

# HORTICULTURAL SCIENCES

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Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.

More Info (<https://one.ufl.edu/soc/>)

*Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.*

## 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/>)

## CONTACT

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

## Curriculum

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

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## Courses

### FRC 1010 Growing Fruit for Fun and Profit 1 Credit

**Grading Scheme:** Letter Grade

Especially for non-majors who desire a concise mini-course in fruit growing and marketing. Fruit crops include citrus, pecan, blueberry, strawberry, peach, grape, apple, mango and avocado.

### FRC 3212 Introduction to Citrus Culture and Production 3 Credits

**Grading Scheme:** Letter Grade

Citrus botany, scion and rootstock selection, site selection, fruit quality grove design, and production practices.

**Prerequisite:** BOT 2010C.

### FRC 3252 Tropical and Subtropical Fruits 2 Credits

**Grading Scheme:** Letter Grade

Culture and management of important tropical and subtropical fruit, including avocado, banana, mango, papaya, loquat, persimmon, pineapple, coffee, and others.

**Prerequisite:** BOT 2010C.

### FRC 3274 Tree and Small Fruit Production 3 Credits

**Grading Scheme:** Letter Grade

Current principles and cultural practices in deciduous tree, bush, and vine crops. Emphasizes practical aspects of production.

**Prerequisite:** BOT 2010C or equivalent.

### FRC 3802 Viticulture for Table Grapes and Wine 2 Credits

**Grading Scheme:** Letter Grade

Teaches current practices for establishing a vineyard and maintaining its health and productivity into the final quality of the grape. Topics covered include grape varietal selection, site selection and preparation, vine growth, training and trellis systems, and equipment used in vineyard and wine production.

**Prerequisite:** BSC 2005 or BOT 2010C or BOT 2011C.

**FRC 4905 Special Problems 1-3 Credits**

**Grading Scheme:** Letter Grade

Special Problems

**Prerequisite:** Instructor permission.

**HOS 1014 Vegetable Gardening 1 Credit**

**Grading Scheme:** Letter Grade

Primarily for non-majors who desire to learn the basic principles of vegetable gardening. A garden is required of each student.

**HOS 2333 Fighting Food Waste and Loss 3 Credits**

**Grading Scheme:** Letter Grade

This class is a biological science general education class designed for all students who are interested in learning and reflecting upon the major future challenges of food and agriculture. Students will learn about postharvest biology, environmental and food sciences, and communication technology in reducing food waste. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

**Prerequisite:** any Quest 1 course.

**Attributes:** Quest 2, General Education - Biological Science, General Education - International

**HOS 3020C Principles of Horticultural Crop Production 4 Credits**

**Grading Scheme:** Letter Grade

Introduces concepts and practices used to produce fruit and vegetable crops in Florida, the U.S., and globally. Topics covered include production regions, crop biology, crop nutrition, types of fruits and vegetables, disease and pest management, and marketing. Includes a hands-on practicum.

**Prerequisite:** BOT 2010C or equivalent.

**HOS 3222C Greenhouse and Protected Agriculture 3 Credits**

**Grading Scheme:** Letter Grade

Principles and practices of crop production in protected structures. Emphasizes structure type, media, fertilization, and pest control practices.

**Prerequisite:** HOS 3020C.

**HOS 3281C Organic and Sustainable Crop Production 3 Credits**

**Grading Scheme:** Letter Grade

Concepts and techniques of organic and sustainable production of horticultural crops, including soil/water management, pest control, harvest, handling, and marketing.

**Prerequisite:** Junior or Senior standing.

**HOS 3285 The Organic Debate: Organic Agriculture Development & Regulations 1 Credit**

**Grading Scheme:** Letter Grade

Organic farming is a rapidly developing production system. This introductory course provides a critical analysis of organic agriculture growth, consumer perceptions, and regulations at the national and international level. This course also focuses on organic agriculture transdisciplinary innovations and challenges in advancing environmental, economic, and social sustainability of food production.

**Prerequisite:** BSC 2005 or equivalent.

**HOS 3305 Introduction to Plant Molecular Biology 3 Credits**

**Grading Scheme:** Letter Grade

Introduces plant molecular biology and genetic engineering, emphasizing plant genes and genomes, transformation of plants and basic molecular biology.

**Prerequisite:** APB 2150 or BOT 2010C or BSC 2010.

**HOS 3430C Nutrition of Horticultural Crops 3 Credits**

**Grading Scheme:** Letter Grade

Study and discussion of physiological, biochemical, and environmental factors influencing nutritional status and productivity of horticultural crops.

**Prerequisite:** SWS 3022.

**HOS 3513C Breeding and Production of Medicinal Plants and Herbs 2 Credits**

**Grading Scheme:** Letter Grade

Focuses on current and emerging breeding and cultivation practices used to produce high-value medicinal plants and herbs. Additionally, provides a critical analysis of health effects and therapeutic claims of plant-derived physiologically-active products.

**Prerequisite:** BSC 2010 or BSC 2011 or BOT 2010C or BOT 2011C.

**HOS 4241C Genetics and Breeding of Vegetable Crops 3 Credits**

**Grading Scheme:** Letter Grade

Traditional and molecular breeding methods for vegetable crops and the influence of scientific research, government policies, industry needs, and consumer preferences on vegetable crop improvement.

**Prerequisite:** AGR 3303.

**HOS 4283C Advanced Organic and Sustainable Crop Production 3 Credits****Grading Scheme:** Letter Grade

Intensive examination of the methods and techniques necessary for organic and sustainable production and marketing of horticultural products.

**Prerequisite:** HOS 3281C.**Attributes:** Artificial Intelligence**HOS 4304 Horticultural Physiology 3 Credits****Grading Scheme:** Letter Grade

Basic concepts and processes of physiology as they relate to plant growth and development.

**Prerequisite:** BOT 2010C or BSC 2010.**HOS 4313C Laboratory Methods in Plant Molecular Biology 2 Credits****Grading Scheme:** Letter Grade

Hands-on laboratory experience in plant molecular biology. Utilizing current techniques for isolation, purification and cloning of plant DNA, students learn many basic techniques in plant biotechnology.

**Prerequisite:** (AGR 3303 or HOS 3305) and PCB 3063.**HOS 4332C Principles of Postharvest Horticulture 3 Credits****Grading Scheme:** Letter Grade

Biological principles involved in harvesting, grading, packaging, transportation, and marketing horticultural crops, and their effects on quality maintenance. Commercial postharvest practices explained in relation to general procedures and technologies as well as the recommended postharvest best handling practices and optimum postharvest conditions for different types of horticultural crops.

**Prerequisite:** HOS 4304.**HOS 4341 Advanced Horticultural Physiology 3 Credits****Grading Scheme:** Letter Grade

Environmental effects (light, temperature and water) on physiology, growth and development of plants.

**Prerequisite:** HOS 4304.**HOS 4900 Supervised Extension Experience in Horticultural Sciences 0-3 Credits****Grading Scheme:** S/U

Firsthand, authentic extension experiences in agricultural and life sciences under the supervision of a faculty member. Projects may involve program planning, development, implementation, and evaluation.

**Prerequisite:** Instructor permission.**HOS 4905 Independent Study in Horticultural Science 1-6 Credits****Grading Scheme:** Letter Grade

Selected research topics in molecular biology, physiology, and/or genetics of horticultural crops.

**Prerequisite:** Instructor permission.**HOS 4911 Supervised Research in Horticultural Sciences 0-3 Credits****Grading Scheme:** S/U

Firsthand, authentic research in horticultural sciences under the supervision of a faculty member. Projects may involve inquiry, design, investigation, scholarship, discovery, or application.

**Prerequisite:** Instructor permission.**HOS 4915 Honors Thesis Research in Horticultural Sciences 0-3 Credits****Grading Scheme:** S/U

Independent research in horticultural sciences leading to an honors thesis. Student will be mentored by a faculty member. Projects may involve inquiry, design, investigation, scholarship, discovery or application.

**Prerequisite:** junior standing, upper division GPA of 3.75 or higher and completed honors thesis proposal on file.**HOS 4918 Capstone Planning in Horticultural Sciences 1 Credit****Grading Scheme:** S/U

Focuses on planning service learning, scientific research, cooperative extension, or industry liaison projects for the Horticultural Sciences capstone. Also fosters reflection of academic and professional development in the major.

**Prerequisite:** HOS 4933.**HOS 4921 Horticultural Sciences Capstone 2-4 Credits****Grading Scheme:** S/U

Focuses on executing service learning, scientific research, cooperative extension, or industry liaison projects designed during capstone planning. Perfect professional portfolios and present the outcomes of the capstone project.

**Prerequisite:** HOS 4918.**HOS 4932 Special Topics in Horticultural Sciences 1-3 Credits****Grading Scheme:** Letter Grade

Critical review of selected topics in specific areas not covered in other horticultural sciences courses.

**Prerequisite:** instructor permission.

**HOS 4933 Professional Development in Horticulture 1 Credit**

**Grading Scheme:** Letter Grade

Professional skills development, including job searching, resume writing, interview skills, professional etiquette, communications, and salary negotiations.

**Prerequisite:** Junior or Senior standing.

**HOS 4941 Practical Work Experience in Horticultural Sciences 1-4 Credits**

**Grading Scheme:** S/U

Practical work that must be a new experience and related to the field of study.

**Prerequisite:** advisor arrangement and permission.

**ORH 2540 Ethnobotany - A Coevolution of Plants and People 3 Credits**

**Grading Scheme:** Letter Grade

Ethnobotany is the chain of events that determines the global uses of plants once they are collected from the wild and have become a commodity. In this course, you will explore how human and plant coevolutionary relationships formed, focusing on several crops and their roles in world cultures as food, spices, fiber, building materials, and cosmetics. Topics are many, including tomatoes, corn, and even beer. You will learn how humans shaped iconic plants, which then traveled the globe.

**Prerequisite:** Quest 1 course with a minimum grade of C.

**Attributes:** Quest 2

**PLS 2830 World Herbs and Vegetables 3 Credits**

**Grading Scheme:** Letter Grade

Introduces students to a variety of vegetables and culinary herbs. Emphasis placed on genetic, phytochemical and botanical diversity and importance of food phytochemicals and role of vegetables in nutrition. This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.

**Attributes:** General Education - Biological Science

**PLS 3421C Hydroponic Systems 3 Credits**

**Grading Scheme:** Letter Grade

This course offers students foundational information and hands-on experience on hydroponic and soilless cultivation of horticultural crops.

Production practices, growing systems, new technologies and current challenges are discussed.

**Prerequisite:** HOS 3020C or PLS 3004C.

**PLS 3800C Vegetable Production 3 Credits**

**Grading Scheme:** Letter Grade

Principles and practices of successful commercial vegetable production, including crop requirements, growth patterns, and production techniques along with consumption/marketing patterns and US/Florida production areas.

**Prerequisite:** BOT 2010C or (BSC 2010 & BSC 2010L) or (BSC 2011 & BSC 2011L).

**PLS 4630 Organic Weed Management 3 Credits**

**Grading Scheme:** Letter Grade

Apply ecological principles in agroecosystems to manage weeds sustainably. Emphasizes alternative weed management approaches that are less dependent on herbicides and utilize ecological processes detrimental to weeds and their propagules. Learn actively by critically analyzing pertinent literature and participating in discussions of supplemental reading.

**Prerequisite:** HOS 3020C or ALS 3153.

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