

Soils and Sustainable Crop Systems – Agricultural Biotechnology Concentration

Freshman Year

First Semester			Second Semester		
BIOL 110	Prin. Of Biol. I ¹	5	BIOL 111	Prin. of Biol. II ¹	5
CH 101	General Chemistry	4	CH 102	Gen. Chemistry	4
Arts and Humanities (Non-Literature) Req. ²		3	ENGL 103	Accelerated Composition	3
MTHSC 102 OR	Intro to Math Analysis ¹	3	EXST 301 OR	Intro. Statistics	3
MTHSC 106	Calculus of One Var. I	4	MTHSC 108 OR	Calculus of One Var. II	4
SSCS 101	SSCS Survey	1	MTHSC 207	Multivar. Calculus	4
Semester Hours: 16-17			Semester Hours: 16-17		

Sophomore Year

First Semester			Second Semester		
Arts & Humanities (Literature) Req. ²		3	GEN 300	Fundamental Genetics	3
COMM 250 OR	Public Speaking	3	GEN 301	Fundamental Genetics Lab	1
COMM 150	Intro. To Human Comm.	3	BIOSC 335	Evolutionary Biology	3
CH 223	Organic Chemistry	3	CH 224	Organic Chemistry II	3
CH 227	Organic Chemistry Lab	1	CH 228	Organic Chemistry II Lab	1
SSCS 333	Agricultural Genetics	3	AP EC 205	Agri. & Society	3
ECON 200 OR	Economic Concepts ³	3			
ECON 211	Principles of Microeconomics ³	3			
Semester Hours: 16			Semester Hours: 14		

Junior Year

First Semester			Second Semester		
CSENV 422	Major World Crops	3	ENGL 315 OR	Scientific Writing & Comm.	3
SSCS 335	Agricultural Biotechnology	3	ENGL 314	Technical Writing	3
Social Science Requirement ²		3	SSCS 401	Acad. & Prof. Dev. II	1
BIOSC 304	Biology of Plants	3	CSENV 350	Practicum	1
BIOCH 305	Essen. Elem. Biochemistry	3	PLPA 310	Plant Diseases and People	3
BIOSC 434	Biological Chem. Lab. Tech.	2	PLPH 340	Plant, Medicine and Magic	3
Semester Hours: 17			Emphasis Area ⁴		4
			Semester Hours: 15		

Senior Year

First Semester			Second Semester		
SSCS 445	Regulatory Issues	1	SSCS 451	Ag Biotech & Global Impact Sem	1
SSCS 450	Ag Biosys & Risk Assess	1	CSENV 409	Biology of Invasive Plants	3
CSENV (SSCS) 350	Practicum	3	Emphasis Area ⁴		4
Emphasis Area ⁴		3	CSENV 350	Practicum	2
ENT 301	Insect Biology & Diversity	4			
BIOSC 401	Plant Physiology	3			
BIOSC 402	Plant Physiology Lab	1			
Semester Hours: 16			Semester Hours: 15		

Total Semester Hours = 125-127 (Classes in bold are General Education Requirements)

¹ BIOL 110 and 111 are strongly recommended; however, BIOL 103 and 104 may substitute. MTHSC 106 is recommended.

² See General Education Requirements. PHIL 103 is recommended to satisfy the Arts & Humanities Non-lit. Requirement.

³ ECON 200 is recommended for students in the Agricultural Biosystems and Technology Emphasis. ECON 211 is recommended for students in the Agricultural Biotechnology and Global Society Emphasis.

⁴ Selected from department-approved list. Courses to support proficiency in a foreign language also are encouraged.

Soils and Sustainable Crop Systems – Agricultural Biotechnology Concentration (Continued)

Department Approved Courses for Agricultural Biotechnology Concentration						
Emphasis Area Biosystems/Technology: Agricultural Biosystems and Technology students should select at least three courses from the Biosystems and Technology emphasis-approved list.						
BIOSC 302/306	Invertebrate Biology/Lab	4		CSENV 405	Plant Breeding	3
BIOSC 304/308	Biology of Plant/Practicum	4		CSENV 490	Beneficial Soil Organisms in Plant Growth	3
BIOSC 313	Conservation Biology	3		ENT 407	Applied Agricultural Entomology	4
BIOSC 406/407	Introductory Plant Taxonomy/Lab	4		ENT (BIOSC) 415	Insect Taxonomy	4
BIOSC (AVS) 414	Basic Immunology	4		ENT (BIOSC) 400	Insect Morphology	4
BIOSC 425	Introductory Mycology	3		ENT (BIOSC) 436	Insect Behavior	3
BIOSC 426	Mycology Practicum	2		ENT 495	Insect Biotechnology	3
BIOSC 432/433	Animal Histology	5		GEN (BIOSC) 416	Recombinant DNA	3
BIOSC 446	Plant Ecology	3		GEN (BIOSC) 418	Biotechnology I: Nucleic Acids Techniques	4
BIOSC 452/453	Plant Anatomy & Physiology/Lab	5		GEN 440	Bioinformatics	3
BIOSC 454	Plant Virology	4		MICRO 305	General Microbiology	4
BIOSC (HORT) 465	Plant Molecular Biology	3		PLPA 459	Plant Nematology	3
BIOSC 475	Comparative Physiology	3		PLPA 470	Molecular Plant-Pathogen Interaction	3
Emphasis Area Economics and Policy: Students in Agricultural Biotechnology and Global Society should select at least two courses from the Economics and Policy cluster.						
ENR 429	Environmental Law and Policy	3		ECON (ELE) 321	Economics of Innovation	3
ECON 310	International Economy	3		ECON 350	Moral & Ethical Aspects of a Market Econ	3
ECON 314	Intermediate Microeconomics	3				

Soils and Sustainable Crop Systems – Soil and Water Environmental Concentration

Freshman Year

First Semester			Second Semester		
BIOL 110	Prin. Of Biol. I ¹	5	BIOL 111	Prin. of Biol. II ¹	5
CH 101	General Chemistry	4	CH 102	Gen. Chemistry	4
Arts and Humanities (Non-Literature) Req. ²		3	ENGL 103	Accelerated Composition	3
MTHSC 102 OR MTHSC 106	Intro to Math Analysis ¹ Calculus of One Var. I	3 4	EXST 301 OR MTHSC 108 OR MTHSC 207	Intro. Statistics Calculus of One Var. II Multivar. Calculus	3 4 4
SSCS 101	SSCS Survey	1	SSCS 102	Acad. & Prof. Dev. I	1
Semester Hours: 16-17			Semester Hours: 16-17		

Sophomore Year

First Semester			Second Semester		
CH 223 and CCH 227 OR CH 201	Organic Chemistry Organic Chemistry Lab Survey of Organic Chemistry	3 1 4	Emphasis Area ³		4
CSENV 202	Soils	4	Arts and Humanities (Literature) Req.²		
GEOL 101	Physical Geology	3	PHYS 208 and PHYS 210 OR PHYS 221 and PHYS 223	General Physics II General Physics II Lab Physics with Calculus II Physics Lab II	3 1 3 1
GEOL 103	Physical Geology Lab	1	Cross Cultural Awareness ²		
PHYS 207 and PHYS 209 OR PHYS 122 and PHYS 124	General Physics I General Physics Lab Physics with Calculus I Physics Lab I	3 1 3 1			
Semester Hours: 16			Semester Hours: 14		

Junior Year

First Semester			Second Semester		
Emphasis Area ³		5	Emphasis Area ³		4
COMM 250 OR COMM 150	Public Speaking Intro. To Human Comm.	3 3	GEOL 408	Geohydrology	3
MICRO 305	General Microbiology	3	ENGL 315 OR ENGL 314	Scientific Writing & Comm. Technical Writing	3 3
Plant Science Requirement ⁴		3	CSENV 490	Beneficial Soil Org. In Plt. Growth	3
			SSCS 401	Acad. & Prof. Dev. II	1
			Social Science Requirement ²		
Semester Hours: 15			Semester Hours: 16		

Senior Year

First Semester			Second Semester		
CSENV 403	Soil Genesis & Classification	2	CSENV (BE) 408	Land Treatment of Wastewater & Sludges	3
CSENV 455	Seminar	1	BIOSC 401 and BIOSC 402	Plant Physiology Plant Physiology Lab	3 1
Field Scale Environ. Mgt. Requirement ⁵		3	Social Science Requirement ²		
Applied Spatial Technology Requirement ⁶		3	AGRIC 315	Agric and Environ	3
CSENV 350	Practicum	3	Emphasis Area ³		
Emphasis Area ³		3	Semester Hours: 16		
Semester Hours: 15					

Total Semester Hours = 124-126 (Classes in bold are General Education Requirements)

¹ BIOL 110 and 111 are strongly recommended; however, BIOL 103 and 104 may substitute.

² See General Education Requirements.

³ Selected from department-approved list.

⁴ Selected from CSENV 421, 422, 423, 426, HORT 456, or BIOSC 441.

⁵ Selected from AG M 402, ENTOX 421, or advisor-approved course

⁶ Selected from AG M 410, FOR 433, or advisor-approved course

Soils and Sustainable Crop Systems – Soil and Water Environmental Concentration (Continued)

Department Approved Courses for Soil and Water Environmental Concentration						
Emphasis Area: Soil Science						
CH 224 and CH 228 or BIOCH 305 and BIOSC 434	Organic Chemistry Organic Chemistry Lab	3 1		CH 313	Quantitative Analysis	3
				CH 317	Quantitative Analysis Lab	1
				CSENV 452	Soil Fertility and Management	3
	Essential Elements of Biochemistry Biological Chemistry Lab Techniques	3 2		CSENV 453	Soil Fertility Lab	1
And 6 hours of courses supporting emphasis and approved by advisor						
Emphasis Area: Soil Management						
AG M 301	Soil and Water Conservation	2		CSENV 453	Soil Fertility Lab	1
CSENV 452	Soil Fertility and Management	3		CSENV 446	Soil Management	3
And 9 hours of courses supporting emphasis and approved by advisor						
Emphasis Area: Soil and Water Quality						
CH 224 and CH 228	Organic Chemistry Organic Chemistry Lab	3 1		ENTOX 446	Soil and Water Quality: Fund.	3
				ENTOX 447	Soil and Water Quality: Appl.	3
BIOCH 301	Molecular Biochemistry	3				
And 5 hours of courses supporting emphasis and approved by advisor						

Soils and Sustainable Crop Systems – Sustainable Crop Production Concentration

Freshman Year					
First Semester			Second Semester		
BIOL 110	Prin. Of Biol. I ¹	5	BIOL 111	Prin. of Biol. II ¹	5
CH 101	General Chemistry	4	CH 102	Gen. Chemistry	4
Arts and Humanities (Non-Literature) Req. ²		3	ENGL 103	Accelerated Composition	3
MTHSC 102 OR MTHSC 106	Intro to Math Analysis Calculus of One Var. I	3 4	EXST 301 OR MTHSC 108 OR MTHSC 207	Intro. Statistics Calculus of One Var. II Multivar. Calculus	3 4 4
SSCS 101	SSCS Survey	1	SSCS 102	Acad. & Prof. Dev. I	1
Semester Hours: 16-17			Semester Hours: 16-17		
Sophomore Year					
First Semester			Second Semester		
CH 223/227 OR CH 201	Organic Chemistry & Lab ³ Surv. Organic Chemistry	4 4	Plant Science Req. ⁴		3
CSENV 202	Soils	4	SSCS 333	Agricultural Genetics	3
PLPA 310	Plant Diseases & People	3	APEC 205	Agric. & Society	3
APEC 202 OR ECON 211	Agricultural Economics Principles of Microeconomics	3 3	COMM 250 OR COMM 150	Public Speaking Intro. To Human Comm.	3 3
			CH 224/228 OR BIOSC 434	Organic Chemistry Lab ³ Biochem Lab & Elective-2 hrs.	4 4
Semester Hours: 14			Semester Hours: 16		
Junior Year					
First Semester			Second Semester		
ENT 301	Insect Biology & Diversity	4	ENGL 315 OR ENGL 314	Scientific Writing and Comm. Technical Writing	3 3
Plant Science Requirement ⁴		3	SSCS 401	Acad. & Prof. Dev. II	1
Social Science Requirement ²		3	PLPA 411	Plant Disease Diagnosis	2
IPM 401	Principles of IPM	3	CSENV 405	Plant Breeding	3
Emphasis Area ⁵		3	CSENV 409	Biology of Invasive Plants	3
			BIOSC 401/402	Plant Phys. & Lab	4
Semester Hours: 16			Semester Hours: 16		
Senior Year					
First Semester			Second Semester		
CSENV 490	Beneficial Soil Org. in Plt. Growth	3	CSENV 452/453	Soil Fertility & Lab	4
ENT 407	Applied Agri. Ent. ⁶	4	CSENV (SSCS) 350	Practicum	3
Emphasis Area ⁵		6	Emphasis Area ⁵		6
			CSENV 455	Seminar	1
			Arts and Humanities (Literature) Req. ²		3
Semester Hours: 13			Semester Hours: 17		

Total Semester Hours = 126-129 (Classes in bold are General Education Requirements)

¹ BIOL 110 and 111 are strongly recommended; however, BIOL 103 and 104 may substitute.

² See General Education Requirements.

³ CH 223, 224, 227, and 228 are strongly recommended.

⁴ Selected from BIOSC 304, CSENV 422, 423, HORT 310, 455, 456, or department-approved course.

⁵ Selected from department-approved list.

⁶ Alternate course may be taken as an emphasis area requirement.

Soils and Sustainable Crop Systems – Sustainable Crop Production Concentration (Continued)

Department Approved Courses for Sustainable Crop Production Concentration						
Emphasis Area: Crop Production						
AGM 205	Principles of Fabrication	3		CSENV 426	Cropping Systems Analysis	3
AGM 206	Machinery Management	3		CSENS 433	Integrated Weed Mgt. for Agon. & Hort Crops	3
AGM 301	Soil and Water Conservation	2		ENT 308	Apiculture	3
APEC 302	Economics of Farm Management	3		ENR 302	Natural Resource Management	3
APEC 309	Economics of Agricultural Marketing	3		ENR 413	Restoration Ecology	3
*AGRIC 315	Agriculture and Environment	3		HORT 310	Growing Landscape Plants	3
BIOSC 425	Introductory Mycology	3		HORT 455	Small Fruit Crops	3
BIOSC 426	Mycology Practicum	2		*HORT 456	Vegetable Crops	3
BIOSC 446	Plant Ecology	3		PLPA 459	Plant Nematology	3
BIOSC 447	Plant Ecology Lab	2				
Emphasis Area: Integrated Pest Management						
AGM 205	Principles of Fabrication	3		CSENV 433	Integrated Weed Mgt. for Agron. & Hort Crops	3
AGM 206	Machinery Management	3		*ENT 300	Environmental Entomology	3
AGM 301	Soil and Water Conservation	2		ENT 308	Apiculture	3
AGM 402	Drainage, Irrigation & Waste Mgmt.	3		ENR 302	Natural Resource Management	3
APEC 302	Economics of Farm Management	3		ENR 413	Restoration Ecology	3
*AGRIC 315	Agriculture and Environment	3		HORT 310	Growing Landscape Plants	3
BIOSC 446	Plant Ecology	3		HORT 455	Small Fruit Crops	3
BIOSC 447	Plant Ecology Lab	2		*HORT 456	Vegetable Crops	3
CSENV 426	Cropping Systems Analysis	3		PLPA 459	Plant Nematology	3

*Course not currently scheduled.