

## Cover Sheet: Request 14231

**IS - Environmental Management in Agriculture and Natural Resources On-Campus, modifications and 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 1:11:24 PM
Updated	11/18/2019 9:17:04 AM
Description of request	Modifications To Eight (8) Semester Plan For Interdisciplinary Studies - Environmental Management in Agriculture and Natural Resources On-Campus 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 - On-Campus_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 - On-Campus_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	Commented	PV - University Curriculum Committee (UCC)	Lee Morrison	Added to the November agenda. If approved, this will go into effect for the Summer B 2020 term with the publication of the 2020-2021 undergraduate catalog.	11/4/2019
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			11/4/2019
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					

Step	Status	Group	User	Comment	Updated
College Notified					
No document changes					

# Major|Modify\_Curriculum for request 14231

## Info

**Request:** IS - Environmental Management in Agriculture and Natural Resources On-Campus, modifications and Universal tracking

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

**Submitter:** Michael Sisk mjsisk@ufl.edu

**Created:** 9/16/2019 4:13:44 PM

**Form version:** 3

## Responses

**Major Name** Interdisciplinary Studies - Environmental Management in Agriculture and Natural Resources (On-Campus 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

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

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

Electives 4

Select one: 3

Gen Ed Humanities

Gen Ed Social and Behavioral Sciences

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

AEB 3114L Introduction to Agricultural Computer Applications 1

AEB 3144 Introduction to Agricultural Finance 3

AEB 3300 Agricultural and Food Marketing 3

AEB 3341 Selling Strategically 3

AEB 3450 Introduction to Natural Resource and Environmental Economics 3

AEB 3671 Comparative World Agriculture 3

AEB 4123 Agricultural and Natural Resource Law 3

ALS 4161 Exotic Species and Biosecurity Issues 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

ENY 3510C Turf and Ornamental Entomology 3

ENY 4210 Insects and Wildlife 3

FOR 3214 Fire Ecology and Management 2

FOR 4110 Ecology and Restoration of Longleaf Pine Ecosystems 3

GEB 3373 International Business 4

HOS 3020C Principles of Horticulture Crop Production 4

MAR 3023 Principles of Marketing 4

PLS 3004C Principles of Plant Science 3

SWS 2007 The World of Water 3

SWS 3022L Introduction to Soils in the Environment Laboratory 1

SWS 4207 Sustainable Agricultural and Urban Land Management 3

SWS 4231C Soil, Water and Land Use 3

SWS 4233 Soil and Water Conservation 3

SWS 4245 Water Resource Sustainability 3

SWS 4303C Soil Microbial Ecology 3

SWS 4307 Ecology of Waterborne Pathogens 3

SWS 4451 Soil and Water Chemistry 3

SWS 4550 Soils, Water and Public Health 3

SWS 4602C Soil Physics 3

SWS 4715C Environmental Pedology 4

SWS 4932 Special Topics in Soil and Water Science (Hydric Soils) 2

SWS 4932 Special Topics in Soil and Water Science (Forest and Soil Ecosystem Services)

3

SWS 4932 Special Topics in Soil and Water Science (Environmental Techniques; 2 live labs at selected locations) 3

WIS 2552 Biodiversity Conservation: Global Perspectives 3

WIS 3401 Wildlife Ecology and Management 3

WIS 4427C Wildlife Habitat Management 3

WIS 4934 Topics in Wildlife Ecology and Conservation (Natural Resource Ecology)

**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
<a href="#">AEB 3133</a>					I	
<a href="#">AEC 3030C</a>						I, R, A
<a href="#">AEC 3033C</a>						I, R, A
<a href="#">ALS 3133</a>	I, A	I	I			
<a href="#">AOM 4643</a>	R	R		I		
<a href="#">FNR 4660</a>			R, A		R, A	R
<a href="#">SWS 3022</a>		I				
<a href="#">SWS 4116</a>	R					R
<a href="#">SWS 4223</a>	R	R, A				R
<a href="#">SWS 4720C</a>				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)

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 Beha  
Principles of Macroeconomics (Gen Ed Social and Behavi  
Principles of Microeconomics (Gen Ed Social and Behavi

**Biological Sciences**

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

†and Integrated Principles of Biology Laboratory 1 (Cr  
Sciences)

What is the Good Life (Gen Ed Humanities)

**Introduction to Statistics 1 (Critical Tracking; Gen Ed**

Credits

### Semester Three

**Effective Oral Communication (Critical Tracking)**

**Introduction to Public Speaking (Critical Tracking)**

**General Chemistry 1**

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

Environmental and Engineering Geology (Gen Ed Physica

Credits

### Semester Four

Agricultural and Environmental Quality (Gen Ed Physical

**General Chemistry 2**

†and General Chemistry 2 Laboratory (Critical Tracki

Introduction to Principles of Physics (Gen Ed Physical Sci

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 Tra**

Wetlands

Credits

### Semester Six

Principles of Agribusiness Management

Principles of Management

Research and Business Writing in Agricultural and Life S

**Principles of Entomology (Critical Tracking)**

†and Principles of Entomology Laboratory (Critical Tr

**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

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

Approved elective

Credits

**Semester Seven**

[AOM 4643](#)  
[FNR 4660](#)  
[SWS 4720C](#)

Environmental Hydrology: Principles and Issues  
**Natural Resource Policy and Economics (Critical Trac**  
**GIS in Soil and Water Science (Critical Tracking)**

Approved elective  
Elective

Credits

**Semester Eight**

[SWS 4116](#)  
[SWS 4223](#)

Environmental Nutrient Management  
**Environmental Biogeochemistry (Critical Tracking)**

Approved electives

Credits

Total Credits

## Approved Electives

Other electives require advisor approval

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

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- 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

	Credits
<b><u>MAC 2233</u> <u>Survey of Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)</u></b>	<b>3</b>
<u>CHM 2045 &amp; 2045L</u> <u>General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological or Physical Sciences)</u>	4
State Core Gen Ed Composition (Writing Requirement)	3
<u>State Core Gen Ed Humanities</u>	3
<u>State Core Gen Ed Social and Behavioral Sciences</u>	3
Elective	<u>23</u>
Credits	15

#### Semester Two

Select one:	3-4
<u>AEB 2014</u> Economic Issues, Food and You (Gen Ed Social and Behavioral Sciences)	
<u>ECO 2013</u> Principles of Macroeconomics (Gen Ed Social and Behavioral Sciences)	
<u>ECO 2023</u> Principles of Microeconomics (Gen Ed Social and Behavioral Sciences)	
<b><u>Select one:</u></b>	<b>4</b>
<b><u>BSC 2005 &amp; 2005L</u> <u>Biological Sciences and Laboratory in Biological Sciences (Critical Tracking; Gen Ed Biological Sciences)</u></b>	-
<b><u>BSC 2010 &amp; 2010L</u> <u>Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (Critical Tracking; Gen Ed Biological Sciences)</u></b>	-

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

**Semester Three**

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

**Semester Four**

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

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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 4  
 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](#)  
 or  
[MAN 3025](#) [Principles of Management](#) 3-4  
 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 \(Critical Tracking\)](#)  
 & [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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<a href="#">SWS 4905</a>	Individual Work	3
<del>or <a href="#">SWS 4941</a> or Full-time Practical Work Experience in Soil and Water Science</del>		
<a href="#">SWS 4941</a>	Full-time Practical Work Experience in Soil and Water Science	
<a href="#">SWS 4900</a>	Supervised Extension Experience in Soil and Water Sciences	
<a href="#">SWS 4911</a>	Supervised Research in Soil and Water Science	
<a href="#">SWS 4915</a>	Honors Thesis Research in Soil and Water Science	
Approved elective		3
Credits		6
<b>Semester Seven</b>		
<a href="#">AOM 4643</a>	Environmental Hydrology: Principles and Issues	3
<a href="#">FNR 4660</a>	<b>Natural Resource Policy and Economics (Critical Tracking)</b>	<b>3</b>
<a href="#">SWS 4720C</a>	<b>GIS in Soil and Water Science (Critical Tracking)</b>	<b>3</b>
Approved elective		3
Elective		3
Credits		15
<b>Semester Eight</b>		
<a href="#">SWS 4116</a>	Environmental Nutrient Management	3
<a href="#">SWS 4223</a>	<b>Environmental Biogeochemistry (Critical Tracking)</b>	<b>3</b>
Approved electives		6
Credits		12
Total Credits		120

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## Approved Electives

Other electives require advisor approval

Code	Course List Title	Credits
<a href="#">AGG 4502</a>	Nanotechnology in Food, Agriculture, and Environment	3
<a href="#">AEB 2014</a>	Economic Issues, Food and You	3
<a href="#">AEB 3671</a>	Comparative World Agriculture	3
<a href="#">ALS 4162</a>	Consequences of Biological Invasions	3
<a href="#">BUL 4310</a>	The Legal Environment of Business	4
<a href="#">ECO 2013</a>	Principles of Macroeconomics	4
<a href="#">ECO 2023</a>	Principles of Microeconomics	4
<a href="#">ENT 3003</a>	Principles of Entrepreneurship	4
<a href="#">ENY 3007C</a>	Life Science	3
<a href="#">GEB 3373</a>	International Business	4

Course List		
Code	Title	Credits
<a href="#">MAR 3023</a>	Principles of Marketing	4
<a href="#">SWS 2007</a>	The World of Water	3
<a href="#">SWS 4180</a>	<a href="#">Earth System Analysis</a>	<u>3</u>
<a href="#">SWS 4204</a>	<a href="#">Urban Soil and Water Systems</a>	<u>3</u>
<a href="#">SWS 4207</a>	Sustainable Agricultural and Urban Land Management	3
<a href="#">SWS 4233</a>	Soil and Water Conservation	3
<a href="#">SWS 4800</a>	Environmental Soil and Water Monitoring Techniques	3
<a href="#">SWS 4932</a>	<a href="#">Math for Environmental Professionals</a>	<u>2</u>
<a href="#">SWS 4932</a>	<a href="#">Wetlands Seminar</a>	<u>1</u>
<a href="#">WIS 34044934</a>	<del>Topics in Wildlife Ecology and Conservation</del> <a href="#">Natural Resources Ecology</a>	3

