Horticulture (HORT)

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Head of the Department
316 Plant Sciences Building
479-575-2603

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:

State minimum core and discipline specific general education requirements:

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

Communications

Two English Core Courses (unless exempt)

ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (unless exempt)
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (unless exempt)

U.S. History and Government (3 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HIST 2003</td>
<td>History of the American People to 1877 (ACTS Equivalency = HIST 2113)</td>
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<td>HIST 2013</td>
<td>History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)</td>
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<tr>
<td>MATH 1203</td>
<td>College Algebra (ACTS Equivalency = MATH 1103) (or higher level math)</td>
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<tr>
<td>BIOL 1543</td>
<td>Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)</td>
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<tr>
<td>BIOL 1613</td>
<td>Plant Biology (ACTS Equivalency = BIOL 1034 Lecture) and Plant Biology Laboratory (ACTS Equivalency = BIOL 1034 Lab)</td>
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<td>CHEM 1073</td>
<td>Fundamentals of Chemistry (ACTS Equivalency = CHEM 1214 Lecture) and Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab) (OR) or CHEM 1111:University Chemistry I (ACTS Equivalency = CHEM 1111 Lecture) and CHEM 1111L:University Chemistry I Laboratory (ACTS Equivalency = CHEM 1111L) and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1111 Lab)</td>
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<td>CHEM 2613</td>
<td>Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture) and Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab) (AND)</td>
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<td>AGEC 1103</td>
<td>Principles of Agricultural Microeconomics or AGEC 2111:Principles of Agricultural Macroeconomics or ECON 20 Principles of Macroeconomics (ACTS Equivalency = ECON 2103) or ECON 20:Principles of Microeconomics (ACTS Equivalency = ECON 2203) or ECON 21:Basic Economics: Theory and Practice</td>
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<td>UNIV 1001</td>
<td>University Perspectives</td>
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<tr>
<td>COMM 1313</td>
<td>Public Speaking (ACTS Equivalency = SPCH 1003)</td>
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<tr>
<td>CSES 2203</td>
<td>Soil Science</td>
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<td>HORT 2003</td>
<td>Principles of Horticulture (with lab component)</td>
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<tr>
<td>HORT 3901</td>
<td>Horticultural Career Development</td>
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<tr>
<td>HORT 4403</td>
<td>Plant Propagation (with lab component)</td>
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Horticulture (HORT)

HORT 462V Horticulture, Landscape, Turf Sciences Internship Experience

Select two of the following:
- CSES 4143 Principles of Weed Control
- ENTO 3013 Introduction to Entomology
- PLPA 3004 Principles of Plant Pathology (with lab component)

Horticulture Electives (18 hours)

Select 18 hours from the following:
- 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 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 4603 Practical Landscape Planning
- HORT 4703 Greenhouse Management and Controlled Environment Horticulture
- HORT 4701L Greenhouse Management and Controlled Environment Horticulture Laboratory
- HORT 4803 Greenhouse Crops Production
- HORT 4801L Greenhouse Crops Production Laboratory
- HORT 4903 Golf and Sports Turf Management (with lab component)
- HORT 4913 Rootzone Management for Golf and Sports Turf
- HORT 4921 Golf Course Operations
- HORT 4932 Turf Best Management Practices
- HORT 400V Special Problems
- HORT 401V Special Topics in Horticulture, Turf or Landscape

Discipline-Related Electives

Select 12 hours from the following:
- AGME 3102 Small Power Units/Turf Equipment & AGME 3101L Small Power Units/Turf Equipment Laboratory
- AGME 3153 Surveying in Agriculture and Forestry
- AGME 4973 Irrigation (with lab component)
- ANSC/POSC 3123 Principles of Genetics
- HORT 1103 Plants, People and You
- HORT 3123 International Horticulture
- HORT 3203 Sustainable Landscape Practices
- HORT 4413 Horticulture Physiology
- HORT 4503 Sustainable Nursery Production (with lab component)
- HORT 400V Special Problems
- HORT 401V Special Topics in Horticulture, Turf or Landscape
- LARC 3914 Planting Design I
- LARC 2113 Design Communications I

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

WCOB (up to 9 hours)

or any AGEC, BIOL, CHEM, CSES, ENSC, ENTO, HORT, PLPA class not taken in any other elective groups.

General Electives (15-26 hours of general electives to total 120 hours)

Total Hours

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/undergraduateg狁ing/catalog/academicregulations/eightsemesterdegreecompletionpolicy) for university requirements of the program.

First Year

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<tr>
<th>Units</th>
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<tr>
<td>Fall</td>
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<td>UNIV 1001 University Perspectives</td>
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<td>MATH 1203 College Algebra (ACTS Equivalency = MATH 1103)</td>
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<td>ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013)</td>
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<td>COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003)</td>
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<td>HORT 2003 Principles of Horticulture</td>
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<td>History Core Elective</td>
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Second Year

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<td>CHEM 1073 Fundamentals of Chemistry (ACTS Equivalency = CHEM 1214 Lecture) &amp; CHEM 1071L Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab)</td>
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<td>Horticulture Electives</td>
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HORT 3901 Horticultural Career and Development 1
Discipline-related Elective 3
General Electives 3
Year Total: 13 14

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<th>Third Year</th>
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<tr>
<td>CSES 2203 Soil Science &amp; CSES 2201L Soil Science Laboratory</td>
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<td>Pest Management Elective</td>
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<td>HORT 4403 Plant Propagation</td>
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<td>Pest Management Elective</td>
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<td>General Electives</td>
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<td>Year Total:</td>
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Total Units in Sequence: 117-122

Minor in Horticulture (HORT-M)
The minor will consist of 18 hours to include:

- HORT 2003 Principles of Horticulture 3
- HORT 4403 Plant Propagation 3
- Select 9-11 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

Total Hours: 18

Minor in Landscape Horticulture (LHRT-M)
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 Environment Horticulture and Greenhouse Management and Controlled Environment Horticulture Laboratory
  - HORT 4803 Greenhouse Crops Production and Greenhouse Crops Production Laboratory
  - LARC 3734 Landscape Architecture Construction III

Total Hours: 18

Minor in Turf Management (TURF-M)
18 to 20 hours to include the following:

- HORT 2003 Principles of Horticulture 3
- HORT 4403 Plant Propagation 3
- Select 9-11 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
  - CSES 2003 Introduction to Weed Science
  - ENTO 3013 Introduction to Entomology (with lab component)
  - PLPA 3004 Principles of Plant Pathology (with lab component)

Total Hours: 18
Select two of the following: 6-8
- AGME 4973 Irrigation
- AGME 3102 Small Power Units/Turf Equipment & AGME 3101L and Small Power Units/Turf Equipment Laboratory
- CSES 2003 Introduction to Weed Science (with lab component)
- CSES 2203 Soil Science & CSES 2201L and Soil Science Laboratory
- ENTO 3013 Introduction to Entomology (with lab component)
- PLPA 3004 Principles of Plant Pathology (with lab component)
- HORT 4903 Golf and Sports Turf Management (with lab component)
- HORT 4913 Rootzone Management for Golf and Sports Turf (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

Facult

Carson, Janet B., M.S. (University of Arkansas), Associate Professor, 1992.
Clark, John R., Ph.D. (University of Arkansas), M.S., B.S. (Mississippi State University), Distinguished Professor, 1983.
Garcia, M. Elena, Ph.D., M.S. (University of Arkansas), B.A. (University of Arkansas at Little Rock), Professor, 2005.
Karcher, Douglas Edward, Ph.D., M.S. (Michigan State University), B.S. (The Ohio State University), Professor, 2000.
Lee, Jacquelyn A., Ph.D., M.S. (University of Arkansas), B.S. (Arkansas Technical University), Associate Professor, 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.
McWhirt, Amanda L., Ph.D. (North Carolina State University), M.S. (Louisiana State University), B.S. (Tarleton State University), Assistant Professor, 2016.
Richardson, Mike, Ph.D. (University of Georgia), M.S. (Louisiana State University), B.S. (Louisiana Tech University), Professor, 1998.
Robbins, James A., Ph.D. (University of California-Davis), M.S. (University of Georgia), B.S. (University of Wisconsin), Professor, 1998.
Rom, Curt R., Ph.D., M.S. (The Ohio State University), B.S. (University of Arkansas), University Professor, 1989.
Shi, Aiong, 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.
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.

HORT 3901. 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.

HORT 400V. Special Problems. 1-6 Hour.
Original investigations on assigned problems in horticulture. Prerequisite: Junior standing. 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. 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. 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.

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 practices. 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.

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.

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.

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.