics in Organic Agriculture		
HORT 451	Vegetable Crop Management		
HORT 453	Principles of Fruit Crop Management		
MIP 300	General Microbiology		
MIP 450	Microbial Genetics		
Select two groups from the following:			6
Group A:			
BSPM 302	Applied and General Entomology		
BSPM 303C	Entomology Laboratory: Agricultural		
Group B:			
BSPM 308	Ecology and Management of Weeds		
Group C:			
BSPM 361	Elements of Plant Pathology		
Electives[1]			3
	Total Credits		**31**

Senior

BZ 440	Plant Physiology		3
SOCR 486	Practicum	4C	1
SOCR 492	Preparing for Impact--Your Career Journey	4A	1
Select one from the following:			3
HORT 460/SOCR 460	Plant Breeding and Biotechnology	4A,4B,4C	
SOCR 430		4A,4B,4C	
Soil and Crop Electives			8
Select a minimum of 8 credits from the following suggested courses:			
SOCR 344	Crop Development Techniques		
SOCR 350	Soil Fertility Management		
SOCR 370	Climate-Smart Irrigation Principles		
SOCR 377	Geographic Information Systems in Agriculture		
SOCR 410	Seed Processes: Storage and Deterioration		
SOCR 412	Seed Processes: Separation and Conditioning		
SOCR 421	Agroecosystem Management		
SOCR 455	Microbiomes of Soil Systems		
SOCR 475	Global Challenges in Plant and Soil Science		
SOCR 495	Independent Study		
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	3
Electives[1]			5-6
	Total Credits		**24-25**
	Program Total Credits:		**120**

[1] Select enough elective credits to bring the program total to 120, with a minimum of 42 upper division credits.

Major Completion Map

Freshman					
Semester 1		**Critical**	**Recommended**	**AUCC**	**Credits**
Select one course from the following:					1
AGRI 192	Orientation to Agricultural Systems				
AGRI 292	Transfer Seminar				
CHEM 111	General Chemistry I (GT-SC2)	X		3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)			3A	1
LIFE 102	Attributes of Living Systems (GT-SC1)	X		3A	4
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	X		1B	1
MATH 125	Numerical Trigonometry (GT-MA1)	X		1B	1
SOCR 100	General Crops				4
	Total Credits				**16**
Semester 2		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 113	General Chemistry II	X			3
CHEM 114	General Chemistry Lab II				1
CO 150	College Composition (GT-CO2)	X		1A	3
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	X		3A	4
MATH 126	Analytic Trigonometry (GT-MA1)			1B	1
MATH 155	Calculus for Biological Scientists I (GT-MA1)			1B	4
AUCC 1B (Quantitative Reasoning) must be completed by the end of Semester 2.		X			
	Total Credits				**16**
Sophomore					
Semester 3		**Critical**	**Recommended**	**AUCC**	**Credits**
AREC 202	Agricultural and Resource Economics (GT-SS1)			3C	3
CHEM 245	Fundamentals of Organic Chemistry				4
CHEM 246	Fundamentals of Organic Chemistry Laboratory				1
PH 110	Physics of Everyday Phenomena (GT-SC2)			3A	3
SOCR 240	Introductory Soil Science				4
LIFE 102 must be completed by the end of Semester 3.		X			
	Total Credits				**15**
Semester 4		**Critical**	**Recommended**	**AUCC**	**Credits**
Select one course from the following:					3
AGRI 116/ IE 116	Plants and Civilizations (GT-SS3)			1C	
AGRI 270/ IE 270	World Interdependence-Population and Food (GT-SS3)			1C	
Select one course from the following:					2-3
FSHN 125	Food and Nutrition in Health				
FSHN 150	Survey of Human Nutrition				
PHIL 110	Logic and Critical Thinking (GT-AH3)			3B	3
SOCR 330	Principles of Genetics				3
SPCM 200	Public Speaking				3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)				3D	3
CHEM 245 must be completed by the end of Semester 4.		X			
	Total Credits				**17**

Junior

Semester 5		Critical	Recommended	AUCC	Credits
BC 351	Principles of Biochemistry				4
Select two groups from the following:					6
Group A:					
BSPM 302	Applied and General Entomology				
BSPM 303C	Entomology Laboratory: Agricultural				
Group B:					
BSPM 308	Ecology and Management of Weeds				
Group C:					
BSPM 361	Elements of Plant Pathology				
Elective					3
Genetics or Horticulture Electives (See Department List on Concentration Requirements tab)					4
	Total Credits				**17**

Semester 6		Critical	Recommended	AUCC	Credits
BZ 310	Cell Biology				4
JTC 300	Strategic Writing and Communication (GT-CO3)			2	3
Select one course from the following:					3
STAT 301	Introduction to Applied Statistical Methods				
STAT 307	Introduction to Biostatistics				
Genetics or Horticulture Electives (See Department List on Concentration Requirements tab)					4
SOCR 330 must be completed by the end of Semester 6.		X			
	Total Credits				**14**

Senior

Semester 7		Critical	Recommended	AUCC	Credits
Select one course from the following:					3
SOCR 430				4A,4B,4C	
SOCR 460/ HORT 460	Plant Breeding and Biotechnology			4A,4B,4C	
SOCR 492	Preparing for Impact--Your Career Journey	X		4A	1
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)				3B	3
Soil and Crop Electives (See Department List on Concentration Requirements tab)					5
	Total Credits				**12**

Semester 8		Critical	Recommended	AUCC	Credits
BZ 440	Plant Physiology	X			3
SOCR 486	Practicum	X		4C	1
Soil and Crop Elective (See Department List on Concentration Requirements tab)		X			3
Electives		X			6
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
	Total Credits				**13**
	Program Total Credits:				**120**