SCIENCE AND TECHNOLOGY OF HORTICULTURAL CROPS

Horticultural Science graduates have a foundation of knowledge in the science 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.

About this Program

- **College:** Agricultural and Life Sciences (http://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/)
- **Degree:** Bachelor in Science
- **Specializations:** Organic Horticultural Systems (http://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/HOS_BS/HOS_BS03/) | Plant Biotechnology and Improvement (http://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/HOS_BS/HOS_BS04/) | Science and Technology of Horticultural Crops (p. 1)
- **Credits for Degree:** 120
- **More Info**

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

Department Information

The Horticultural Sciences Department is a team of faculty, staff, and students dedicated to improving fruit and vegetable production for the benefit of farmers and consumers. Florida's climatic diversity and the facilities at UF provide opportunities for cutting-edge research in plant breeding & genetics, plant and environmental physiology, fruit & vegetable production, postharvest physiology, biochemistry, and other disciplines.
Website (https://hos.ifas.ufl.edu/)

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Map (http://campusmap.ufl.edu/#/index/0717)

Curriculum

- Combination Degrees
- Horticultural Science
- Horticultural Science Minor
- Horticultural Therapy Certificate
- Organic and Sustainable Crop Production Minor
- Plant Molecular and Cellular Biology Minor

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. An academic advisor will help develop the curriculum that best suits your career and educational goals.

Specializations

Organic Horticultural Systems

This specialization emphasizes the cultural practices that maintain ecological and economical balance in horticultural crop production systems. This is a flexible option with many electives available to meet education and career objectives. Graduates will be prepared for a range of careers related to conventional, sustainable and organic crop production.

Plant Biotechnology and Improvement

This is a comprehensive program focusing on the molecular aspects of crops, including crop growth, development and cultivar improvement. This specialization is geared toward preparing for careers in laboratory research and is also an excellent preparation for pursuing graduate studies.

Science and Technology of Horticultural Crops

This specialization offers a generalized program, covering growth and development of horticultural crops. This is a flexible option that can be tailored to individual interests and career objectives, ranging from applied production to basic biology. Career options include commodity production and

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

Critical Tracking records each student's progress in courses that are required for progress toward 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 (https://cpm.flvc.org/advance-search/) may be used for transfer students.

Semester 1

- Complete 1 of 5 critical-tracking courses, excluding labs: BOT 2010C or BSC 2010/BSC 2010L, BOT 2011C or BSC 2011/BSC 2011L, CHM 2045/CHM 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 upper division GPA required
- 2.0 UF GPA required

Semester 6

- Complete 1 additional upper division critical-tracking course
- 2.0 upper division GPA required
- 2.0 UF GPA required

Semester 7

- Complete 1 additional upper division critical-tracking course
- 2.0 upper division GPA required
- 2.0 UF GPA required

Semester 8

- Complete all upper division critical-tracking courses
- 2.0 upper division GPA required
- 2.0 UF 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 be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Course	Title	Credits
Semester One		
Quest 1 (Gen Ed Humanities)		3
MAC 1147	Precalculus Algebra and Trigonometry (**Critical Tracking**; State Core Gen Ed Mathematics)	4
State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement		3
State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Elective		2
	Credits	**15**
Semester Two		
Quest 2 (Gen Ed Physical or Biological Sciences OR Gen Ed Social and Behavioral Sciences)		3
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 (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Elective		2
	Credits	**15-16**
Semester Three		
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 Four		
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 Five		
HOS 3020C	Principles of Horticultural Crop Production (**Critical Tracking**)	4
PLP 3002C	Fundamentals of Plant Pathology	4
STA 2023	Introduction to Statistics 1	3
SWS 3022 & 3022L	Introduction to Soils in the Environment and Introduction to Soils in the Environment Laboratory	4
	Credits	**15**

Semester Six		
ENY 3005 & 3005L	Principles of Entomology and Principles of Entomology Laboratory	3
HOS 3430C	Nutrition of Horticultural Crops	3
HOS 4933	Professional Development in Horticulture (**Critical Tracking**)	1
PLS 3223 & 3223L	Plant Propagation and Plant Propagation Laboratory	3
Practical work experience		2-3
Approved elective		3
	Credits	**15-16**
Semester Seven		
AGR 3303	Genetics	3
HOS 4304	Horticultural Physiology (**Critical Tracking**)	3
HOS 4918	Capstone Planning in Horticultural Sciences	1
PLS 4601C	Principles of Weed Science	3
Approved electives		6
	Credits	**16**
Semester Eight		
HOS 3222C	Greenhouse and Protected Agriculture	3
HOS 4332C	Principles of Postharvest Horticulture	3
HOS 4921	Horticultural Sciences Capstone (**Critical Tracking**)	2-4
Approved electives		6
	Credits	**14-16**
	Total Credits	**120**

Academic Learning Compact

The Horticultural Science major prepares students for a career in plant science, including management, production, research, marketing, and sales. Students will gain knowledge ranging from commodity production and cropping systems to basic plant science, and molecular biology. They will develop skills to describe how plant physiology and genetics relate to plant growth and development as well as developing knowledge of plant diseases and other factors that affect horticultural crops.

Before Graduating Students Must

- Pass the horticultural sciences competency test, given in three parts. One part will be given in each of these required courses:

Code	Title	Credits
HOS 3020C	Principles of Horticultural Crop Production	4
HOS 4304	Horticultural Physiology	3
HOS 4341	Advanced Horticultural Physiology	3

- Achieve minimum grades of C in AEC 3030C and AEC 3033C. These courses are graded using rubrics developed by a faculty team.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes | SLOs

Content

1. Describe fundamental concepts, skills, and processes in horticultural science.
2. Apply fundamental concepts, skills, and processes in horticultural science.

Critical Thinking

3. Critically analyze and interpret data in horticultural science.
4. Solve problems in horticultural science.

Communication

5. Communicate effectively in written form in a manner appropriate in the field of horticultural science.
6. Communicate effectively orally in a manner appropriate in the field of horticultural science.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6
AEC 3030C					I, R, A	
AEC 3033C						I, R, A
AGR 3303	I	I				
HOS 3020C	I, R, A	I	I	I		
HOS 3430C	I, R	I, R	R	R		
HOS 4304	R	A	A	A		
HOS 4341	R	R	R	R		
HOS 4933					R	R

Assessment Types

- Class project
- Writing assignments
- Exams
- Final grades