

Horticulture (HORT)

Wayne A. Mackay
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	0-6
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)	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 hours)		3
MATH 1203	College Algebra (ACTS Equivalency = MATH 1103) (or higher level math)	
Sciences (16-20 hours)		16-20
BIOL 1543 & BIOL 1541L	Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
BIOL 1613 & BIOL 1611L	Plant Biology (ACTS Equivalency = BIOL 1034 Lecture) and Plant Biology Laboratory (ACTS Equivalency = BIOL 1034 Lab)	
CHEM 1073 & CHEM 1071L	Fundamentals of Chemistry (ACTS Equivalency = CHEM 1214 Lecture) and Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab) (OR)	
	or CHEM 11: University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab) and University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
CHEM 2613 & CHEM 2611L	Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture) and Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab) (AND)	
Fine Arts and Humanities (6 hours)		6
	Fine Arts Core Course	
	Humanities Core Course	
Social Sciences (9 hours total; 3 hours must be selected from the following)		9
AGEC 1103	Principles of Agricultural Microeconomics	
	or AGEC 21: 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	
HLTS Core Requirements (26-28 hours)		27-28
UNIV 1001	University Perspectives	
COMM 1313	Public Speaking (ACTS Equivalency = SPCH 1003)	
	Communication Intensive Elective (3 hours from approved list of courses)	
CSES 2203 & CSES 2201L	Soil Science and Soil Science Laboratory	
HORT 2003	Principles of Horticulture (with lab component)	
HORT 3901	Horticultural Career Development	
HORT 4403	Plant Propagation (with lab component)	

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)		18
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		12
Select 12 hours from the following:		
AGME 3102	Small Power Units/Turf Equipment & AGME 3101L and 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 and 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)		15-26
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.

	Units		
	Fall	Spring	Summer
First Year			
UNIV 1001 University Perspectives	1		
MATH 1203 College Algebra (ACTS Equivalency = MATH 1103)	3		
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013)	3		
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003)	3		
BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) & BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	4		
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)		3	
HORT 2003 Principles of Horticulture		3	
Fine Arts/Humanities University Core		3	
History Core Elective		3	
Social Science Core		3	
Year Total:	14	15	

	Units		
	Fall	Spring	Summer
Second Year			
CHEM 1073 Fundamentals of Chemistry (ACTS Equivalency = CHEM 1214 Lecture) & CHEM 1071L Fundamentals of Chemistry Laboratory (ACTS Equivalency = CHEM 1214 Lab)	4		
Communication Intensive Class	3		
Horticulture Electives	6		
BIOL 1613 Plant Biology (ACTS Equivalency = BIOL 1034 Lecture) & BIOL 1611L Plant Biology Laboratory (ACTS Equivalency = BIOL 1034 Lab)		4	
Fine Arts/Humanities University Core		3	

HORT 3901 Horticultural Career Development		1	
Discipline-related Elective		3	
General Electives		3	
Year Total:	13	14	

Third Year	Units		
	Fall	Spring	Summer
CSES 2203 Soil Science & CSES 2201L Soil Science Laboratory	4		
Pest Management Elective	3-4		
Horticulture Elective	3		
Social Sciences University Core Elective	3		
Discipline-Related Elective	3		
CHEM 2613 Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture) & CHEM 2611L Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab)		4	
Discipline-Related Elective		3-4	
HORT 4403 Plant Propagation		3	
Horticulture Elective		3	
HORT 462V Horticulture, Landscape, Turf Sciences Internship Experience			3
Year Total:	16-17	13-14	3

Fourth Year	Units		
	Fall	Spring	Summer
Discipline-Related Elective	3		
Horticulture Elective	3		
Pest Management Elective	3-4		
General Electives	6-7		
Social Science University Core Elective		3	
Horticulture Elective		3	
General Electives		8-9	
Year Total:	15-17	14-15	

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	

HORT 4703 Greenhouse Management and Controlled & HORT 4701L Environment Horticulture and Greenhouse Management and Controlled Environment Horticulture Laboratory

HORT 4803 Greenhouse Crops Production & HORT 4801L Land Greenhouse Crops Production 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 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

HORT 4803 Greenhouse Crops Production & HORT 4801L Land 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 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 Rootzone Management for Golf and Sports Turf (with lab component)

Select 3-4 hours from the following: 3-4

CSES 2003 Introduction to Weed Science

ENTO 3013 Introduction to Entomology (with lab component)

PLPA 3004 Principles of Plant Pathology (with lab component)

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

Faculty

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, 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.

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.

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.

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 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.

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.

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).

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.

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. 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.

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.

HORT 4801L. Greenhouse Crops Production Laboratory. 1 Hour.

Laboratory involving hands-on experiments designed to demonstrate principles discussed in the lecture section. Includes field trips. Corequisite: HORT 4803.

HORT 4803. Greenhouse Crops Production. 3 Hours.

Principles and practices of production and marketing of crops commonly grown in controlled environments including flowering containerized herbaceous species, geophytes, annual and perennial bedding plants, hydroponic vegetables and herbs. Prerequisite: HORT 4703.

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).

HORT 4913. Rootzone Management for Golf and Sports Turf. 3 Hours.

An overview of the fundamental concepts of the physical and chemical properties of rootzones as related to construction and turfgrass management. Prerequisite: HORT 2303 and CSES 2203.

HORT 4921. 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. Prerequisite: HORT 4903.

HORT 4932. Turf Best Management Practices. 2 Hours.

The course covers the impacts of turfgrass management practices on turf quality and the environment. In addition, the identification, biology, and control practices for the major insects, diseases, and weeds that infest turf will be covered. Emphasis will be placed on management strategies that include both chemical and non-chemical approaches to the prevention and control of common turfgrass pests. Prerequisite: HORT 4903.