

Horticulture (HORT)

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Department of Horticulture Website (<http://hort.uark.edu/>)

The Department of Horticulture offers a broad, science-based degree with comprehensive and technical training: Horticulture, Landscape and Turf Sciences (HLTS).

Horticulture, landscape, and turf management involves selection, production, management, marketing, use, and research of ornamental crops (shrubs, trees, flowers, and turf), edible crops (herbs, vegetables, and fruits) and turf grasses for the economic, nutritional, aesthetic and recreational well-being of society. The major provides education and training in basic and applied sciences, arts and humanities, communication, and business and economics to provide an understanding of the underlying principles in plant growth and development and use of new technologies, and the operation of a horticultural enterprise. In consultation with an academic adviser and mentor, students may individually focus their academic programs through required and elective courses to focus training in specialized areas such as production, greenhouse and floriculture sciences, turfgrass management, golf course management, nursery production and management, edible crop production, pest management, sales and support services, education and training, and horticultural consulting. An internship in the industry is required to gain practical, hands-on experience.

Job opportunities for horticulturists include horticulture crop production and management, horticulture merchandising and business, consulting, inspection, research, teaching, Extension, communications, allied industries serving horticultural producers, journalism, and developing private business. Students who specialize in landscape and aspects of ornamental horticulture will be prepared for careers in the landscape service industry, landscape nurseries, landscape design firms, private and public gardens, and public agencies such as parks and recreation. Job opportunities for students studying turfgrass management include golf course superintendent, sports field manager, turfgrass science companies, seed or sod production, commercial landscape turfgrass management, research, sales, teaching, or private consulting. Advanced study may be required for some careers.

Requirements for a Major in Horticulture, Landscape and Turf Sciences (HLTS)

The HLTS major will consist of 120 hours to include the following courses that meet the state minimum core (<http://catalog.uark.edu/undergraduatecatalog/gened/stateminimum/>) and discipline specific general education (<http://catalog.uark.edu/undergraduatecatalog/gened/generaleducation/>) requirements:

(Course work that meets state minimum core requirements is in **bold**.)

Communications	6
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013)	
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)	
U.S. History and Government	3

HIST 2003 History of the American People to 1877 (ACTS Equivalency = HIST 2113)	
HIST 2013 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)	
PLSC 2003 American National Government (ACTS Equivalency = PLSC 2003)	
Mathematics	3-4
MATH 1203 College Algebra (ACTS Equivalency = MATH 1103) (or higher level math)	
Physical and Biological Sciences	12-16
BIOL 1543 Principles of Biology (ACTS Equivalency = & BIOL 1541L BIOL 1014 Lecture) and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
CHEM 2613 Organic Physiological Chemistry (ACTS & CHEM 2611L Equivalency = CHEM 1224 Lecture) and Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab)	
Select from one Chemistry group:	
CHEM 1073 Fundamentals of Chemistry (ACTS Equivalency & CHEM 1071L= CHEM 1214 Lecture) and Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab)	
OR	
CHEM 1103 University Chemistry I (ACTS Equivalency = & CHEM 1101L CHEM 1414 Lecture) and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	
AND	
CHEM 1123 University Chemistry II (ACTS Equivalency = & CHEM 1121L CHEM 1424 Lecture) and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
Fine Arts and Humanities (6 hours)	6-8
Fine Arts Core Course (Select at least 3 hours from Fine Arts state minimum core)	
Humanities Core Course (Select at least 3 hours from Humanities state minimum core)	
Social Sciences	9
Select 9 hours from Social Science state minimum core including at least one of the following:	
AGEC 1103 Principles of Agricultural Microeconomics	
AGEC 2103 Principles of Agricultural Macroeconomics	
ECON 2013 Principles of Macroeconomics (ACTS Equivalency = ECON 2103)	
ECON 2023 Principles of Microeconomics (ACTS Equivalency = ECON 2203)	
ECON 2143 Basic Economics: Theory and Practice	
HLTS Core Requirements (30-31 hours)	
UNIV 1001 University Perspectives	1
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003)	3
Communication Intensive Elective (3 hours - see advisor for approved list of courses)	3
CSES 2203 Soil Science & CSES 2201L Soil Science Laboratory	4

HORT 2003	Principles of Horticulture (with lab component)	3
HORT 2101	Horticultural Career Development	1
HORT 4403	Plant Propagation (with lab component)	3
HORT 4413	Horticulture Physiology	3
HORT 462V	Horticulture, Landscape, Turf Sciences Internship Experience	1
HORT 472V	Horticulture, Landscape, Turf Sciences Internship Assessment	2

Select two of the following: 6-7

CSES 4143	Principles of Weed Control	
ENTO 3013	Introduction to Entomology	
PLPA 3003	Principles of Plant Pathology & PLPA 3001L and Principles of Plant Pathology Laboratory	

Horticulture Electives 18

Select 18 hours from the following:

HORT 1303	Introduction to Floral Design	
HORT 2303	Introduction to Turfgrass Management	
HORT 3103	Woody Landscape Plants (with lab component)	
HORT 3113	Herbaceous and Indoor Plant Materials (with lab component)	
HORT 3123	International Horticulture	
HORT 3203	Sustainable Landscape Practices	
HORT 3303	Vegetable Crops	
HORT 3403	Turfgrass Management (with lab component)	
HORT 3503	Sustainable and Organic Horticulture	
HORT 4033	Professional Landscape Installation and Construction	
HORT 4043	Professional Landscape Management	
HORT 4103	Fruit Production Science and Technology (with lab component)	
HORT 4503	Sustainable Nursery Production	
HORT 4603	Practical Landscape Planning	
HORT 4703	Greenhouse Management and Controlled Environment Horticulture	
HORT 4701L	Greenhouse Management and Controlled Environment Horticulture Laboratory	
HORT 4903	Golf and Sports Turf Management (with lab component)	
HORT 400V	Special Problems	
HORT 401V	Special Topics in Horticulture, Turf or Landscape	

Discipline-Related Electives 12-13

Select at least 12 hours from the following:

ASTM 3102	Small Power Units/Turf Equipment & ASTM 3101L and Small Power Units/Turf Equipment Laboratory	
ASTM 3153	Surveying in Agriculture and Forestry	
ASTM 4973	Irrigation (with lab component)	
ANSC/POSC 3123	Principles of Genetics	
HORT 1103	Plants, People and You	
HORT 400V	Special Problems	
HORT 401V	Special Topics in Horticulture, Turf or Landscape	
LARC 3914	Sustainable Design and Construction: Remediation and Plants on Structure	
LARC 2113	Design Visualization, Inquiry and Communications	

PHYS 1023 Physics and Human Affairs & PHYS 1021L and Physics and Human Affairs Laboratory (or higher level)

WCOB course electives (up to 9 hours)
or any AGECE, ASTM, BIOL, CHEM, CSES, ENSC, ENTO, FDSC, HORT, PLPA class not taken in any other elective group.

General Electives	12-21
Total Hours	120

Horticulture, Landscape and Turf Sciences B.S.A.

Nine-Semester Degree Plan

Students wishing to follow the degree plan should see the Eight-Semester Degree Policy (<http://catalog.uark.edu/undergraduatecatalog/academicregulations/eightsemesterdegreecompletionpolicy/>) for university requirements of the program.

First Year	Units		
	Fall	Spring	Summer
UNIV 1001 University Perspectives	1		
MATH 1203 College Algebra (ACTS Equivalency = MATH 1103) (or higher level math) (Satisfies General Education Outcome 2.1)	3		
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3		
Satisfies General Education Outcome 3.4:			
BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) & BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	4		
U.S. History or Government State Minimum Core Elective (Satisfies General Education Outcome 4.2)	3		
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.1)		3	
HORT 2003 Principles of Horticulture		3	
Fine Arts State Minimum Core Elective (Suggest LARC 1003 Basic Course in the Arts: The American Landscape) (Satisfies General Education Outcome 3.1) ¹		3	
Social Science State Minimum Core Elective (Satisfies General Education Outcome 3.3)		3	
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003) (Satisfies General Education Outcomes 1.2 and 5.1)		3	
Year Total:	14	15	

Second Year	Units		
	Fall	Spring	Summer
Satisfies General Education Outcome 3.4:			
CHEM 1073 Fundamentals of Chemistry (ACTS Equivalency = CHEM 1214 Lecture)	4		
& CHEM 1071L Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab)			
Communication Intensive Class	3		
Horticulture Electives	6		
Discipline-related Elective	3		
Humanities State Minimum Core Elective (Suggest PHIL 2003 Intro to Philosophy) (Satisfies General Education Outcome 3.2) ²		3-4	
HORT 4413 Horticulture Physiology		3	
Discipline-related Elective		3	
HORT 2101 Horticultural Career Development		1	
General Electives		4	
Year Total:	16	14	

Third Year	Units		
	Fall	Spring	Summer
CSES 2203 Soil Science & CSES 2201L Soil Science Laboratory	4		
Pest Management Elective	3-4		
Horticulture Elective ⁴	3		
Social Sciences State Minimum Core Elective (Satisfies General Education Outcome 3.3)	3		
Discipline-Related Elective ⁴	3		
CHEM 2613 Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture)		4	
& CHEM 2611L Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab)			
Discipline-Related Elective ⁴		3-4	
HORT 4403 Plant Propagation		3	
Horticulture Elective ⁴		3	
HORT 462V Horticulture, Landscape, Turf Sciences Internship Experience (Satisfies General Education Outcome 6.1)			1
Year Total:	16	13	1

Fourth Year	Units		
	Fall	Spring	Summer
Horticulture Elective ⁴	3		
HORT 472V Horticulture, Landscape, Turf Sciences Internship Assessment	2		
Pest Management Elective	3-4		
General Electives ⁴	1-9		

Social Science State Minimum Core Elective (Satisfies General Education Outcomes 3.3 and 4.1) ³	3
Horticulture Elective ⁴	3
General Electives ⁴	7-8
Year Total:	17 14

Total Units in Sequence: 120

- The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: ARCH 1003, ARHS 1003, COMM 1003, DANC 1003, LARC 1003, MLIT 1003, MLIT 1003H, MLIT 1013, MLIT 1013H, MLIT 1333, THTR 1003, THTR 1013, or THTR 1013H.
- The Humanities Elective courses which satisfy General Education Outcome 3.2 include: AAST 2023, ANTH 1033, ARCH 1013, CLST 1003, CLST 1003H, CLST 1013, COMM 1233, DANC 1003, ENGL 1213, GNST 2003, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2003, HIST 2013, HUMN 1124H, HUMN 2213, LALS 2013, MRST 2013, MUSY 2003, MUSY 2003H, PHIL 2003, PHIL 2003C, PHIL 2003H, PHIL 2103, PHIL 2103C, PHIL 2303, THTR 1003, THTR 1013, THTR 1013H, WLIT 1113, WLIT 1123, or intermediate-level world language (usually 2003-level)
- The Social Science Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: ANTH 1023, COMM 1023, HDFS 1403, HDFS 2413, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2093, HUMN 1114H, HUMN 2114H, INST 2813, INST 2813H, PLSC 2013, PLSC 2813, PLSC 2813H, RESM 2853, SOCI 2013, SOCI 2013H, or SOCI 2033.
- Students must complete 40 hours of upper division courses (3000-4000 level). It is recommended that students consult with their academic adviser when making course selections.

Minor in Horticulture (HORT-M)

The Horticulture minor is only available to students outside the Horticulture, Landscape and Turfgrass Sciences (HLTS) major. The minor will consist of 18 hours to include:

HORT 2003	Principles of Horticulture	3
HORT 4403	Plant Propagation	3
Select a minimum of 9 hours from the following:		9-11
HORT 2303	Introduction to Turfgrass Management	
HORT 3303	Vegetable Crops	
HORT 400V	Special Problems	
HORT 4103	Fruit Production Science and Technology	
HORT 4503	Sustainable Nursery Production	
HORT 4703	Greenhouse Management and Controlled & HORT 4701L Environment Horticulture and Greenhouse Management and Controlled Environment Horticulture Laboratory	
Select one of the following:		3
HORT 3103	Woody Landscape Plants	
HORT 3113	Herbaceous and Indoor Plant Materials	

Total Hours 18

Minor in Landscape Horticulture (LHRT-M)

The Landscape Horticulture minor is only available to students outside the Horticulture, Landscape and Turfgrass Sciences (HLTS) major. The minor will consist of 18 hours to include:

HORT 2003	Principles of Horticulture	3
HORT 4043	Professional Landscape Management	3
Select 3 hours from the following:		3
HORT 4603	Practical Landscape Planning	
LARC Studio Course		
Select one of the following:		3
HORT 3103	Woody Landscape Plants	
HORT 3113	Herbaceous and Indoor Plant Materials	
Select 6-8 hours from the following:		6-8
HORT 2303	Introduction to Turfgrass Management	
HORT 3103	Woody Landscape Plants	
HORT 3113	Herbaceous and Indoor Plant Materials	
HORT 3403	Turfgrass Management	
HORT 400V	Special Problems	
HORT 4033	Professional Landscape Installation and Construction	
HORT 4403	Plant Propagation	
HORT 4503	Sustainable Nursery Production	
HORT 4703	Greenhouse Management and Controlled	
& HORT 4701L	Environment Horticulture and Greenhouse Management and Controlled Environment Horticulture Laboratory	
LARC 3734	Sustainable Design and Construction: Material and Methods of Assembly	
Total Hours		18

Minor in Turf Management (TURF-M)

The Turf Management minor is only available to students outside the Horticulture, Landscape and Turfgrass Sciences (HLTS) major. The Turf Management minor is comprised of 18 to 20 hours to include the following:

HORT 2303	Introduction to Turfgrass Management	3
HORT 3403	Turfgrass Management (with lab component)	3
Select one of the following:		3
HORT 4903	Golf and Sports Turf Management (with lab component)	
HORT 4913	(with lab component)	
Select 3 hours from the following:		3-4
ENTO 3013	Introduction to Entomology (with lab component)	
PLPA 3003	Principles of Plant Pathology & PLPA 3001L and Principles of Plant Pathology Laboratory	
Select two of the following:		6-8
ASTM 4973	Irrigation	
ASTM 3102	Small Power Units/Turf Equipment & ASTM 3101L and Small Power Units/Turf Equipment Laboratory	
CSES 2203	Soil Science & CSES 2201L and Soil Science Laboratory	
ENTO 3013	Introduction to Entomology (with lab component)	

PLPA 3003	Principles of Plant Pathology & PLPA 3001L and Principles of Plant Pathology Laboratory
HORT 4903	Golf and Sports Turf Management (with lab component)
HORT 4913	(with lab component)
HORT 3103	Woody Landscape Plants (with lab component)
HORT 4033	Professional Landscape Installation and Construction
HORT 4043	Professional Landscape Management

Total Hours **18-20**

Faculty

Bertucci, Matthew, Ph.D., M.S. (North Carolina State University), B.S. (Spring Hill College), Assistant Professor, 2020.

Cato, Aaron J., Ph.D. (University of Arkansas), M.S. (Kansas State University), B.S. (Arkansas State University), Assistant Professor, 2019.

Clark, John R., Ph.D. (University of Arkansas), M.S., B.S. (Mississippi State University), Distinguished Professor, 1983, 2016.

Dickson, Ryan W., Ph.D., B.S. (University of Florida), Assistant Professor, 2018.

Karcher, Douglas Edward, Ph.D., M.S. (Michigan State University), B.S. (The Ohio State University), Professor, 2000, 2016.

Mackay, Wayne A., Ph.D. (University of Maryland), M.S. (University of Delaware), B.S. (Virginia Polytechnic Institute and State University), Professor, 2014.

McDonald, Garry Vernon, Ph.D., M.S., B.S.A. (Texas A&M University), Clinical Assistant Professor, 2016.

McKern, Jacquelyn A., Ph.D., M.S. (University of Arkansas), B.S. (Arkansas Technical University), Associate Professor, 2016.

McWhirt, Amanda L., Ph.D. (North Carolina State University), M.S. (Louisiana State University), B.S. (Tarleton State University), Assistant Professor, 2016.

Philyaw Perez, Amanda, Ph.D., M.P.H. (University of Arkansas for Medical Sciences), B.S. (University of Arkansas at Little Rock), Assistant Professor, 2020.

Richardson, Mike, Ph.D. (University of Georgia), M.S. (Louisiana State University), B.S. (Louisiana Tech University), Professor, 1998, 2007.

Rom, Curt R., Ph.D., M.S. (The Ohio State University), B.S. (University of Arkansas), University Professor, 1989, 2014.

Shi, Ainong, Ph.D. (North Carolina State University), M.S. (Graduate School of Chinese Academy of Agricultural Sciences), B.S. (Zhejiang University), Assistant Professor, 2013.

Worthington, Margaret L., Ph.D. (North Carolina State University), M.S. (University of California-Davis), B.S. (Duke University), Assistant Professor, 2016.

Courses

HORT 1103. Plants, People and You. 3 Hours.

Plants, People and You is a course designed to introduce students to the world of horticulture, with an emphasis on how plants can be used for food, fun, health, economic value or environmental contribution. (Typically offered: Fall)

HORT 1303. Introduction to Floral Design. 3 Hours.

Students in this introductory class in Floral Design will learn basic design elements such as line, form, mass, balance, texture and color as used in floral art. Students will gain an appreciation of the various types and species of flowers and foliage used in various floral arrangements such as bouquets and centerpieces. In addition, students will learn common post-harvest handling techniques of fresh cut floral plant material to prolong vase-life from the purchasing stage to the final design. Corequisite: Lab component. (Typically offered: Spring)

HORT 2003. Principles of Horticulture. 3 Hours.

A course introducing students to the biological and technologies underlying the propagation, production, handling and use of horticultural crops, turf and landscape plants. Students will be introduced to the various disciplines and commodities of horticulture. The use of plants for the benefit of humankind because of their aesthetic and nutritional value will be explored. Previous instruction in Plant Science, Plant Biology, or general Botany is strongly encouraged. Corequisite: Lab component. (Typically offered: Spring)

HORT 2101. Horticultural Career Development. 1 Hour.

A course which presents concepts necessary for developing a career and becoming a professional in horticulture industries or businesses. Concepts of goal setting, effective communication and interpersonal skills, behaviors and performance, portfolio and resume, development and job hunting skills will be presented. (Typically offered: Spring)

HORT 2303. Introduction to Turfgrass Management. 3 Hours.

An introductory course in turfgrass management emphasizing turfgrass growth, adaptation, and management. Methods for establishment, fertilization, mowing, cultivation, irrigation, and pest management are presented, and their impact on culture of lawns, golf courses, athletic fields, and other managed turf areas discussed. (Typically offered: Fall)

HORT 3103. Woody Landscape Plants. 3 Hours.

Identification, climatic adaptation and landscape design values of woody ornamental trees, shrubs and vines. Lecture 2 hours per week. Corequisite: Lab component. (Typically offered: Fall)

HORT 3113. Herbaceous and Indoor Plant Materials. 3 Hours.

Identification, culture, and use of annuals, perennials in landscapes and foliage plants in interiors. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. (Typically offered: Spring Odd Years)

HORT 3123. International Horticulture. 3 Hours.

Considerable globalization of agriculture has occurred over the past several decades, especially in the area of horticultural crops. This course provides a base of knowledge of the international horticulture industry focusing on principles and practices of development and trade of horticultural crops. (Typically offered: Spring)

HORT 3203. Sustainable Landscape Practices. 3 Hours.

New methods of landscape management are required to restore or protect the ecological services provided by developed landscapes. This course is focused on methods for sustainable land management. Included as part of the curriculum is a survey of sustainable management as it applies to site resources, including water, nutrients, energy and biodiversity. Retrofitting existing development, organic lawn, tree, and shrub care, successional landscapes, permaculture, sustainable material selection, and best available equipment will be covered in depth. Prerequisite: HORT 2003. (Typically offered: Fall)

HORT 3303. Vegetable Crops. 3 Hours.

General course in vegetable crops with attention to the principles underlying methods of production and handling related to yields and quality of the products. Lecture 2 hours, laboratory 2 hours per week. Prerequisite: HORT 2003 and CSES 2203. (Typically offered: Fall Odd Years)

HORT 3403. Turfgrass Management. 3 Hours.

Cultural and management practices of commercial and residential lawns. Principles and practices of mowing, fertilizing, irrigating, and control of weed, disease, and insects. Identification of turfgrass; equipment selection. Corequisite: Lab component. Prerequisite: HORT 2303. (Typically offered: Spring Even Years)

HORT 3503. Sustainable and Organic Horticulture. 3 Hours.

This course will provide a base of knowledge of the principles and practices of sustainable, organic, and alternative horticulture management systems. The class will review and evaluate topics including soil biological processes (compost, humus and fertility), pest management, alternative farming systems, and organic agriculture. After this foundation information is studied, the class will study applications of sustainable agriculture principles to production systems such as greenhouse vegetable production, ornamental production, fruit production, and landscape and turf management. (Typically offered: Fall Even Years)

HORT 400V. Special Problems. 1-6 Hour.

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

HORT 401V. 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. (Typically offered: Irregular) May be repeated for degree credit.

HORT 402V. Horticulture Judging and Competition Activity. 1-6 Hour.

Training for and participation on horticultural identification, judging and competitive teams. Prerequisite: HORT 2003. (Typically offered: Irregular) May be repeated for up to 6 hours of degree credit.

HORT 4033. 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. Prerequisite: HORT 2003. (Typically offered: Fall Even Years)

HORT 4043. 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 2003 and HORT 3103. (Typically offered: Fall Odd Years)

HORT 4103. 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. Corequisite: Lab component. Prerequisite: HORT 2003. (Typically offered: Spring Odd Years)

HORT 4153. Sustainable Techniques in Urban Horticulture. 3 Hours.

Sustainable Techniques in Urban Horticulture is a practicum based course where the 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. (Typically offered: Summer)

HORT 4403. 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. Corequisite: Lab component. Prerequisite: HORT 2003. (Typically offered: Spring)

HORT 4403H. Honors 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. Corequisite: Lab component. Prerequisite: HORT 2003 and honors standing. (Typically offered: Spring)

This course is equivalent to HORT 4403.

HORT 4413. 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. Prerequisite: HORT 2003 and CHEM 1073. (Typically offered: Spring)

HORT 4503. 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 field and containerized systems). (Typically offered: Spring Even Years)

HORT 4603. Practical Landscape Planning. 3 Hours.

Ornamental planting design and landscape planning concepts. Preparing planting plans, materials sheets, and cost estimates for residential properties. Prerequisite: HORT 3103. (Typically offered: Spring Even Years)

HORT 462V. Horticulture, Landscape, Turf Sciences Internship Experience. 1-6 Hour.

A supervised practical work experience in a horticulture, landscape design, or turf business or research program to gain professional competence and insight into employment opportunities. Prerequisite: COMM 1313 and HORT 2101. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

HORT 4701L. 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. Corequisite: HORT 4703. (Typically offered: Fall Odd Years)

HORT 4703. 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. Prerequisite: HORT 2003 and CHEM 1073. (Typically offered: Fall)

HORT 472V. Horticulture, Landscape, Turf Sciences Internship Assessment. 1-6 Hour.

The objective of the HORT 472V Internship Assessment is for the student to gain mastery in written and oral communication skills and critical thinking skills by reflection and analysis of ideas, artifacts, and events gained from a prior internship experience. The student is expected to master specific skills in the context, content development, syntax and mechanics and purpose of writing in a visual presentation relating to the internship experience. The student will also master skills in the organization, central message, language, and delivery of an oral presentation related to the internship experience. The student will master critical thinking skills through the explanation of issues, personal perspective, evidence presentation, and conclusions and outcomes related to the internship experience. Prerequisite: HORT 462V. (Typically offered: Fall, Spring and Summer)

HORT 4903. Golf and Sports Turf Management. 3 Hours.

Turf management techniques for golf courses, and athletic fields including species selection, root-zone construction and modification, fertilization, mowing, irrigation and pest control. Corequisite: Lab component. Prerequisite: CSES 2203 and CSES 2201L and (HORT 2303 or HORT 3403). (Typically offered: Fall Odd Years)