DEPARTMENT OF HORTICULTURAL SCIENCES

Horticulture encompasses a unique blend of art, science and technology. Horticultural crops include trees, shrubs, tropical plants, ornamental grasses, herbs, flowers, fruits, vegetables and nuts which are grown and utilized throughout the world. The Department of Horticultural Sciences offers two undergraduate degrees: a Bachelor of Science in Horticulture and a Bachelor of Arts in Horticulture. Our flexible degree plans enable students opportunities to develop programs tailored to their unique career goals. The horticulture industry is one of the largest agricultural industries in the state and offers graduates a multitude of diverse career opportunities.

Faculty

Arnold, Michael A, Professor
Horticultural Sciences
PHD, North Carolina State University, 1990

Byrne, David H, Professor
Horticultural Sciences
PHD, Cornell University, 1980

Cisneros-Zevallos, Luis A, Professor
Horticultural Sciences
PHD, University of California, Davis, 1998

Crosby, Kevin M, Professor
Horticultural Sciences
PHD, Texas A&M University, 1999

Davis, Tim D, Professor & Senior Scientist
Horticultural Sciences
PHD, Oregon State University, 1983

Griffin, Whitney N, Lecturer
Horticultural Sciences
PHD, University of Maryland, 2014

Hall Jr, Charles R, Professor
Horticultural Sciences
PHD, Mississippi State University, 1988

King, Andrew R, Lecturer
Horticultural Sciences
PHD, Texas A&M University, 2015

Klein, Patricia E, Professor
Horticultural Sciences
PHD, Texas A&M University, 1989

Koiba, Hisashi, Professor
Horticultural Sciences
PHD, Kyoto University, 1996

Lineberger, R D, Professor
Horticultural Sciences
PHD, Cornell University, 1978

Lombardini, Leonardo, Professor
Horticultural Sciences
PHD, Michigan State University, 1999

McEachern, George R, Visiting Professor
Horticultural Sciences
PHD, Texas A&M University, 1973

McKinley Jr, William J, Senior Lecturer
Horticultural Sciences
MAG, Texas A&M University, 1983

Miller Jr, Julian C, Visiting Professor
Horticultural Sciences
PHD, Michigan State University, 1972

Pierson, Elizabeth A, Professor
Horticultural Sciences
PHD, Washington State University, 1988

Reed, David W, Professor
Horticultural Sciences
PHD, Cornell University, 1979

Scheiner, Justin J, Assistant Professor and Extension Viticulture Specialist
Horticultural Sciences
PHD, Cornell University, 2010

Starman, Terri W, Professor
Horticultural Sciences
PHD, Texas A&M University, 1986

Vales, Maria Isabel, Associate Professor
Horticultural Sciences
PHD, University of Vigo, Spain, 1996

Majors

• Bachelor of Arts in Horticulture (http://catalog.tamu.edu/undergraduate/agriculture-life-sciences/horticultural-sciences/horticulture-ba)

• Bachelor of Science in Horticulture (http://catalog.tamu.edu/undergraduate/agriculture-life-sciences/horticultural-sciences/horticulture-bs)

Minors

• Horticulture Minor (http://catalog.tamu.edu/undergraduate/agriculture-life-sciences/horticultural-sciences/horticulture-minor)

Certificates

• Enology Certificate (http://catalog.tamu.edu/undergraduate/agriculture-life-sciences/horticultural-sciences/enology-certificate)

Courses

HORT 101 Concepts of Horticultural Science
Credit 1. 1 Lecture Hour.
Introduction to the many facets of horticulture in Texas and the United States including organization, history and nature of the industry; discussion of professional development and identification of career opportunities.
HORT 201 Horticultural Science and Practices
Credits 3. 3 Lecture Hours.
(AGRI 1315, AGRI 1415*, HORT 1301, HORT 1401*) Horticultural Science and Practices. Structure, growth and development of horticultural plants from a practical and scientific approach; environmental effects, basic principles of propagation, greenhouse and outdoor production, nutrition, pruning and chemical control of growth, pest control and branches of horticulture.

HORT 202 Horticultural Science and Practices Laboratory
Credit 1. 3 Lab Hours.
(HORT 1101, AGRI 1115, HORT 1401*, AGRI 1415*) Horticultural Science and Practices Laboratory. Methods and practices related to production of horticultural crops; practical exercises in greenhouse and field.
Prerequisite: HORT 201 or registration therein.

HORT 203 Floral Design
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Principles of design illustrated with the use of floral materials; floral design elements and techniques including color, form, line and texture; history and utilization of floral art in society.

HORT 225 Horticulture Learning Community
Credit 1. 1 Lecture Hour.
Understanding the personal and professional competencies that should develop during college career; determine learning style; develop oral and written communication skills, teamwork and leadership characteristics, analytical and critical thinking, research and problem solving skills; exposure to current critical issues in horticulture and science.
Prerequisite: Horticulture or floriculture major.

HORT 281 Horticulture as a Profession.
Credit 1. 1 Lecture Hour.
Comprehensive view of the opportunities in the art and science of horticulture; sub-disciplines by crop (fruit, vegetable, ornamental, floral) and approach (landscaping, production, sales, management, floral design, research); examination of the national and international scope of horticulture including the major horticultural regions in Texas; construction of a professional e-portfolio.

HORT 291 Research
Credits 1 to 3. 1 to 3 Other Hours.
Research conducted under the direction of faculty member in horticulture. May be repeated 2 times for credit.
Prerequisites: Freshman or sophomore classification and approval of instructor.

HORT 301 Garden Science
Credits 3. 3 Lecture Hours.
Identification, propagation, soil management, fertilization, growth control and protection of common garden plants: indoor ornamentals, landscape ornamentals, fruits and vegetables; special topics include home landscaping, container gardens, bonsai, herbs and medicinal plants and hobby greenhouse management. The effects of organic and non-organic practices on the garden ecosystem.

HORT 302 Garden Science Lab
Credit 1. 3 Lab Hours.
Practical activities in identification, propagation, fertilization, media preparation, soil management, irrigation and protection of indoor ornamentals, landscape ornamentals, fruits and vegetables common in gardens in Texas. Organic and non-organic methods.

HORT 306 Trees and Shrubs for Sustainable Built Environments
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Better known woody ornamental trees and shrubs; identification, morphology, classification, nomenclature and adaptability for use in landscape environments.
Prerequisite: BIOL 101, BIOL 111, BIOL 113, HORT 201, HORT 301, LAND 101, or RENR 205, or approval of instructor.

HORT 308 Plants for Sustainable Landscapes
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Identification and use of indigenous and introduced landscape plants; plants for special uses in urban environments; emphasis on plants’ ornamental attributes, cultural requirements, and adaptability in urban and suburban environments.
Prerequisite: BIOL 101, BIOL 111, BIOL 113, HORT 201, HORT 301, LAND 101, or RENR 205, or approval of instructor.

HORT 309 Interior Plants
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Identification, selection and maintenance of interior foliage plants; emphasis on design solutions for commercial and private facilities.
Prerequisites: HORT 201; junior or senior classification.

HORT 311/NFSC 311 Principles of Food Processing
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Principles and practices of canning, freezing, dehydration, pickling and specialty food manufacture; fundamental concepts of various techniques of preparation, processing, packaging and use of additives; processing plants visited.
Prerequisites: NFSC 201; junior or senior classification or approval of department head or instructor.
Cross Listing: NFSC 311/HORT 311.

HORT 315 Issues in Horticulture
Credits 3. 3 Lecture Hours.
Analysis of contemporary economic, technological, environmental, human resource, and regulatory issues that impact the way global horticultural firms compete; emphasis on problem recognition and analysis of managerial decisions by firms throughout the entire horticultural supply chain.
Prerequisites: HORT 201 and HORT 202.

HORT 319 Fruit and Nut Production
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Rootstocks, cultivars, identification, site selection, pollination, pruning, fruit thinning, dormancy, orchard culture management, irrigation, pest control, harvesting and post harvest physiology of temperate fruit and nut species.
Prerequisite: HORT 201.

HORT 325 Vegetable Crop Production
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Origin, nutritive value, economic importance, botany and cultural practices of the major vegetable crops. Lab activities include organic and non-organic production of major vegetable crops.

HORT 326 Plant Propagation
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Principles, practices and techniques followed in the sexual and asexual propagation of horticultural plants: seed technology and seed propagation, rooting and propagation of cuttings, grafting and budding systems, layering and propagation by specialized plant structures, biotechnology and tissue culture systems for micropropagation.
HORT 328 Wild Edible, Cultivated and Poisonous Herbs
Credits 3. 3 Lecture Hours.
Identification, reported uses and cultivation of popular garden herbs, historically useful herbs and wild edible and poisonous herbs; the history of phytomedicinal herbs and the role of horticulture in the advent of select modern pharmaceuticals and nutraceuticals; native Texas wild edible and culturally-useful herbs; reported uses and efficacy of essential oils of herbal plants; propagation and production of cultivated herbs and wild edible plants.
Prerequisites: HORT 201 or approval of instructor.

HORT 332 Horticulture Landscape Graphics
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Graphic representation of landscape design; demonstrations of technique; examination of drawing examples and drawing production; basic hand graphics techniques for visual-thinking and presentation-quality landscape drawings.
Prerequisite: Junior or senior classification.

HORT 335 Sociohorticulture
Credits 3. 3 Lecture Hours.
Horticulture as it relates to humans through people-plant interactions; use of horticulture to improve quality of life; awareness and appreciation of the economic, environmental, social and health benefits of plants.
Prerequisite: Junior classification.

HORT 360 Landscapes of Sustainable Built Environments
Credits 3. 3 Lecture Hours.
Construction and maintenance considerations for landscapes in urban sustainable environments, specifically green roofs, bioretention cells, rain gardens, and living walls; how to maximize benefits of each system, current trends in regulatory and permitting processes of green infrastructure, and the development of industry-wide guidelines versus standards.
Prerequisites: Grade of C or better in HORT 201 or concurrent enrollment, or junior or senior classification.

HORT 400 Field Studies in Horticulture
Credits 1 to 3. 1 to 9 Other Hours.
Field trip to observe operation of horticultural businesses, governmental agencies affecting horticultural programs, and public and private institutions active in horticulture in the U.S. and other countries; usually arranged during spring break, between semesters or during the summer; may be repeated for credit.
Prerequisites: HORT 201 or HORT 301 and approval of instructor.

HORT 404/GENE 404 Plant Breeding
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Application of genetics and other sciences to breeding and improvement of horticultural crops; methods and special techniques employed. Offered in even numbered years. Only one of the following will satisfy the requirements for a degree: HORT 404/GENE 404 and SCSC 304.
Prerequisite: HORT 201, SCSC 205, or GENE 302, or approval of instructor.
Cross Listing: GENE 404/HORT 404.

HORT 416 Understanding Wine: From Vines to Wines and Beyond
Credits 3. 3 Lecture Hours.
Facets of wine in the United States and around the world; the history of wine, grape growing and winemaking, types of wine, wine etiquette, beer and spirits, sensory evaluation, wine marketing, and winery tasting room and event management.
Prerequisites: Must be 21 years of age; junior senior classification.

HORT 418 Nut Culture
Credits 3. 3 Lecture Hours.
Orchard management, native grove development, cultivars, fruit setting, soils, nutrition, propagation, pest control, harvesting, shelling, storage and marketing of temperate tree nut crops grown in the U.S. with major emphasis on pecans. Offered in odd numbered years.
Prerequisite: HORT 319 or approval of instructor.

HORT 419 Viticulture and Small Fruit Culture
Credits 3. 3 Lecture Hours.
Classic winegrape culture in Europe and U.S. are taught; influence of climate, soil, cultivar, rootstock, canopy and management is presented; nutrition, water, spacing, trellis, pruning, IPM and harvest are integrated for quality yields; culture of muscadines, berries, figs and persimmons are taught. Offered in even numbered years.
Prerequisite: HORT 319 or approval of instructor.

HORT 420 Concepts of Wine Production
Credits 3. 3 Lecture Hours.
Provides a basic understanding of each step of the wine making process; emphasis on home and small scale commercial wine production as related to Texas conditions.
Prerequisites: Must be 21 years of age; junior or senior classification.

HORT 423 Tropical Horticulture
Credits 3. 3 Lecture Hours.
Production, processing and marketing of coffee, bananas, cacao, mango, cashew, pineapple, coconut and root and tuber crops; recent significant developments in plant breeding and cultural practices. Offered in odd numbered years.
Prerequisites: HORT 201 or approval of instructor.

HORT 425 Landscape Maintenance and Construction
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Principles and practices of grading, drainage and construction of residential and small commercial landscapes; cost and bid estimation; soil preparation; transplanting operations; control of landscape diseases and pests; maintenance of landscape areas.
Prerequisite: HORT 201 or approval of instructor.

HORT 426 International Floriculture Marketing
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Importance, cost, and opportunities in marketing floral products, fresh cut flowers, flowering potted plants, foliage plants, and bedding/garden plants; topics include: world production areas, economic value, species grown, marketing channels, retail environments, current/future consumers, postharvest handling, promotion/advertising, perceived/added value, marketing trends and employment opportunities.
Prerequisites: HORT 201; junior or senior classification.

HORT 427 Fall Greenhouse Crops
Credit 1. 2 Lab Hours.
Hands-on lab for growing and managing fall greenhouse crops including fall bedding plants, cut flowers, foliage, poinsettias and other flowering potted plants.
HORT 428 Greenhouse Operation and Management
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Principles of greenhouse operation and management for production of horticultural crops; construction and operation of greenhouse structures and systems; regulating and controlling the environment and applying cultural practices as they affect plant physiological processes and influence plant growth and development; management of a greenhouse business.
Prerequisite: HORT 201.

HORT 429 Floriculture Crop Production
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Production of floriculture crops in the greenhouse environment; scheduling and controlling crop growth for target market periods; specific flowering crops will be used as models to demonstrate potted flowering plant, cut flower, and garden plant production systems; hands-on crop production experience in lab.
Prerequisite: HORT 201 or approval of instructor.

HORT 430 Horticulture Landscape Design
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Application of the principles and elements of design to planning and developing both exterior residential landscape designs and interior commercial designs.
Prerequisites: HORT 332 or concurrent enrollment; HORT 306 or concurrent enrollment, or HORT 308; or approval of instructor.

HORT 432 Horticulture Landscape Design II
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Computer-aided-drafting (CAD) to produce site layout, grading and planting plan, and construction details for small-scale landscape design; advanced design principles and practices in their historical context, includes design and drafting of hardscape details, manipulation of earth forms, ecological urban park design to traditional garden design.
Prerequisites: HORT 432; HORT 306 or HORT 308, or concurrent enrollment, or approval of instructor.

HORT 431 Nursery Production and Management
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Container, field and protected culture production of ornamental nursery plants (shrubs, trees, ground covers, bedding plants and herbaceous perennials); retail and wholesale nursery-site selection and development, financing, niche-marketing, personnel and labor management; wholesale nursery production cycles and systems, storage and shipping.

HORT 435 Urban Horticulture
Credits 3. 3 Lecture Hours.
Introduction to urban horticulture and its role in community development and well-being; emphasis on career opportunities and the roles of the urban horticulture programmer. Offered in odd numbered years.
Prerequisite: Junior or senior classification.

HORT 440 International Horticulture
Credits 3. 3 Lecture Hours.
Examines the source of horticultural commodities; shows how geography, culture, politics, and history influence our markets, gardens and refrigerators; educates students on interpreting different garden styles; offered in even number years.
Prerequisite: Junior or senior classification.

HORT 442 Horticulture Landscape Design II
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Landscape estimating, bidding and sales processes; business structures, insurance and bonding requirements and business management; overhead costing structures and management; case study involves bidding from a set of landscape plans and specifications.
Prerequisites: Junior or senior classification.

HORT 446/NFSC 446 Commercial Fruit and Vegetable Processing
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Examination of the principles behind coffee processing and other high-value food crops including cultivation; different unit processing operations; methods for preservation; packaging and marketing strategies; and a processing plant visit.
Prerequisite: HORT 203 or approval of instructor.

HORT 452 Floral Design: Weddings and Personal Flowers
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Basic principles of floral design as applied to wedding work; design principles and mechanics as applied to corsages, headpieces, hand bouquets and ceremony and reception decorations; history of wedding traditions; selling and pricing weddings.
Prerequisite: HORT 203 or HORT 451 or approval of instructor.

HORT 453 Floral Art
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Advanced study of floral design as an art form in contrast to a commercial florist operation; interpretive expression of design principles and color stressed along with international design styles.
Prerequisites: HORT 203.

HORT 454 Special Event Design and Production
Credits 2. 1 Lecture Hour. 2 Lab Hours.
Role of event planners, production managers, designers, and decorators within traditional event management practices; analyze how artistic components are used in visual styling to achieve a specific purpose; impact of collaborative planning, effective research, and strong communication skills, social psychological and economic influences as they relate to event planning.
Prerequisite: Junior or senior classification.

HORT 456 Landscape Estimating, Bidding, and Operations
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Landscape estimating, bidding and sales processes; business structures, insurance and bonding requirements and business management; overhead costing structures and management; case study involves bidding from a set of landscape plans and specifications.
Prerequisites: Junior or senior classification.

HORT 481 Seminar
Credits 2. 2 Lecture Hours.
Advanced preparation for the transition from college to the work environment including career investigation, presentation techniques and practice, resume and e-portfolio preparation, and professional development and career advancement; required of all senior students in horticulture.
Prerequisite: Junior or senior classification.
HORT 484 Internship  
Credits 1 to 9. 1 to 9 Other Hours.  
On-the-job experience program in the student’s area of horticultural specialization. May be taken three times for credit.  
**Prerequisites:** Sophomore, junior or senior classification; approval of instructor; 2.0 GPR in major and overall.

HORT 485 Directed Studies  
Credits 1 to 4. 1 to 4 Other Hours.  
Special problems and projects in any area of horticulture.  
**Prerequisite:** Junior or senior classification or approval of department head.

HORT 489 Special Topics in...  
Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours.  
Selected topics in an identified area of horticultural science. May be repeated for credit.  
**Prerequisite:** Approval of instructor.

HORT 491 Research  
Credits 1 to 3. 1 to 3 Other Hours.  
Research conducted under the direction of faculty member in horticulture. May be repeated 2 times for credit. Registration in multiple sections of this course are possible within a given semester provided that the per semester credit hour limit is not exceeded.  
**Prerequisites:** Junior or senior classification and approval of instructor.