

Cover Sheet: Request 14232

IS - Environmental Management in Agriculture and Natural Resources UF Online: Modify 8 semester plan/Universal Tracking

Info

Process	Major Curriculum Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Michael Sisk mjsisk@ufl.edu
Created	9/10/2019 1:17:33 PM
Updated	11/18/2019 9:18:21 AM
Description of request	Modifications To Eight (8) Semester Plan For Interdisciplinary Studies - Environmental Management in Agriculture and Natural Resources UF Online Program, Included Upper Division Critical Tracking In Revised Plan

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Soil and Water Science 514921000	Matthew Whiles		9/10/2019
2020 - 2021 IS - Env Mgmt In Agriculture and Natural Resources - UF Online_9_10_19.pdf					9/10/2019
College	Approved	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Approved by CALS CC on 9/20/19.	9/20/2019
2019 - 2020 ALC & SLO's - IS - Env Mgmt in Agriculture and Natural Resources - UF Online_9_16_19.pdf					9/16/2019
Associate Provost for Undergraduate Affairs	Approved	PV - Associate Provost for Undergraduate Affairs	Casey Griffith		10/15/2019
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			10/15/2019
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
Academic Assessment Committee Notified					
No document changes					
College Notified					
No document changes					

Major|Modify_Curriculum for request 14232

Info

Request: IS - Environmental Management in Agriculture and Natural Resources UF Online: Modify 8 semester plan/Universal Tracking

Description of request: Modifications To Eight (8) Semester Plan For Interdisciplinary Studies - Environmental Management in Agriculture and Natural Resources UF Online Program, Included Upper Division Critical Tracking In Revised Plan

Submitter: Michael Sisk mjsisk@ufl.edu

Created: 9/16/2019 4:13:19 PM

Form version: 3

Responses

Major Name Interdisciplinary Studies - Environmental Management in Agriculture and Natural Resources (UF Online Program)

Major Code IS

Degree Program Name Bachelor of Science

Undergraduate Innovation Academy Program No

Effective Term Summer

Effective Year 2020

Current Curriculum for Major

Critical Tracking records each student's progress in courses that are required for entry to each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites may be used for transfer students.

Semester 1

Complete 1 of 6 critical-tracking courses, excluding labs: AEC 3030C or SPC 2608, BSC 2005/BSC 2005L or BSC 2010/BSC 2010L, CHM 2045/CHM 2045L, CHM 2046/CHM 2046L, MAC 2233, STA 2023

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

Semester 2

Complete 2 additional critical-tracking courses, excluding labs

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

Semester 3

2.0 GPA required for all critical-tracking courses

Complete 2 additional critical-tracking courses, excluding labs

2.0 UF GPA required

Semester 4

Complete 1 additional critical-tracking course, excluding labs

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

Semester 5

Complete all critical-tracking courses, including labs

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Plan of Study Grid

Semester One Credits

CHM 2045

& 2045L General Chemistry 1

and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological or Physical Sciences) 4

State Core Gen Ed Composition (Writing Requirement) 3

State Core Gen Ed Humanities 3

State Core Gen Ed Social and Behavioral Sciences 3

Elective2

Credits 15

Semester Two

Select one: 3-4

AEB 2014

Economic Issues, Food and You (Gen Ed Social and Behavioral Sciences)

ECO 2013

Principles of Macroeconomics (Gen Ed Social and Behavioral Sciences)

ECO 2023

Principles of Microeconomics (Gen Ed Social and Behavioral Sciences)

CHM 2046

& 2046L General Chemistry 2

and General Chemistry 2 Laboratory (Critical Tracking; Gen Ed Physical Sciences)

4

IDS 1161 What is the Good Life (Gen Ed Humanities) 3

STA 2023 Introduction to Statistics 1 (Critical Tracking; Gen Ed Mathematics)

3

Gen Ed Composition (Writing Requirement) 3

Credits 16-17

Semester Three

Select one: 3

AEC 3030C

Effective Oral Communication (Critical Tracking)

SPC 2608

Introduction to Public Speaking (Critical Tracking)

Select one: 4

BSC 2005

& 2005L

Biological Sciences

and Laboratory in Biological Sciences (Critical Tracking; Gen Ed Biological Sciences)

BSC 2010

& 2010L

Integrated Principles of Biology 1

and Integrated Principles of Biology Laboratory 1 (Critical Tracking; Gen Ed Biological Sciences)

GLY 2030C Environmental and Engineering Geology (Gen Ed Physical Sciences)
3

Select one: 3

PHY 2020
Introduction to Principles of Physics (Gen Ed Physical Sciences)

PHY 2004
Applied Physics 1 (Gen Ed Physical Sciences)

Elective3
Credits 16

Semester Four

ALS 3133 Agricultural and Environmental Quality (Gen Ed Physical Sciences)
3

MAC 2233 Survey of Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)
3

Select one: 3
Gen Ed Humanities

Gen Ed Social and Behavioral Sciences

Electives 4
Credits 13

Semester Five

AEC 3033C Research and Business Writing in Agricultural and Life Sciences (Writing Requirement) 3

ALS 3153 Agricultural Ecology 3

SWS 3022 Introduction to Soils in the Environment (Gen Ed Physical Sciences)
3

Approved elective 3
Credits 12

Semester Six

AEB 3133

or MAN 3025

Principles of Agribusiness Management
or Principles of Management
3-4

Select one: 3

ENY 3005

& 3005L

Principles of Entomology
and Principles of Entomology Laboratory

IPM 3022
Fundamentals of Pest Management

SWS 4244 Wetlands 3

Approved elective 3

Elective3

Credits 15-16

Summer After Semester Six

SWS 4905

or SWS 4941

Individual Work
or Full-time Practical Work Experience in Soil and Water Science

3

Approved elective 3
Credits 6

Semester Seven

AOM 4643 Environmental Hydrology: Principles and Issues 3
FNR 4660 Natural Resource Policy and Economics 3
SWS 4720C GIS in Soil and Water Science 3

Approved elective 3
Elective 3

Credits 15

Semester Eight

SWS 4116 Environmental Nutrient Management 3
SWS 4223 Environmental Biogeochemistry 3

Approved electives 6
Credits 12

Total Credits 120

Approved Electives

Other electives require advisor approval

Course List

Code	Title	Credits
AGG 4502	Nanotechnology in Food, Agriculture, and Environment	3
AEB 2014	Economic Issues, Food and You	3
AEB 3671	Comparative World Agriculture	3
ALS 4162	Consequences of Biological Invasions	3
BUL 4310	The Legal Environment of Business	4
ECO 2013	Principles of Macroeconomics	4
ECO 2023	Principles of Microeconomics	4
ENT 3003	Principles of Entrepreneurship	4
ENY 3007C	Life Science	3
GEB 3373	International Business	4
MAR 3023	Principles of Marketing	4
SWS 2007	The World of Water	3
SWS 4207	Sustainable Agricultural and Urban Land Management	3
SWS 4233	Soil and Water Conservation	3
SWS 4800	Environmental Soil and Water Monitoring Techniques	3
WIS 4934	Topics in Wildlife Ecology and Conservation	3

Proposed Curriculum Changes Adjusted Sequence Of Critical Tracking Courses In Semester(s) 1 - 4. Added Additional Choices/Options (i.e. OR) To Our Core Course Requirements. Incorporated Additional Tracking By Semester Into This Curriculum Plan.

UF Online curriculum change Yes

Pedagogical Rationale/Justification We Noticed We Had Our Chemistry 1 with Lab & Chemistry 2 With Lab Critical Tracking Courses

Before We Had Our Students Take Their Survey of Calculus Critical Tracking Course, Thus Needed To Make Adjustment To Better Align With Chemistry Dept Prerequisites For These Two Courses (i.e. Math Before Chemistry). Wanted To Give Students Some Additional Options To Be Able To Meet Our Core Courses Required For Program.

Impact on Enrollment, Retention, Graduation No foreseen impact, we have been making these course directives/changes for our students who are currently in the major as we do their advising sessions, this will help to alleviate some of the course directives that we have to put into the system.

Assessment Data Review See Attachment, Also An Additional Request Will Be Coming Through Approval System Shortly To Make Changes That Align With These Curriculum Changes, As Well As Some Changes To Assessments.

Academic Learning Compact and Academic Assessment Plan See Attachment, Also An Additional Request Will Be Coming Through Approval System Shortly To Make Changes That Align With These Curriculum Changes, As Well As Some Changes To Assessments.

Current Academic Learning Compact, Including Student Outcomes

AG – IS – EMANR On-Campus & UF Online Program

The interdisciplinary major in environmental management in agriculture provides students with the scientific and technical foundation to integrate and communicate the diverse environmental issues associated with agriculture and natural resources. Students will be able to deal in an informed manner with the agricultural regulations and permitting requirements established by various agencies and jurisdictions, and students will achieve an appreciation for the complexities of agricultural practices. Students will learn to integrate, balance and communicate the mix of agricultural and environmental issues that need to be addressed in modern society.

Before Graduating Students Must

- Complete an approved senior-year research project, [SWS 4905](#), related to management and science skills.
- Achieve minimum grades of C in [AEC 3030C](#) and [AEC 3033C](#). These courses are graded using rubrics developed by a faculty committee.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes (SLOs)

Content

1. Appraise similarities between agronomic production and environmental protection issues.
2. Describe the role of soil and water in transport of contaminants in ecosystems and illustrate the interconnectedness of ecosystems and ecosystem components with specific examples.

Critical Thinking

3. Cite specific examples of natural resources and environmental public policy issues and identify contending stakeholder interests with respect to each issue.
4. Develop a plan for the analysis of an environmental / agricultural study using geographic information systems software.
5. Critically evaluate natural resource policies using basic economic tools and applying ecological, social and political criteria.

Communication

6. Create, interpret and analyze written text, oral messages and multimedia presentations used in agricultural and life sciences.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	Academic Learning Compact 6					
	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6
AEB 3133					I	
AEC 3030C						I, R, A
AEC 3033C						I, R, A
ALS 3133	I, A	I	I			
AOM 4643	R	R		I		
FNR 4660			R, A		R, A	R
SWS 3022		I				
SWS 4116	R					R
SWS 4223	R	R, A				R
SWS 4720C				R, A		R

Assessment Types

- Projects
- Papers
- Presentations
- Exams

Semester 1

- Complete 1 of 6 critical-tracking courses, excluding labs: [AEC 3030C](#) or [SPC 2608](#) , [BSC 2005](#) / [BSC 2005L](#) or [BSC 2010](#) / [BSC 2010L](#) , [CHM 2045](#) / [CHM 2045L](#) , [CHM 2046](#) / [CHM 2046L](#) , [MAC 2233](#) , [STA 2023](#)
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete 2 additional critical-tracking courses, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 3

- Complete 2 additional critical-tracking courses, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 4

- Complete 1 additional critical-tracking course, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete all critical-tracking courses, including labs from semesters 1 – 4
- Complete 1 additional tracking course
- 2.0 GPA required for all critical-tracking courses
- 2.0 Upper Division GPA required
- 2.0 UF GPA Required

Semester 6

- Complete 1 additional tracking course
- 2.0 Upper Division GPA required.
- 2.0 UF GPA required

Semester 7

- Complete 2 additional tracking courses
- 2.0 Upper Division GPA required.
- 2.0 UF GPA required

Semester 8

- Complete all remaining tracking course from semester 5 - 8
- 2.0 Upper Division GPA required.
- 2.0 UF GPA required

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Plan of Study Grid

Semester One

Survey of Calculus 1 (Critical Tracking; State Core Ge

[MAC 2233](#)

State Core Gen Ed Composition (Writing Requirement)

Original file: 2020 - 2021 IS - Env Mgmt In Agriculture and Natural Resources - UF Online_9_10_19.docx

Elective

Select one:

[AEB 2014](#)

[ECO 2013](#)

[ECO 2023](#)

Select one:

[BSC 2005](#)

†& [2005L](#)

[BSC 2010](#)

†& [2010L](#)

[IDS 1161](#)

[STA 2023](#)

Gen Ed Composition (Writing Requirement)

Select one:

[AEC 3030C](#)

[SPC 2608](#)

[CHM 2045](#)

†& [2045L](#)

[GLY 2030C](#)

Select one:

Gen Ed Humanities

Gen Ed Social and Behavioral Sciences

Elective

[ALS 3133](#)

[CHM 2046](#)

†& [2046L](#)

Select one:

[PHY 2020](#)

[PHY 2004](#)

[SWS 2007](#)

Electives

Select one:

[ALS 3153](#)

SWS 4303C

WIS 3404

[SWS 3022](#)

[SWS 4244](#)

Approved elective

Select one:

[AEB 3133](#)

[MAN 3025](#)

[AEC 3033C](#)

Select one:

[ENY 3005](#)

†& [3005L](#)

[IPM 3022](#)

Credits

Semester Two

Economic Issues, Food and You (Gen Ed Social and Behavioral Sciences)
Principles of Macroeconomics (Gen Ed Social and Behavioral Sciences)
Principles of Microeconomics (Gen Ed Social and Behavioral Sciences)

Biological Sciences

†and Laboratory in Biological Sciences (Critical Tracking)
Integrated Principles of Biology 1

†and Integrated Principles of Biology Laboratory 1 (Critical Tracking)
Biological Sciences

What is the Good Life (Gen Ed Humanities)

Introduction to Statistics 1 (Critical Tracking; Gen Ed Social and Behavioral Sciences)

Credits

Semester Three

Effective Oral Communication (Critical Tracking)
Introduction to Public Speaking (Critical Tracking)
General Chemistry 1

†and General Chemistry 1 Laboratory (Critical Tracking)
or Physical Sciences)

Environmental and Engineering Geology (Gen Ed Physical Sciences)

Credits

Semester Four

Agricultural and Environmental Quality (Gen Ed Physical Sciences)
General Chemistry 2

†and General Chemistry 2 Laboratory (Critical Tracking)

Introduction to Principles of Physics (Gen Ed Physical Sciences)
Applied Physics 1 (Gen Ed Physical Sciences)
The World of Water

Credits

Semester Five

Agricultural Ecology
Soil Microbial Ecology
Natural Resource Ecology
Introduction to Soils in the Environment (Critical Tracking)
Wetlands

Credits

Semester Six

Principles of Agribusiness Management

Principles of Management

Research and Business Writing in Agricultural and Life Sciences

Principles of Entomology

†and Principles of Entomology Laboratory (Critical Tracking)
Fundamentals of Pest Management (Critical Tracking)

Approved elective
Elective

Credits

Summer

Select one:
SWS 4905

Individual Work

SWS 4941
SWS 4900
SWS 4911
SWS 4915
Approved elective

Full time Practical Work Experience in Soil and Water Sc
Supervised Extension Experience in Soil and Water Scien
Supervised Research in Soil and Water Science
Honors Thesis Research in Soil and Water Science

Credits

Semester Seven

Environmental Hydrology: Principles and Issues (Crit
Natural Resource Policy and Economics (Critical Trac

AOM 4643
FNR 4660

Environmental Nutrient Management

SWS 4116
Approved elective
Elective

Credits

Semester Eight

Environmental Biogeochemistry (Critical Tracking)
GIS in Soil and Water Science

SWS 4223
SWS 4720C
Approved electives

Credits

Total Credits

Approved Electives

Other electives require advisor approval

Code	Course List Title	Credits
<u>AGG 4502</u>	Nanotechnology in Food, Agriculture, and Environment	3
<u>AEB 2014</u>	Economic Issues, Food and You	3
<u>AEB 3671</u>	Comparative World Agriculture	3
<u>ALS 4162</u>	Consequences of Biological Invasions	3
<u>BUL 4310</u>	The Legal Environment of Business	4
<u>ECO 2013</u>	Principles of Macroeconomics	4
<u>ECO 2023</u>	Principles of Microeconomics	4
<u>ENT 3003</u>	Principles of Entrepreneurship	4
<u>ENY 3007C</u>	Life Science	3
<u>GEB 3373</u>	International Business	4
<u>MAR 3023</u>	Principles of Marketing	4
<u>SWS 2007</u>	The World of Water	3
<u>SWS 4180</u>	Earth System Analysis	3
<u>SWS 4204</u>	Urban Soil and Water Systems	3
<u>SWS 4207</u>	Sustainable Agricultural and Urban Land Management	3
<u>SWS 4233</u>	Soil and Water Conservation	3
<u>SWS 4800</u>	Environmental Soil and Water Monitoring Techniques	3
<u>SWS 4932</u>	Math for Environmental Professionals	2
<u>SWS 4932</u>	Wetlands Seminar	1
<u>WIS 3404</u>	Natural Resources Ecology	3

Semester 1

- Complete 1 of 6 critical-tracking courses, excluding labs: AEC 3030C or SPC 2608, BSC 2005/BSC 2005L or BSC 2010/BSC 2010L, CHM 2045/CHM 2045L, CHM 2046/CHM 2046L, MAC 2233, STA 2023
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete 2 additional critical-tracking courses, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 3

- Complete 2 additional critical-tracking courses, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 4

- Complete 1 additional critical-tracking course, excluding labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete all critical-tracking courses, including labs from semesters 1 – 4
- Complete 1 additional tracking course
- 2.0 GPA required for all critical-tracking courses
- 2.0 Upper Division GPA required
- 2.0 UF GPA Required

Semester 6

- Complete 1 additional tracking course
- 2.0 Upper Division GPA required.
- 2.0 UF GPA required

Semester 7

- Complete 2 additional tracking courses

- 2.0 Upper Division GPA required.
- 2.0 UF GPA required

Semester 8

- Complete all remaining tracking course from semester 5 - 8
- 2.0 Upper Division GPA required.
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This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Plan of Study Grid

Semester One		Credits	Formatted Table
<u>MAC 2233</u>	Survey of Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)	3	Formatted: Font: Bold
<u>CHM 2045 & 2045L</u>	General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological or Physical Sciences)	4	Formatted: Font: Bold
	State Core Gen Ed Composition (Writing Requirement)	3	Formatted: Font: Bold
	<u>State Core Gen Ed Humanities</u>	3	Formatted: Font: Bold
	<u>State Core Gen Ed Social and Behavioral Sciences</u>	3	Formatted: Font: Bold
	Elective	<u>23</u>	
	Credits	15	
Semester Two			Formatted Table
	Select one:	3-4	Formatted: Font: Bold
<u>AEB 2014</u>	Economic Issues, Food and You (Gen Ed Social and Behavioral Sciences)		Formatted: Font: Bold
<u>ECO 2013</u>	Principles of Macroeconomics (Gen Ed Social and Behavioral Sciences)		Formatted: Font: Bold
<u>ECO 2023</u>	Principles of Microeconomics (Gen Ed Social and Behavioral Sciences)		Formatted: Font: Bold
<u>Select one:</u>		4	Formatted: Font: Bold
<u>BSC 2005 & 2005L</u>	Biological Sciences and Laboratory in Biological Sciences (Critical Tracking; Gen Ed Biological Sciences)	-	Formatted: Font: Bold
<u>BSC 2010 & 2010L</u>	Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (Critical Tracking; Gen Ed Biological Sciences)	-	Formatted: Font: Bold
			Formatted: Font: Bold

CHM 2046 & 2046L	General Chemistry 2 and General Chemistry 2 Laboratory (Critical Tracking; Gen Ed Physical Sciences)	4
IDS 1161	What is the Good Life (Gen Ed Humanities)	3
STA 2023	Introduction to Statistics 1 (Critical Tracking; Gen Ed Mathematics)	3
Gen Ed Composition (Writing Requirement)		3
Credits		16-17

Semester Three

Select one:		3
AEC 3030C	Effective Oral Communication (Critical Tracking)	
SPC 2608	Introduction to Public Speaking (Critical Tracking)	
CHM 2045 & 2045L	General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological or Physical Sciences)	4
Select one:		4
BSC 2005 & 2005L	Biological Sciences and Laboratory in Biological Sciences (Critical Tracking; Gen Ed Biological Sciences)	-
BSC 2010 & 2010L	Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (Critical Tracking; Gen Ed Biological Sciences)	-
GLY 2030C	Environmental and Engineering Geology (Gen Ed Physical Sciences)	3
Select one:		3
Gen Ed Humanities		
Gen Ed Social and Behavioral Sciences		
PHY 2020	Introduction to Principles of Physics (Gen Ed Physical Sciences)	-
PHY 2004	Applied Physics 1 (Gen Ed Physical Sciences)	-
Elective		3
Credits		16

Semester Four

ALS 3133	Agricultural and Environmental Quality (Gen Ed Physical Sciences)	3
CHM 2046 & 2046L	General Chemistry 2 and General Chemistry 2 Laboratory (Critical Tracking; Gen Ed Physical Sciences)	4
MAC 2233	Survey of Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)	3
Select one:		3
PHY 2020	Introduction to Principles of Physics (Gen Ed Physical Sciences)	-

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[PHY 2004](#) [Applied Physics 1 \(Gen Ed Physical Sciences\)](#) -
[SWS 2007](#) [The World of Water](#)
 Select one: 3
[Gen Ed Humanities](#)
[Gen Ed Social and Behavioral Sciences](#)
 Electives 43
 Credits 13

Semester Five

[AEC 3033C](#) [Research and Business Writing in Agricultural and Life Sciences \(Writing Requirement\)](#) 3
 Select one:
[ALS 3153](#) [Agricultural Ecology](#) 3
[SWS 4303C](#) [Soil Microbial Ecology](#)
[WIS 3404](#) [Natural Resource Ecology](#)
[SWS 3022](#) [Introduction to Soils in the Environment \(Critical Tracking, Gen Ed Physical Sciences\)](#) 3
[SWS 4244](#) [Wetlands](#) 3
 Approved elective 3
 Credits 12

Semester Six

Select one: 3-4
[AEB 3133](#) [Principles of Agribusiness Management](#)

[AEB 3133](#) [Principles of Agribusiness Management](#) 3-4
 or
[MAN 3025](#) [Principles of Management](#)
 Select one: 3
[AEC 3033C](#) [Research and Business Writing in Agricultural and Life Sciences \(Writing Requirement\)](#) 3
 Select one: 3
[ENY 3005](#) [Principles of Entomology](#)
 & [3005L](#) [and Principles of Entomology Laboratory \(Critical Tracking\)](#)
[IPM 3022](#) [Fundamentals of Pest Management \(Critical Tracking\)](#)
[SWS 4244](#) [Wetlands](#) 3
 Approved elective 3
 Elective 3
 Credits 15-16

Summer After Semester Six

Select one:

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SWS 4905 Individual Work or SWS 4941 or Full time Practical Work Experience in Soil and Water Science	3
SWS 4941 Full time Practical Work Experience in Soil and Water Science	
SWS 4900 Supervised Extension Experience in Soil and Water Sciences	
SWS 4911 Supervised Research in Soil and Water Science	
SWS 4915 Honors Thesis Research in Soil and Water Science	
Approved elective	3
Credits	6

Semester Seven

AOM 4643 Environmental Hydrology: Principles and Issues (Critical Tracking)	3
FNR 4660 Natural Resource Policy and Economics (Critical Tracking)	3
SWS 4720C GIS in Soil and Water Science	3
SWS 4116 Environmental Nutrient Management	3
Approved elective	3
Elective	3
Credits	15

Semester Eight

SWS 4116 Environmental Nutrient Management	3
SWS 4223 Environmental Biogeochemistry (Critical Tracking)	3
SWS 4720C GIS in Soil and Water Science	3
Approved electives	6
Credits	12
Total Credits	120

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Approved Electives

Other electives require advisor approval

Code	Course List Title	Credits
AGG 4502	Nanotechnology in Food, Agriculture, and Environment	3
AEB 2014	Economic Issues, Food and You	3
AEB 3671	Comparative World Agriculture	3
ALS 4162	Consequences of Biological Invasions	3
BUL 4310	The Legal Environment of Business	4
ECO 2013	Principles of Macroeconomics	4
ECO 2023	Principles of Microeconomics	4
ENT 3003	Principles of Entrepreneurship	4

Course List		
Code	Title	Credits
ENY 3007C	Life Science	3
GEB 3373	International Business	4
MAR 3023	Principles of Marketing	4
SWS 2007	The World of Water	3
SWS 4180	Earth System Analysis	3
SWS 4204	Urban Soil and Water Systems	3
SWS 4207	Sustainable Agricultural and Urban Land Management	3
SWS 4233	Soil and Water Conservation	3
SWS 4800	Environmental Soil and Water Monitoring Techniques	3
SWS 4932	Math for Environmental Professionals	2
SWS 4932	Wetlands Seminar	1
WIS 34044934	Topics in Wildlife Ecology and Conservation Natural Resources Ecology	3