Cover Sheet: Request 13720

Science and Technology of Horticultural Crops

Info

Process	Specialization|New/Modify/Close|Ugrad
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Gerardo Nunez Villegas g.nunez@ufl.edu
Created	3/5/2019 11:39:55 AM
Updated	10/9/2019 6:13:12 PM
Description of request	We request to: 1) modify the 8-semester plan of our existing specialization Horticultural Science, 2) change specialization name to "Science and Technology of Horticultural Crops", and 3) catalog copy included with universal tracking for semesters 5-8 (original submission 12590).

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Horticultural Sciences 514923000	Christine Chase		3/5/2019
HOS curriculum revision support letter.pdf					3/5/2019
College	Approved	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Corrections requested by the CALS CC on 3/15/19 have been addressed.	4/19/2019
Science and Technology of Horticultural Crops - For UCC upload.docx					4/18/2019
Associate Provost for Undergraduate Affairs	Approved	PV - Associate Provost for Undergraduate Affairs	Casey Griffith		9/11/2019
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			9/11/2019
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Specialization|Modify for request 13720

Info

Request: Science and Technology of Horticultural Crops
Description of request: We request to: 1) modify the 8-semester plan of our existing specialization Horticultural Science, 2) change specialization name to "Science and Technology of Horticultural Crops", and 3) catalog copy included with universal tracking for semesters 5-8 (original submission 12590).
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 4/18/2019 7:34:13 PM
Form version: 3

Responses

Specialization Name Horticultural Science
Specialization Code HSC
Effective Term Earliest Available
Effective Year Earliest Available
Is this an Undergraduate Innovation Academy Program No
Current Curriculum for Specialization SEMESTER 1
IDS 1161 What is the Good Life (Gen Ed Humanities) 3
MAC 1147 Precalculus Algebra and Trigonometry (Critical Tracking; State Core Gen Ed Mathematics) 4
State Core Gen Ed Composition; Writing Requirement 3
State Core Gen Ed Social and Behavioral Sciences 3
Elective2
Credits 15

SEMESTER 2
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 2045
& 2045L General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological Sciences and Physical Sciences) 4
State Core Gen Ed Humanities 3
Electives 5
Credits 15-16

SEMESTER 3
AEC 3033C Research and Business Writing in Agricultural and Life Sciences (Writing Requirement) 3
Select one: 3-4
BOT 2010C Introductory Botany (Critical Tracking; Gen Ed Biological Sciences and Physical Sciences)
BSC 2010
& 2010L Integrated Principles of Biology 1
and Integrated Principles of Biology Laboratory 1 (Critical Tracking; Gen Ed Biological Sciences and Physical Sciences)
Gen Ed Composition; Writing Requirement 3
Gen Ed Mathematics 2
Electives 4
Credits 15-16

SEMESTER 4
AEC 3030C Effective Oral Communication 3

Select one: 4
BOT 2011C Plant Diversity (Critical Tracking; Gen Ed Biological Sciences)
BSC 2011
& 2011L Integrated Principles of Biology 2 and Integrated Principles of Biology Laboratory 2 (Critical Tracking; Gen Ed Biological Sciences)
Select one: 3
PHY 2004 Applied Physics 1 (Critical Tracking; Gen Ed Physical Sciences)
PHY 2020 Introduction to Principles of Physics (Critical Tracking; Gen Ed Physical Sciences)

Electives 5
Credits 15

SEMESTER 5
HOS 3020C Principles of Horticultural Crop Production 4
ORH 3513C Environmental Plant ID 3
Pest management course
3-4
Approved electives
5
Credits 15

SEMESTER 6
HOS 4933 Professional Development in Horticulture 1
HOS 3430C Nutrition of Horticultural Crops 3
Pest management course
3-4
Approved electives
8
Credits 15-16

SEMESTER 7
HOS 4304 Horticultural Physiology 3
AGR 3303 Genetics 3
Approved electives
9
Credits 15

SEMESTER 8
HOS 4341
Advanced Horticultural Physiology 3
SWS 3022
Intro to Soils in the Environment 3
SWS 3022L
Intro to Soils Lab 1
PLS3223 Plant Propagation 2
PLS3223L Plant Propagation Lab 1
Approved electives
5
Credits 15

Proposed Changes NEW SPECIALIZATION NAME:
Science and Technology of Horticultural Crops

No changes in semesters 1-4

SEMESTER 5
HOS 3020C Principles of Horticultural Crop Production 4
SWS 3022 Intro to Soils in the Environment 3
SWS 3022L Intro to Soils Lab 1
PLP 3002C Fundamentals of Plant Pathology 4
STA 2023 Introduction to Statistics I 3
Credits 15

SEMESTER 6

HOS 3430C	Nutrition of Horticultural Crops	3
HOS 4933	Professional Development in Horticulture	1
PLS 3223	Plant Propagation	2
PLS 3223L	Plant Propagation Lab	1
ENY 3005	Principles of Entomology	2
ENY 3005L	Principles of Entomology Lab	1
	Practical experience electives	2-3
	Approved electives	3
	Credits	15-16

SMESTER 7

HOS 4304	Horticultural Physiology	3
AGR 3303	Genetics	3
PLS 4601C	Principles of Weed Science	3
HOS 4918	Capstone Planning	1
	Approved electives	6
	Credits	16

SEMESTER 8

HOS 3222C	Greenhouse and Protected Agriculture	3
HOS 4XXXC	Principles of Postharvest Horticulture	3
HOS 4921	Horticultural Sciences Capstone	2-4
	Approved electives	6
	Credits	14-16

Pedagogical Rationale/Justification We propose renaming our "Horticultural Science" specialization "Science and Technology of Horticultural Crops". We also propose updating the required courses for this specialization.

Changes reflect overall hiring trends in the horticulture industry where entry-level jobs now require more quantitative skills (STA2023 was added), technological savviness (electives were added), and familiarity with controlled-environment production (HOS3222C was added) and postharvest storage (HOS4XXXC was added) conditions. Additionally, changes include the addition of courses in our capstone sequence, which are focused on providing meaningful horticulture experience to our graduates.

Impact on Other Programs No impacts on other programs are foreseen, as the majority of these courses are taught in-house.

Assessment Data Review Proposed changes do not affect Student Learning Outcomes.

Academic Learning Compact and Academic Assessment Plan Proposed changes do not affect the Academic Learning Compact or Academic Assessment Plan.

Bachelor of Science in Horticultural Sciences

Specialization in Horticultural Science (Current)

Semester 1	
IDS 1161	What is the Good Life (Gen Ed Humanities)
MAC 1147	TC Precalculus Algebra and Trigonometry (State Core Gen Ed Mathemat
	State Core Gen Ed Composition; Writing Requirement
	State Core Gen Ed Social and Behavioral Sciences
	Elective
Semester 2	
	Select one:
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 2045 & 2045L	TC General Chemistry 1 and General Chemistry 1 Laboratory (State Core Biological Sciences and Physical Sciences)
	State Core Gen Ed Humanities
	Electives
Semester Three	
AEC 3033C	Research and Business Writing in Agricultural and Life Sciences (Writing Require
	Select one:
BOT 2010C	TC Introductory Botany (Gen Ed Biological Sciences and Physical Science
BSC 2010 & 2010L	TC Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (Gen Ed Biological Sciences a Sciences)
	Gen Ed Composition; Writing Requirement
	Gen Ed Mathematics
	Electives
Semester 4	
AEC 3030C	Effective Oral Communication
	Select one:
BOT 2011C	TC Plant Diversity (Gen Ed Biological Sciences)
BSC 2011 & 2011L	TC Integrated Principles of Biology 2 and Integrated Principles of Biolo 2 (Gen Ed Biological Sciences)
	Select one:
PHY 2004	TC Applied Physics 1 (Gen Ed Physical Sciences)
PHY 2020	TC Introduction to Principles of Physics (Gen Ed Physical Sciences)
	Electives
Semester 5	
HOS 3020C	TC Principles of Horticultural Crop Production
ORH 3513C	Environmental Plant ID
	Pest management course
	Approved electives
Semester 6	
HOS 4930	TC

HOS 4933	Professional Development in Horticulture
HOS 3430C	Nutrition of Horticultural Crops
	Pest management course
	Approved electives
Semester 7	
HOS 4304	TC Horticultural Physiology
AGR 3303	Genetics
	Approved electives
Semester 8	
HOS 4341	TC Advanced Horticultural Physiology
SWS 3022	Intro to Soils in the Environment
SWS 3022L	Intro to Soils Lab
PLS3223	Plant Propagation
PLS3223L	Plant Propagation Lab
	Approved electives

Bachelor of Science in Horticultural Sciences

Specialization in Science and Technology of Horticultural Crops (Proposed)

No changes in semesters 1-4.

	Courses
Semester 5	
HOS 3020C	Principles of Horticultural Crop Production
SWS 3022	Intro to Soils in the Environment
SWS 3022L	Intro to Soils Lab
PLP 3002C	Fundamentals of Plant Pathology
STA 2023	Introduction to Statistics I
Semester 6	
HOS 3430C	Nutrition of Horticultural Crops
HOS 4933	Professional Development in Horticulture
PLS 3223	Plant Propagation
PLS 3223L	Plant Propagation Lab
ENY 3005	Principles of Entomology
ENY 3005L	Principles of Entomology Lab
	Practical experience electives
	Approved electives
Semester 7	
HOS 4304	Horticultural Physiology
AGR 3303	Genetics

AGR 3303	Genetics
PLS 4601C	Principles of Weed Science
HOS 4918	Capstone Planning
	Approved electives
Semester 8	
HOS 3222C	Greenhouse and Protected Agriculture
HOS 4XXXC	Principles of Postharvest Horticulture
HOS 4921	Horticultural Sciences Capstone
	Approved electives

Horticultural Science

Horticultural Science graduates have a foundation of knowledge in the scienc behind fruit and vegetable production, including commodity production, cropping systems, basic plant science, and molecular biology. Horticultural Science students study genetics, crop nutrition, plant physiology, chemistry, physics, entomology and nematology, and soil and water sciences.

College: Agricultural and Life Sciences

Degree: Bachelor in Science

Credits for Degree: 120

Specializations:

Science and Technology of Horticultural Crops Organic Horticultural Systems ; Plan Biotechnology and Improvement

Academic Learning Compact

Additional Information

Related Horticultural Science Programs

To graduate with this major, students must complete all university, college, and major requirements.

Overview

The department offers three specializations: science and technology of horticultural crops, organic horticultural systems and plant biotechnology and improvement. These options provide a strong science background and flexibility when choosing elective courses. Details of the specializations are outlined below. An academic advisor w help develop the curriculum that best suits your career and educational goals.

Science and Technology of Horticultural Crops

Critical Tracking Model Semester Plan

This specialization offers students a generalized program, covering growth and development of horticultural crops. This is a flexible option that can be tailored to individual students' interests and career objectives, ranging from applied production to basic biology. Career options include commodity production/management, research biologist marketing, agricultural chemical sales, fertilizer sales, produce buyer for grocery stores or restaurants, retail flower sales and a number of other opportunities.

Critical Tracking

Note that critical tracking is the same for all specializations of this major except Plant Molecular and Cellular Biolog

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 5 critical-tracking courses, excluding labs: BOT 2010C or BSC 2010/2010L, BOT 2011C BSC 2011/2011L, CHM 2045/2045L, MAC 1147, PHY 2004 or PHY 2020

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

Semester 2

Complete 1 additional critical-tracking course, excluding labs

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

Semester 3

Complete 1 additional critical-tracking course, excluding labs

2.0 GPA required for all critical-tracking courses

2.0 UF GPA required

Semester 4

Complete 2 additional critical-tracking courses, 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

Complete 1 of 4 upper division critical tracking courses: HOS 3020C, HOS 4933, HOS 4304, HOS 4921

2.0 UF GPA required

2.0 Upper Division GPA required

Semester 6

Complete 1 additional upper division tracking course

2.0 UF GPA required

2.0 Upper Division GPA required

Semester 7

Complete 1 additional upper division tracking course

2.0 UF GPA required

2.0 Upper Division GPA required

Semester 8

Complete all upper division tracking courses

2.0 UF GPA required

2.0 Upper Division GPA required

Model Semester Plan

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 b different depending on the student's academic record and scheduling availability of courses. Prerequisites still appl

Semester 1		Credits
IDS 1161 What is the Good Life *GE-H*		3
MAC 1147 Precalculus: Algebra and Trigonometry *State Core GE-M*		**4**
Composition *State Core GE-C ; WR*		3
elective		2
Social and Behavioral Sciences *State Core GE-S*		3
	Total	15

AEB 2014 Economic Issues, Food and You , *3 credits, or* ECO 2013 Principles of Macroeconomics , *4 credits, or* ECO 2023 Principles of Microeconomics , *4 credits* *GE-S*		3-4
CHM 2045 General Chemistry 1 , *3 credits, and* **CHM 2045L General Chemistry 1 Laboratory** , *1 credit* *State Core GE-B/P*		**4**
electives		5
Humanities *State Core GE-H*		3

	Total	15-16

AEC 3033C Research and Business Writing in Agricultural and Life Sciences	3
WR	

BOT 2010C Introductory Botany , *3 credits*	**3-4**
OR	
BSC 2010 Integrated Principles of Biology 1 , *3 credits, and*	
BSC 2010L Integrated Principles of Biology 1 Laboratory , *1 credit*	
GE-B/P	

electives	4

Composition	3
GE-C; WR	

Mathematics	2
GE-M	

	Total	15-16

AEC 3030C Effective Oral Communication	3

BOT 2011C Plant Diversity	**4**
OR	
BSC 2011 Integrated Principles of Biology 2 *and*	
BSC 2011L Integrated Principles of Biology 2 Laboratory	
GE-B	

GE-B

PHY 2004 Applied Physics 1 *or* **3**

PHY 2020 Introduction to Principles of Physics

GE-P

electives 5

Total 15

HOS 3020C Principles of Horticulture Crop Production **4**

SWS 3022 Introduction to Soils in the Environment 3

SWS 3022L Introduction to Soils in the Environment Lab 1

STA 2023 Introduction to Statistics 3

PLP 3002C Fundamentals of Plant Pathology 4

Total 15

HOS 3430C Nutrition of Horticultural Crops 3

HOS 4933 Professional Development in Horticulture **1**

PLS 3223 Plant Propagation 2

PLS 3223L Plant Propagation Lab 1

ENY 3005 Principles of Entomology 2

	1
ENY 3005L Principles of Entomology Lab	2-3
Practical Experience Electives*	3
Approved Electives*	
Total	15-16

Semester 7	**Credits**
AGR 3303 Genetics	3
HOS 4304 Horticultural Physiology	**3**
PLS 4601C Principles of Weed Science	3
‡HOS 4918 Capstone Planning 1	
	6
Approved electives ♦	
Total	16

Semester 8	**Credit**
HOS 4332C Principles of PostHarvest Horticulture	**3**
HOS 3222C Greenhouse and Protected Agriculture	3
‡**HOS 4921 Horticultural Sciences Capstone**	**2-4**
Approved electives ♦	6
Total	14-16

♦

For approved electives, see advisor

UF UNIVERSITY of FLORIDA

Institute of Food and Agricultural Sciences
Horticultural Sciences Department

1253 Fifield Hall
PO Box 110690
Gainesville, FL 32611-0690
352-392-1928

February 11, 2019

To: Plant Science Department Chairs

From: Chris Chase, Interim Chair, Horticultural Sciences (HOS) Department

Re: HOS undergraduate curriculum revision

The HOS faculty has voted to sunset our undergraduate curriculum when and if a new Plant Science Undergraduate Curriculum is developed by a joint committee of HOS and Plant Science faculty and approved by a majority vote of faculty members in the participating departments. Due to the relatively long time-frame for this joint venture we would, at this point, like to implement proposed revisions to our departmental undergraduate curriculum. We have spent the last 18 months developing these revisions, and we anticipate that many of these revisions will find their way into the new Plant Science curriculum.

The proposed HOS undergraduate curriculum revision is presented in detail below. It includes ten new courses, several revised courses, and a requirement for an e-portfolio. Our aim is to become the national standard for quality education in horticultural sciences while addressing current and future needs of students and industry. We developed new courses and revised existing courses to incorporate experiential and evidence-based learning, aligning our course offerings with recommendations for undergraduate science education from AAAS and NSF [http://visionandchange.org/reports/]. Our semester 5-8 tracking courses position us as a model for the adoption of UF-QUEST curricula in the future. Our capstone sequence was designed with the Model for the Integration of Experiential Learning into Capstone Courses framework [Andreasen NACTA Journal 48:52] in mind. Additionally, by connecting our unique network of academic and industry horticulturists, we have designed a capstone experience that will promote critical thinking and problem solving, increase educational quality, and enhance student career-readiness.

Implementation of the revised HOS curriculum would be advantageous for the proposed new joint Plant Science degree since it would give us the opportunity to pilot the newly developed courses, the revised courses, and the e-portfolio. All of the required new and revised courses for the proposed curriculum have been approved by the CALS and University Curriculum Committees and the revised curriculum was approved by unanimous vote of Horticultural Sciences Department Faculty. Our next step will be submitting our proposed curriculum revision to the CALS Curriculum Committee. We ask that you sign below to indicate your support for our curriculum revision as we work toward development of a new joint Plant Sciences curriculum proposal that leverages and combines the strengths of our respective academic programs. Thanks in advance for your support.

APPROVALS

Department	Chair	Signature	Date
Environmental Horticulture	Dean Kopsell	Dean A. Kopsell	
Plant Pathology	Rose Loria	Rosemary Loria	
Agronomy	Diane Rowland	Diane Rowland	
Entomology/Nematology	Blair Siegfried	Blair Siegfried	
Soil & Water Sciences	Matthew Whiles	Matt Whiles	

Bachelor of Science in Horticultural Sciences

Specialization in Horticultural Science (Current)

	Courses	Credit
Fifth semester (Fall)		
HOS 3020	Principles of Horticultural Crop Production	3
ORH 3513C	Environmental Plant ID	3
	Pest management course	3-4
	Approved electives	6
	Total	15
Sixth semester (Spring)		
HOS 4933	Professional Development in Horticulture	1
HOS 3430C	Nutrition of Horticultural Crops	3
	Pest management course	3-4
	Approved electives	8
	Total	15
Seventh semester (Fall)		
HOS 4304	Horticultural Physiology	3
PLS 3223	Plant Propagation	2
PLS 3223L	Plant Propagation Lab	1
AGR 3303	Genetics	3
	Approved electives	6
	Total	15
Eighth semester (Spring)		
HOS 4341	Advanced Horticultural Physiology	3
SWS 3022	Intro to Soils in the Environment	3
SWS 3022L	Intro to Soils Lab	1
	Approved electives	8
	Total	15

Commented [NG1]: New specialization name: Science and Technology of Horticultural Crops

Commented [NG2]: Replaced by HOS3020C – Principles of Horticultural Crop Production (4 credits)

Commented [NG3]: Replaced by PLP3002C – Fundamental of Plant Pathology (4 credits)

Commented [NG4]: Replaced by STA2023 - Introduction to Statistics I (3 credits)

Commented [NG5]: Replaced by ENY3005 + L – Principles of Entomology and Lab (3 credits)

Commented [NG6]: 2-3 credits must be practical experience electives

Commented [NG7]: Moved to sixth semester

Commented [NG8]: Moved to sixth semester

Commented [NG9]: New courses added:
PLS4601C – Principles of Weed Science (3 credits)
HOS 4XXX – Capstone Planning (1 credit)

Commented [NG10]: Replaced by HOS3222C – Greenhouse and Protected Agriculture (3 credits)

Commented [NG11]: Moved to fifth semester

Commented [NG12]: Moved to fifth semester

Commented [NG13]: New courses added:
HOS4XXX – Principles of Postharvest Horticulture (3 credits)
HOS4XXX – Horticultural Sciences Capstone (2-4 credits)
Technology electives (3 credits)

Bachelor of Science in Horticultural Sciences

Specialization in Science and Technology of Horticultural Crops (Proposed)

	Courses	Credit
Fifth Semester (Fall)		
HOS 3020C	[TC] Principles of Horticultural Crop Production	4
SWS 3022	Intro to Soils in the Environment	3
SWS 3022L	Intro to Soils Lab	1
PLP 3002C	Fundamentals of Plant Pathology	4
STA 2023	Introduction to Statistics I	3
	Total	15
Sixth Semester (Spring)		
HOS 3430C	Nutrition of Horticultural Crops	3
HOS 4933	[TC] Professional Development in Horticulture	1
PLS 3223	Plant Propagation	2
PLS 3223L	Plant Propagation Lab	1
ENY 3005	Principles of Entomology	2
ENY 3005L	Principles of Entomology Lab	1
	Practical Experience electives	2-3
	Approved electives	3
	Total	15-16
Seventh Semester (Fall)		
HOS 4304	Horticultural Physiology	3
AGR 3303	Genetics	3
PLS 4601C	Principles of Weed Science	3
HOS 4XXX	[TC] Capstone Planning	1
	Approved electives	6
	Total	16
Eight Semester (Spring)		
HOS 3222C	Greenhouse and Protected Agriculture	3
HOS 4XXXC	Principles of Postharvest Horticulture	3
HOS 4XXX	[TC] Horticultural Sciences Capstone	2-4
	Approved electives	3
	Technology electives	3
	Total	14-16

[TC] Semester tracking course

Practical Experience Electives:
HOS 4911 - Supervised Research in Horticultural Sciences
HOS 4941 - Practical Work Experience in Horticultural Sciences
ALS 4404 - Study Abroad in Horticultural Sciences
HOS 4900 - Supervised Extension Experience in Horticultural Sciences

Technology Electives:
AOM 3333 - Pesticide Application Techniques
AOM 3734 - Irrigation Principles and Practices in FL
AOM 3073 - Safety in Agriculture
AOM 4434 - Precision Agriculture
FOS 4722C - Quality Control in Food Systems
PLS 4404C - Principles of Composting Technology
SUR 4501C - Foundations of UAS Mapping

Approved Electives:
Fruit, Vegetable, and Medicinal Crops
HOS 4341 - Advanced Horticultural Physiology
FRC 3252 - Tropical and Subtropical Fruits
FRC 3274 - Tree and Small Fruit Production
VEC 3221C - Commercial Vegetable Production
PLS 3XXXC - Hydroponic Systems
HOS 4XXX - Genetics and Breeding of Vegetable Crops
HOS 3XXX – The Organic Debate: Organic Agriculture Dev. & Regulations
HOS 3XXX – Viticulture for Table Grapes and Wine

Production Technology and Food Systems
AEB 4123 - Agricultural and Natural Resource Law
AGR 4214C - Applied Field Crop Production
AGR 4320 - Genetic Improvement of Plants
AGR 4212 - Alternative Cropping Systems
AGR 4512 - Physiology and Ecology of Crops
ANS 3006 - Introduction to Animal Science
AOM 3220 - Agricultural Construction and Maintenance
AOM 4314C - Power and Machinery Management
AOM 4434 - Precision Agriculture
AOM 4455 - Agricultural Operations and Systems
AOM 4642 - Environmental Systems for Agricultural Structures
BOT 4650 - Plant Symbiosis
ENY 4573 - Beekeeping
ORH 3513C - Environmental Plant ID
PLP 4104 - Applied Plant Disease Management
PLP 3103C - Control of Plant Diseases
SUR 3103C – Geomatics

SUR 3641 – Survey Computations
SWS 4116 - Environmental Nutrient Management
SWS 4207 - Sustainable Agricultural and Urban Land Management

Language and Quantitative Skills
SPN 1130 - Beginning Spanish 1
STA 3024 - Introduction to Statistics 2
AEC 3073 - Intercultural Communication

Bachelor of Science in Horticultural Sciences

Specialization in Organic Crop Production (Current)

	Courses	Credit
Fifth semester (Fall)		
HOS 3020	Principles of Horticultural Crop Production	3
ENY 3005	Principles of Entomology	2
ENY 3005L	Principles of Entomology Lab	1
PLP 3002C	Fundamentals of Plant Pathology	4
	Commodity or approved elective	6
	Total	16
Sixth semester (Spring)		
HOS 3430C	Nutrition of Horticultural Crops	3
HOS 4933	Professional Development in Horticulture	1
AGR 3303	Genetics	3
AGR 4212	Alternative Cropping Systems	3
	Commodity or approved elective	5-6
	Total	15
Seventh semester (Fall)		
HOS 4304	Horticultural Physiology	3
HOS 3281C	Principles of Organic and Sustainable Crop Production	3
SWS 3022	Intro to Soils in Environment	3
SWS 3022L	Intro to Soils Lab	1
	Commodity or approved elective	3
	Practical experience electives	1-3
	Total	14
Eight semester (Spring)		
HOS 4341	Advanced Horticultural Physiology	3
HOS 4283C	Advanced Organic and Sustainable Crop Production	3
	Commodity or approved elective	6
	Pest management course	3
	Total	15

Commented [NG1]: New specialization name: Organic Horticultural Systems

Commented [NG2]: Replaced by HOS3020C – Principles of Horticultural Crop Production (4 credits)

Commented [NG3]: Moved to sixth semester

Commented [NG4]: Moved to sixth semester

Commented [NG5]: Moved to seventh semester

Commented [NG6]: New courses added:
HOS3XXX – The Organic Debate: Organic Agriculture Dev. & Reg. (1 credit)
ALS3153 – Agricultural Ecology (3 credits)
STA2023 – Introduction to Statistics 1 (3 credits)

Commented [NG7]: Moved to approved electives

Commented [NG8]: Moved to fifth semester

Commented [NG9]: Moved to fifth semester

Commented [NG10]: New course added:
HOS3XXX – Capstone Planning (1 credit)

Commented [NG11]: Changed to 1-2 credits

Commented [NG12]: Moved to approved elective

Commented [NG13]: New courses added:
HOS4XXX – Organic Weed Management (3 credits)
HOS4XXX – Horticultural Sciences Capstone (2-4 credits)
HOS4XXXC – Principles of Postharvest Horticulture (3 credits)

Commented [NG14]: Replaced by approved electives (4 credits)

Bachelor of Science in Horticultural Sciences

Specialization in Organic Horticultural Systems (Proposed)

	Courses	Credit
Fifth Semester (Fall)		
HOS 3020C	[TC] Principles of Horticultural Crop Production	4
ALS 3153	Agricultural Ecology	3
SWS 3022	Intro to Soils in Environment	3
SWS 3022L	Intro to Soils Lab	1
STA 2023	Introduction to Statistics I	3
HOS 3XXX	The Organic Debate: Organic Agriculture Dev. & Reg.	1
	Total	15
Sixth Semester (Spring)		
HOS 3430C	Nutrition of Horticultural Crops	3
HOS 4933	[TC] Professional Development in Horticulture	1
AGR 3303	Genetics	3
ENY 3005	Principles of Entomology	2
ENY 3005L	Principles of Entomology Lab	1
	Approved electives	5
	Total	15
Seventh Semester (Fall)		
HOS 4304	Horticultural Physiology	3
HOS 3281C	Principles of Organic & Sustainable Crop Production	3
PLP 3002C	Fundamentals of Plant Pathology	4
HOS 4XXX	[TC] Capstone Planning	1
	Practical experience electives	1-2
	Approved electives	3
	Total	15-16
Eight Semester (Spring)		
HOS 4283C	Advanced Organic & Sustainable Crop Production	3
HOS 4XXX	Organic Weed Management	3
HOS 4XXXC	Principles of Postharvest Horticulture	3
HOS 4XXX	[TC] Horticultural Sciences Capstone	2-4
	Approved electives	4
	Total	15-17

[TC] Semester tracking course

Practical Experience Electives:
HOS 4911 – Supervised Research in Horticultural Sciences
HOS 4941 - Practical Work Experience in Horticultural Sciences
ALS 4404 - Study Abroad in Horticultural Sciences
HOS 4900 - Supervised Extension Experience in Horticultural Sciences

Approved electives:
Fruit, Vegetable, and Medicinal Crops
HOS 4341 - Advanced Horticultural Physiology
FRC 3252 - Tropical and Subtropical Fruits
FRC 3274 - Tree and Small Fruit Production
VEC 3221C - Commercial Vegetable Production
HOS 3222C - Greenhouse and Protected Agriculture
PLS 3XXXC - Hydroponic Systems
HOS 4XXX – Genetics and Breeding of Vegetable Crops
HOS 3XXX – Viticulture for Table Grapes and Wine

Production Technology and Food Systems
AGR 4214C - Applied Field Crop Production
AGR 4320 - Genetic Improvement of Plants
ANS 3006 - Introduction to Animal Science
AOM 3220 - Agricultural Construction and Maintenance
AOM 4314C - Power and Machinery Management
AOM 4434 - Precision Agriculture
AOM 4455 - Agricultural Operations and Systems
AOM 4642 - Environmental Systems for Agricultural Structures
PLS 3221+L - Plant Propagation and Lab
PLS 4404C - Principles of Composting Technology

Soil and Water Management
AOM 3732 - Agricultural Water Management
AOM 3734 - Irrigation Principles and Practices in Florida
SOS 4116 - Environmental Nutrient Management
SWS 4207 - Sustainable Agricultural and Urban Land Management
SWS 4231C - Soil, Water and Land Use
SWS 4233 - Soil and Water Conservation
SWS 4245 - Water Resource Sustainability
SWS 4303C - Soil Microbial Ecology

Disease and Pest Management
PLP 3103C - Control of Plant Diseases
PLP 4104 - Applied Plant Disease Management
IPM 3022 - Fundamentals of Pest Management
PMA 4570C - Field Techniques in IPM

ENY 4573 - Beekeeping
PLS 4601C - Integrated Weed Management

Environmental/Health Issues /Food Safety
AGR 3501 - Environment, Food and Society
ALS 3133 - Agricultural and Environmental Quality
GEO 3427 - Plants, Health and Spirituality
PKG 3010 - Packaging, Society and the Environment
FOS 4202 - Food Safety and Sanitation (prereq: MCB 2000 and MCB 2000L)
AEB 4274 - Natural Resource and Environmental Policy

Economics and Agribusiness
AEB 3300 - Agricultural and Food Marketing
AEB 3341 - Selling Strategically
AEB 4123 - Agricultural and Natural Resource Law
AEB 4224 - US Food and Agricultural Policy
AEB 4309 - Food Wholesaling and Retail Marketing
AEB 4334 - Agricultural Price Analysis and Consumer Behavior
AEB 4424 - Human Resources Management in Agribusiness

Bachelor of Science in Horticultural Sciences

Specialization in Plant Molecular and Cell Biology (Current)

	Courses	Credit
Fifth semester (Fall)		
HOS 3020	Principles of Horticultural Crop Production	3
CHM 2210	Organic Chemistry 1	3
HOS 3305	Intro. to Plant Molecular Biology	3
HOS4313C	Lab Methods in Plant Mol. Biology	2
AGR 3303	Genetics	3
	Total	14
Sixth semester (Spring)		
CHM 2211	Organic Chemistry 2	3
CHM 2211L	Organic Chemistry Lab	2
HOS 4933	Professional Development in Horticulture	1
	Approved electives	10
	Total	16
Seventh semester (Fall)		
HOS 4304	Horticultural Physiology	3
PLP 3002C	Fundamentals of Plant Pathology	4
BCH 3025	Fundamentals of Biochemistry (or BCH 4024)	4
	Approved electives	3
	Total	14
Eighth semester (Spring)		
MCB 3020	Basic Biology of Microorganisms	3
MCB 3002L	Basic Biology of Microorganisms Lab	1
AGR 4320	Genetic Improvement of Plants	3
	Approved electives	9
	Total	16

Commented [NG13]: New specialization name: Plant Biotechnology and Improvement

Commented [NG1]: Replaced by HOS3020C – Principles of Horticultural Crop Production (4 credits)

Commented [NG2]: Moved to seventh semester

Commented [NG3]: Moved to seventh semester

Commented [NG4]: New courses added:
Approved electives (2 credits)
STA2023 – Introduction to Statistics 1 (3 credits)

Commented [NG5]: New courses added:
STA3024 – Introduction to Statistics II (3 credits)
Approved electives (2 credits)

Commented [NG6]: Moved to approved electives

Commented [NG7]: Replaced by BCH4024 - Biochemistry

Commented [NG8]: New courses added:
Approved electives (2 credits)
HOS4XXX – Capstone Planning (1 credit)

Commented [NG9]: Replaced by Plant breeding elective (3 credits)

Commented [NG10]: Moved to approved electives

Commented [NG11]: Moved to sixth semester

Commented [NG12]: New courses added:
HOS4XXX – Horticultural Sciences Capstone (2-4 credits)

Bachelor of Science in Horticultural Sciences

Specialization in Plant Biotechnology and Improvement (Proposed)

	Courses	Credit
Fifth Semester (Fall)		
HOS 3020C	[TC] Principles of Horticultural Crop Production	4
CHM 2210	Organic Chemistry 1	3
STA 2023	Introduction to Statistics I	3
AGR3303	Genetics	3
	Approved electives	2
	Total	15
Sixth Semester (Spring)		
STA 3024	Introduction to Statistics II	3
AGR 4320	Genetic Improvement of Plants	3
HOS 4933	[TC] Professional Development in Horticulture	1
CHM 2211	Organic Chemistry 2	3
CHM 2211L	Organic Chemistry Lab	2
	Approved electives	3
	Total	15
Seventh Semester (Fall)		
HOS 4304	Horticultural Physiology	3
HOS 3305	Intro. to Plant Molecular Biology	3
HOS 4313C	Lab Methods in Plant Mol. Biology	2
HOS 4XXX	[TC] Capstone Planning	1
BCH 4024	Biochemistry	4
	Approved electives	2
	Total	15
Eighth Semester (Spring)		
	Plant breeding elective	3
HOS 4XXX	[TC] Horticultural Sciences Capstone	2 - 4
	Approved electives	10
	Total	15

[TC] Semester tracking course

Plant Breeding Electives
HOS 4XXX - Genetics and Breeding of Vegetable Crops

Approved Electives:
Practical experience
HOS 4911 - Supervised Research in Horticultural Sciences
HOS 4941 - Practical Work Experience in Horticultural Sciences
ALS 4404 - Study Abroad in Horticultural Sciences
HOS 4900 - Supervised Extension Experience in Horticultural Sciences

Fruit, Vegetable, and Medicinal Crops
PLS 3223 - Plant Propagation
PLS 3223L - Plant Propagation Lab
PLS 4653C - Micropropagation of Horticultural Plants
FRC 3252 - Tropical and SubTropical Fruits
FRC 3274 - Tree and Small Fruit Production
HOS 4341 - Advanced Horticultural Physiology
HOS 3222C - Greenhouse & Protected Agriculture
HOS 3281C - Organic and Sustainable Crop Production
HOS 3221C - Commercial Vegetable Production
HOS 4XXXC - Principles of Postharvest Horticulture
HOS 3XXX - The Organic Debate: Organic Agriculture Dev. & Regulations
HOS 3XXX - Viticulture for Table Grapes and Wine
PLS 3XXXC - Hydroponic Systems
HOS 4XXX - Organic Weed Management

Bioinformatics, Mathematics & Statistics
BSC 2891 - Python for Biology
BSC 4434C - Introduction to Bioinformatics
MCB 4325C - R for Functional Genomics
FNR 4461 - Spatial Models & Decision Analysis
MAP 4484 - Modeling in Mathematical Biology course

Microbiology/Plant Pathology
MCB 3020 - Basic Biology of Microorganisms
MCB 3020L - Basic Biology of Microorganisms Lab
PLP 3002C - Fundamentals of Plant Pathology
PLP 3230 - Survey of Plant Pathogens
PLP 4104 - Applied Plant Disease Mgt
PLP 4222C - Introduction to Plant Virology
PLP 4260C - Introduction to Plant Pathogenic Fungi
PLP 4242C - Bacterial Plant Pathogens
PLP 4653 - Basic Fungal Biology

Entomology
ENY 3005 - Principles of Entomology
ENY 3005L - Principles of Entomology Lab
NEM 3002 - Principles of Nematology
ALS 4161 - Exotic Species and Biosecurity Issues
ALS 4162 - Consequences of Biological Invasions
ALS 4163 - Challenges in Plant Resource Protection

Food Science
FOS 3042 - Introductory Food Science
FOS 4722C - Quality Control in Food Systems
FOS 4936 - Cereal Science and Technology
FOS 4936 - Flavor Chemistry and Technology
FOS 4936 - Topics: Technology of Fats & Oils in Food Applications
ANT 3467 - Food and Culture

Genetics
MCB 4304 - Genetics of Microorganisms
MCB 4522 - Molecular Genetics
AGR 4304 - Plant Chromosomes and Genomes
PCB 4553 - Population Genetics

Botany and Ecology
ALS 3153 - Agricultural Ecology
AGG 3501 - Environment, Food and Society
BSC 3307C - Climate Change Biology
PCB 3601C - Plant Ecology
BOT 4621 - Plant Geography

Economics and Agribusiness
AEB 4123 - Agricultural and Natural Resource Law
AEB 4224 - US Food and Agricultural Policy