

# Horticulture (HORT)

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## Courses

### HORT 50001. Seminar. 1 Hour.

Review of scientific literature and oral reports on current research in horticulture. (Typically offered: Fall and Spring) May be repeated for up to 4 hours of degree credit.

### HORT 5010V. Special Topics in Horticulture, Turf or Landscape. 1-6 Hour.

Topics related to horticulture, turfgrass or landscape science or management not covered in other courses or a more intensive study of a specific topic. Graduate degree credit will not be given for both HORT 4010V and HORT 5010V. (Typically offered: Irregular) May be repeated for degree credit.

### HORT 5030V. Special Problems Research. 1-6 Hour.

Original investigations on assigned problems in horticulture. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

### HORT 50403. Advanced Plant Breeding. 3 Hours.

Application of genetic principles to the improvement of crop plants. Presentation of conventional plant breeding methods and special techniques such as polyploidy, interspecific hybridization and induced mutation. Lecture 3 hours per week. Prerequisite: BIOL 23373 and BIOL 23371 or (ANSC 31203 and CSES 41003). (Typically offered: Spring Odd Years)

### HORT 51003. Plant Growth and Development. 3 Hours.

This course will focus on environmental and developmental processes of plant growth and development. A student completing this course should have an understanding of the developmental processes of plant growth and how environmental factors interact to affect and control plant growth and development. (Typically offered: Fall)

### HORT 51103. Fruit Production Science and Technology. 3 Hours.

The management technologies and cultural practices of fruit crops including (but not limited to) blueberries, blackberries, raspberries, strawberries, grapes, peaches, and apples will be presented. The underlying scientific principles of crop genetics, nutrition, and physiology will be presented as a basis for making management decisions in fruit crop productions. Graduate degree credit will not be given for both HORT 41003 and HORT 51103. Corequisite: Lab component. Prerequisite: HORT 20003. (Typically offered: Spring Odd Years)

### HORT 51403. Professional Landscape Management. 3 Hours.

Principles and practices of landscape management and maintenance. Topics include low maintenance and seasonal color design, pruning and hazard tree management, water and fertilizer management, pesticide use, and other maintenance activities. Basic elements of marketing, specifications and contracts, estimating, personnel management, and equipment selection and acquisition relevant for landscape services will be introduced. Preparatory training in agribusiness or business is suggested. Prerequisite: HORT 20003 and HORT 31003. (Typically offered: Fall Odd Years)

### HORT 51503. Sustainable Techniques in Urban Horticulture. 3 Hours.

Student will learn basic techniques in sustainable production of horticultural crops in an urban or small-scale environment. Crops may include vegetables, cut flowers, or small fruits. This course is intended for students who do not have an agricultural production background or for those students wanting to learn more about the production of high-value horticultural crops under sustainable production systems. For graduate credit, students will be expected to design a four-year crop rotation scheme using sustainable techniques. The student will also develop a plan addressing issues such as post-harvest handling and or food safety issues. (Typically offered: Summer)

### HORT 52003. Temperature Stress Physiology. 3 Hours.

This course will teach students how to apply biological, chemical and physical principles to models of how plants are damaged by temperature extremes and how they change to increase resistance. Student will apply these principles to better understand plant responses to other environmental challenges, including both biotic and abiotic stresses. (Typically offered: Spring)

### HORT 5300V. Special Problems. 1-6 Hour.

Original investigations on assigned problems in horticulture. Graduate degree credit will not be given for both HORT 4000V and HORT 5300V. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

### HORT 53303. Professional Landscape Installation and Construction. 3 Hours.

Principles and practices involved in landscape installation and construction. Topics covered include sequencing construction activities, protecting existing trees, landscape soils, selecting plants, planting and transplanting plant materials, wood construction, cement and masonry construction, and low-voltage lighting. Lecture 3 hours per week. Preparatory training in agribusiness or business is suggested. Graduate degree credit will not be given for both HORT 40303 and HORT 53303. Prerequisite: HORT 20003. (Typically offered: Fall Even Years)

### HORT 54003. Plant Propagation. 3 Hours.

Principles of plant propagation using seeds, cuttings, grafting, budding, layering, and tissue culture. The physiological basis of propagation is described. Knowledge of plant growth and physiology is needed. Lecture 2 hours, laboratory 2 hours per week. Graduate degree credit will not be given for both HORT 44003 and HORT 54003. Corequisite: Lab component. Prerequisite: BIOL 10303 and BIOL 10301. (Typically offered: Spring)

### HORT 54103. Horticulture Physiology. 3 Hours.

This course provides students with a background into the physiological processes of plants with an emphasis on horticultural crops and how the processes relate to horticultural crop production practices. Among the topics covered are photosynthesis, respiration, water relations and morphogenesis. Graduate degree credit will not be given for both HORT 44103 and HORT 54103. Prerequisite: HORT 20003 and CHEM 12103. (Typically offered: Spring)

### HORT 55003. Sustainable Nursery Production. 3 Hours.

This course addresses issues and practices involved in production of quality woody nursery crops (e.g. trees and shrubs produced in open filed and containerized systems). Graduate degree credit will not be given for both HORT 45003 and HORT 55003. (Typically offered: Spring Even Years)

### HORT 57001. Greenhouse Management and Controlled Environment Horticulture Laboratory. 1 Hour.

Laboratory involving hands-on experiments designed to demonstrate principles discussed in the lecture section. Includes field trips. Graduate degree credit will not be given for both HORT 47001 and HORT 57001. Corequisite: HORT 57003. (Typically offered: Fall Odd Years)

### HORT 57003. Greenhouse Management and Controlled Environment Horticulture. 3 Hours.

Operation and management of greenhouses and other controlled environments used in horticultural production. Emphasis on system design and construction, control of light intensity and photoperiod, heating and cooling systems, substrates, mineral nutrition, water quality and irrigation systems. Graduate degree credit will not be given for both HORT 47003 and HORT 57003. Prerequisite: HORT 20003 and CHEM 12103. (Typically offered: Fall)

**HORT 58104. Hydroponic and Soilless Crops. 4 Hours.**

Hydroponic and Soilless Crop Production is an online lecture course focusing on greenhouse hydroponic crop production. This course will provide a broad overview of hydroponic and soilless crop production as well as production information for common crops such as leafy greens (i.e., lettuce, basil, arugula), vegetables and vine crops (i.e. tomatoes, cucumbers, peppers), and hydroponic berry crops (i.e. strawberry). Corequisite: Lab component. Pre- or corequisite: HORT 20003. (Typically offered: Spring)

**HORT 59004. Golf and Sports Turf Management. 4 Hours.**

Golf and Sports Turf Management will focus on turf management techniques for golf courses and athletic fields, including species selection, turfgrass physiology, soil physical and chemical properties as related to turfgrass management, and environmental management. Corequisite: Lab component. Prerequisite: CSES 22003 and CSES 22001. (Typically offered: Fall Odd Years)

**HORT 59201. Golf Course Operations. 1 Hour.**

This course is designed to cover specific aspects of golf course operations that would not be included in traditional turfgrass management courses. Topics will include budgeting, personnel management, tournament setup and operation, dealing with golf club committees, communication, and other relevant topics related to managing a golf course maintenance operation. Graduate degree credit will not be given for both HORT 49201 and HORT 59201. Prerequisite: HORT 49004 or HORT 59004 (formerly HORT 49004). (Typically offered: Fall Even Years)

**HORT 59903. Global Horticulture and Human Nutrition to Enhance Community Resilience and Food Security. 3 Hours.**

This course covers three broad areas (Global Horticulture, Sustainable International Development, Human Health and Nutrition) and experts on three campuses created the instruction. The course is intended to be multi-disciplinary, and students should use their contextual knowledge to add to weekly discussions. Prerequisite: Graduate standing. (Typically offered: Spring Even Years)

This course is cross-listed with AGED 59903, FDSC 59903.

**HORT 6000V. Master's Thesis. 1-6 Hour.**

Master's Thesis. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for degree credit.

**HORT 6020V. Special Topics in Horticulture. 1-3 Hour.**

Discussion and advanced studies on selected topics in genetics, plant breeding, physiology and culture of horticultural crops. Prerequisite: Graduate standing. (Typically offered: Irregular) May be repeated for degree credit.

**HORT 60303. Molecular Plant Breeding. 3 Hours.**

In-depth study of genetic improvement and techniques. Covers both current and classical literature. Topics to be discussed: haploidy, genetic control of pairing, somatic instability, tissue culture and protoplast fusion, and male sterility. Lecture discussion 3 hours per week. Prerequisite: BIOL 23373 and BIOL 23371 (or ANSC 31203 and CSES 41003 or equivalent). (Typically offered: Fall)

**HORT 7000V. Doctoral Dissertation. 1-18 Hour.**

Doctoral Dissertation. May be repeated for degree credit. Prerequisite: Graduate Standing. (Typically offered: Fall, Spring and Summer) May be repeated for up to 18 hours of degree credit.