HORTICULTURE (HORT)

HORT 127 Survey of Turfgrass and Landscape Management
Crosslisted with: TLMT 127, AGRO 127
Description: Introduction to careers, internships and co-curricular activities in turfgrass and landscape management.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

HORT 130 Introduction to Horticulture Science
Description: Introduction to the scientific concepts and practical skills involved in horticultural science.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: AGRO 227, HORT 227, PGAM 227, TLMT 227, HORT 325

HORT 131 Plant Science
Crosslisted with: AGRO 131
Description: Biology of plants grown for food, fiber, fun, or fuel. Plant life cycles in managed ecosystems and their role in global carbon and water cycles. Mechanisms plants use to drive and control their growth, propagate, and change to compete with other organisms in their environment.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: AGRO 227, HORT 227, PGAM 227, TLMT 227, AGRO 228, HORT 228, TLMT 228, AGRO 240, RNGE 240; HORT 212, NRES 212, LARC 212; HORT 353; HORT 355
ACE: ACE 4 Science

HORT 133 Horticultural Plant Science Laboratory
Prerequisites: AGRO 131 or parallel
Description: Growth, anatomy, morphology and physiology of fruits, vegetables, woody plants, ornamentals and turf. Emphasis on both field and greenhouse grown horticultural plants.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LAB
Prerequisite for: HORT 355

HORT 153 Soil Resources
Crosslisted with: AGRO 153, SOIL 153
Prerequisites: High school chemistry or one semester college chemistry.
Description: Characteristics of soils in relation to their appropriate uses and protection. Principles and practices using cooperative exercises including discussion, assessment, planning, problem-solving, writing, and presentation involving all aspects of soils.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: AGRO 327, HORT 327, TLMT 327; AGRO 361, GEOL 361, NRES 361, SOIL 361, WATS 361; AGRO 455, AGRO 855, NRES 455, NRES 855, SOIL 455; AGRO 472, AGRO 872, NRES 472, NRES 872, SOIL 472, WATS 472; NRES 245, AGRO 245; NRES 319

HORT 170 Residential Landscape Design
Description: Introductory course in home landscaping focusing on basic design elements and processes. Students prepare a program, analyze a dwelling and site, determine a phased budget, conceptualize a layout, and select detailed elements and techniques to implement a design for an actual residence.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

HORT 200 Landscape and Environmental Appreciation
Crosslisted with: GEOG 200, LARC 200
Description: Values and processes in human landscapes and natural environments. Concepts and tools to understand the context of local and global environments and significant historical landscapes. Landscape as an indicator of aesthetic quality, design principles and processes as integrators of humans and nature, and the garden as a model for creating sustainable landscapes.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: HORT 267

HORT 212 Landscape Plants I
Crosslisted with: NRES 212, LARC 212
Prerequisites: HORT 131
Notes: Requires Saturday off-campus field trips.
Description: Identification using botanical and common names for herbaceous annuals, perennials, grasses, ground covers, vines, trees, and shrubs commonly found in Great Plains gardens, parks, and landscapes is stressed through field visits.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: HORT/LARC/NRES 212

HORT 213 Landscape Plants II
Crosslisted with: NRES 213, LARC 213
Prerequisites: HORT/LARC/NRES 212.
Notes: Continuation of HORT/LARC/NRES 212. Continuation of HORT/LARC/NRES 212.
Description: Site requirements, landscape use, natural history, and specific needs of herbaceous ornamentals, grasses, ground covers, vines, trees, and shrubs commonly found in Great Plains gardens, parks, and landscapes. Common cultivars and additional species not covered in HORT/LARC/NRES 212.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
HORT 214 Herbaceous Landscape Plants
Crosslisted with: NRES 214
Description: Identification of herbaceous plants with ornamental value in the landscape including native and introduced annuals, perennials, grasses and cultivars. Typical ecological associations, environmental tolerances and/or intolerance, cultural requirements, and design characteristics.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

HORT 215 Genetics
Crosslisted with: AGRO 215, TLMT 215
Prerequisites: 3 hrs biological sciences
Description: Discovery of the biology of genes and the application of genetics principles to understand the control and inheritance of traits in families and populations. Focus is on animals and plants that are important in medicine, agriculture and nature. Learning emphasis is problem solving via online, instant feedback assessments, group discussion, experimental data analysis and context-based exams.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: ASCI 330

HORT 216 Plant Breeding Principles and Practice
Crosslisted with: AGRO 216, BIOS 216
Prerequisites: High school biology and chemistry. BIOS 101 and 101L, or 102 or equivalent recommended.
Description: Plant breeding theory and technique. Application of genetic principles to plant improvement. Experience with breeding agronomic and horticultural plant species to illustrate plant mating systems and breeding principles.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

HORT 221 Plant Propagation
Prerequisites: BIOS 109 or permission.
Description: Principles and practices involved in sexual and asexual propagation of herbaceous and woody plants. Laboratory work includes actual practice to gain skill and experience on the different methods of propagating plants.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: HORT 325

HORT 227 Introductory Turfgrass Management
Crosslisted with: AGRO 227, PGAM 227, TLMT 227
Prerequisites: AGRO 131 or HORT 130 or BIOS 109.
Description: Introduction to turfgrasses, their management and use, and to the turfgrass industry.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: AGRO 326, HORT 326, TLMT 326; AGRO 327, HORT 327, TLMT 327

HORT 228 Introduction to Landscape Management
Crosslisted with: AGRO 228, TLMT 228
Prerequisites: AGRO 131 or BIOS 109
Notes: TLMT/AGRO/HORT uses a team approach to problem solving, discussion, assessment planning, and oral presentations of applied case studies.
Description: An overview of landscape management and landscape design. Principles and practices.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: AGRO 326, HORT 326, TLMT 326

HORT 229 Introductory Turfgrass Management Laboratory
Crosslisted with: TLMT 229, AGRO 229
Description: Laboratory covering turfgrass identification and management. Concurrent enrollment with AGRO/HORT/TLMT 227 preferred. Required for Turfgrass Science majors, other students require instructor consent.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LAB

HORT 242 North American Wildland Plants
Crosslisted with: AGRO 242, RNGE 242
Prerequisites: Permission, AGRO/RNGE 240 recommended.
Description: Identification and description of two-hundred important wildland plants of North America. Characteristics of these plants evaluated in terms of management implications.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 4
Format: LEC

HORT 261 Floral Design I
Description: Principles of floral design and retail florist shop management, while offering practical experience in all aspects of flower arranging. Includes identification, care and handling, marketing and critiquing of floral designs.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: HORT 262

HORT 262 Floral Design II
ACE: ACE 7 Arts

HORT 263 Floral Design III
HORT 265 Visual Communication for Landscape Design  
**Prerequisites:** HORT 200.  
**Description:** Graphic and oral presentation techniques for landscape design; sketching; introduction to use of various media and computers for visual communication and landscape analysis.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LAB  
**Prerequisite for:** HORT 267

HORT 267 Introduction to Landscape Design Studio  
**Prerequisites:** HORT 200, HORT 265 or permission  
**Notes:** HORT 267 requires individual and team projects, studio critiques, presentations, and may require off-campus site visits outside of scheduled class time.  
**Description:** Introduction to the process and elements of landscape design.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** SDO  
**Prerequisite for:** HORT 300; HORT 301  
**Groups:** Techniques

HORT 270 Biological Invaders  
**Crosslisted with:** AGRO 270, ERES 270, PLPT 270  
**Prerequisites:** 3 hrs biological sciences.  
**Description:** Impact of exotic species and invasive organisms: agricultural and medical emerging disease; predicting biological invasions; biological control; regulatory, monitoring, and control efforts; ecological impact.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

HORT 275 Agribusiness Entrepreneurial Finance  
**Crosslisted with:** AECN 275, EAEP 275, ENTR 275, AGRO 275  
**Description:** Overview of financial issues for agribusiness start-ups. Business funding specific to new enterprises. Case studies on financial practices for start-up firms.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

HORT 300 Introduction to Landscape Construction  
**Prerequisites:** HORT 267 or concurrent  
**Notes:** Offered Spring Semester of odd years and alternate with HORT 301. HORT 300 requires field trips to landscape installation sites.  
**Description:** Materials, systems, and methods for constructing landscapes.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** SPRING

HORT 301 Introduction to Landscape Contracting  
**Prerequisites:** HORT 267 and HORT 388 or concurrent  
**Notes:** Offered Spring of even years and alternate with HORT 300.  
**Description:** Overview of the landscape contracting business and administration of contracts, cost estimation and bidding.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Offered:** SPRING  
**Groups:** Techniques

HORT 325 Greenhouse Practices and Management  
**Prerequisites:** HORT 130, 221  
**Description:** Principles underlying the management of the greenhouse.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

HORT 326 Landscape Solutions  
**Crosslisted with:** AGRO 326, TLMT 326  
**Prerequisites:** TLMT/AGRO/HORT 227 or 228  
**Description:** Using processes and problem-solving approach to identify and analyze common landscape management situations in commercial, public, and residential landscapes. Integrate design, environment, function, pest and disease, and existing management practices to produce recommendations.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

HORT 327 Turfgrass Science and Management  
**Crosslisted with:** AGRO 327, TLMT 327  
**Prerequisites:** AGRO/HORT/SOIL 153; CHEM 105 or 109; and TLMT 227  
**Description:** Scientific principles of turf species adaptation, turf and/or soil relationships, establishment, fertility, mowing, irrigation, and pest control of turf species.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

HORT 330 Pruning Ornamentals  
**Crosslisted with:** AGRO 330, TLMT 330  
**Description:** Why, when and how to prune ornamental landscape plants. Demonstrations and field opportunities on how to choose and how to use pruning tools correctly.  
**Credit Hours:** 1  
**Max credits per semester:** 1  
**Max credits per degree:** 1  
**Format:** LEC

HORT 352 Production and Physiology of Horticultural Crops  
**Prerequisites:** HORT 130 or AGRO 131; parallel HORT 353 or 354.  
**Description:** Principles underlying the management and production of floricultural, fruit and vegetable crops.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LEC
HORT 353 Vegetable Crop Production Laboratory  
**Prerequisites:** AGRO/HORT 131. HORT 133 suggested.  
**Description:** Vegetable crop production principles and practices, both locally and from a global perspective. Experience with seeding, transplant production, and growing of vegetables in field and greenhouse.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LAB

HORT 354 Fruit Production Laboratory  
**Prerequisites:** HORT 130 or AGRO 131.  
**Description:** Fruit crop production principles and practices, both locally and from a global perspective. Experience with planting, pruning and layout of orchard, vineyard and small fruit crops, greenhouse propagation, and production practices.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LAB

HORT 355 Perennial, Pot and Bedding Plant Production Laboratory  
**Prerequisites:** AGRO/HORT 131 and HORT 133; HORT 352 recommended.  
**Description:** Growing conditions of specific perennial, annual, pot plants, cut flowers. How to schedule and cost account plant production. Care of post-production plants. Experience propagating and growing perennial, pot and bedding plants and cut flowers in the greenhouse.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LAB

HORT 370 Biology of Fungi  
**Crosslisted with:** AGRO 370, PLPT 370  
**Prerequisites:** 8 hrs biological sciences.  
**Description:** Survey of fungi in natural and human ecosystems: symbiotic relationships; as disease agents in humans, animals, and plants; applications in food, agricultural, and pharmaceutical industries; historical and current impacts on society.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LAB

HORT 388 Agribusiness Entrepreneurship  
**Crosslisted with:** AGRO 388, ENTR 388, EAEP 388, ABUS 388  
**Description:** Overview of types of agricultural enterprises. Basic accounting principles as they relate to agricultural businesses. Requires completion of a marketing plan specific to agricultural enterprises based on a business idea. Student team projects with emphasis on marketing.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

HORT 395 Career Experience  
**Crosslisted with:** TLMT 395  
**Prerequisites:** Sophomore standing; HORT or AGRO or TLMT major.  
**Notes:** HORT/TLMT 395 requires advanced permission before registering for the course. A written and oral report is required at the completion of the career experience.  
**Description:** Participation in a horticulture enterprise (other than in one of those in which the student has had previous experience).  
**Credit Hours:** 1-5  
**Min credits per semester:** 1  
**Max credits per semester:** 5  
**Max credits per degree:** 5  
**Format:** FLD

HORT 396 Current Projects and Topics in Horticulture  
**Prerequisites:** Sophomore standing; 12 hours in subject areas dealing with plant sciences; and permission.  
**Notes:** A completed and approved study plan contract is required.  
**Description:** Independent or group projects, readings, or research focusing on current aspects of horticulture.  
**Credit Hours:** 1-5  
**Min credits per semester:** 1  
**Max credits per semester:** 5  
**Max credits per degree:** 5  
**Format:** IND

HORT 399 Independent Study  
**Prerequisites:** Junior standing; 12 hrs plant science; and permission.  
**Notes:** HORT 399 requires advance approval of plan of work and is to be under the supervision and evaluation of a Horticulture departmental faculty member. Oral and written reports are mandatory at the completion of this Independent Study.  
**Description:** Individual or group projects in research, literature review, or extension of course work.  
**Credit Hours:** 1-5  
**Min credits per semester:** 1  
**Max credits per semester:** 5  
**Max credits per degree:** 12  
**Format:** IND

HORT 403 Scientific Writing and Communication  
**Crosslisted with:** AGRO 403, AGRO 803, HORT 803  
**Prerequisites:** Senior standing or higher, an ACE 1 written communication course, an ACE 2 oral communication course, and permission of instructor  
**Description:** Reading and critiquing, writing, and presenting scientific information. Use research data to compose a manuscript in standard scientific format, and prepare and present a poster to a general audience. Ethical issues in research and writing.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

ACE: ACE 10 Integrated Product
HORT 406 Plant Ecophysiology: Theory and Practice  
Crosslisted with: AGRO 806, HORT 806, NRES 406, NRES 806, AGRO 406  
Prerequisites: Junior standing, 4 hrs ecology, and 4 hrs botany or plant physiology.  
Description: Principles of plant physiology which underlie the relationship between plants and their physical, chemical and biotic environments. An introduction to the ecological niche, limiting factors and adaptation. An overview of the seed germination and ecology, plant and soil water relations, nutrients, plant energy budgets, photosynthesis, carbon balance and plant-animal interactions. An introduction to various field equipment used in ecophysiological studies.  
Credit Hours: 4  
Max credits per semester: 4  
Max credits per degree: 4  
Format: LEC

HORT 407 Bio-Atmospheric Instrumentation  
Crosslisted with: AGRO 469, GEOG 469, METR 469, MSYM 469, NRES 469, AGRO 869, GEOG 869, HORT 807, METR 869, MSYM 869, NRES 869  
Prerequisites: Junior standing; MATH 106; 4 hrs physics; physical or biological science major.  
Description: Discussion and practical application of principles and practices of measuring meteorological and related variables near the earth's surface including temperature, humidity, precipitation, pressure, radiation and wind. Performance characteristics of sensors and modern data collection methods are discussed and evaluated.  
Credit Hours: 3  
Max credits per semester: 3  
Max credits per degree: 3  
Format: LEC

Groups: Physical Geography

HORT 408 Microclimate: The Biological Environment  
Crosslisted with: AGRO 408, GEOG 408, METR 408, NRES 408, WATS 408, AGRO 808, GEOG 808, HORT 808, METR 808, NRES 808  
Prerequisites: Junior standing, MATH 106 or equivalent, 5 hrs physics, major in any of the physical or biological sciences or engineering; or permission.  
Description: Physical factors that create the biological environment. Radiation and energy balances of earth's surfaces, terrestrial and marine. Temperature, humidity, and wind regimes near the surface. Control of the physical environment through irrigation, windbreaks, frost protection, manipulation of light, and radiation. Applications to air pollution research. Instruments for measuring environmental conditions and remote sensing of the environment.  
Credit Hours: 3  
Max credits per semester: 3  
Max credits per degree: 3  
Format: LEC

Groups: Physical Geography

HORT 409A Case studies in plant breeding: Breeding for Disease Resistance  
Crosslisted with: AGRO 409A, AGRO 809A, HORT 809A  
Description: The application of fundamental genetics principles in inheritance, gene mapping and DNA analysis to decision making by plant breeders with the goal of improving disease resistance in crop cultivars. Learning is structured by the genetics discovery story told in published research articles and the thinking process of plant breeders who will use these discoveries in their work.  
Credit Hours: 1  
Max credits per semester: 1  
Max credits per degree: 1  
Format: LEC

HORT 409B Case Studies in plant breeding: Transgenic strategies for disease resistance  
Crosslisted with: AGRO 409B, AGRO 809B, HORT 809B  
Description: The application of basic science and technology by plant genetic engineering experts with the goal of teaming with plant breeders to improve disease resistance in crop cultivars. Learning is structured by the genetics discovery story told in published research articles and the thinking process of genetic engineers and plant breeders who will use these discoveries in their work.  
Credit Hours: 1  
Max credits per semester: 1  
Max credits per degree: 1  
Format: LEC

HORT 414 Turfgrass Disease Management  
Crosslisted with: AGRO 414, AGRO 814, HORT 814, PLPT 414, PLPT 814, TLMT 414, TLMT 814  
Prerequisites: BIOS/PLPT 369 or one semester of introductory plant pathology.  
Description: Pathogens, epidemiology, and control of diseases specific to turfgrass.  
Credit Hours: 1  
Max credits per semester: 1  
Max credits per degree: 1  
Format: LEC

HORT 418 Agroforestry Systems in Sustainable Agriculture  
Crosslisted with: HORT 818, NRES 417, NRES 817  
Prerequisites: 12 hours biological or agricultural sciences.  
Description: The roles of woody plants in sustainable agricultural systems of temperate regions. Emphasis on the ecological and economic benefits of trees and shrubs in the agricultural landscape. Topics include: habitat diversity and biological control; shelterbelts structure, function, benefits and design; intercropping systems; silvopastoral systems; riparian systems; and production of timber and specialty crops. Comparison of temperate agroforestry systems to those of tropical areas.  
Credit Hours: 3  
Max credits per semester: 3  
Max credits per degree: 3  
Format: LEC
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Crosslisted with</th>
<th>Prerequisites</th>
<th>Description</th>
<th>Credit Hours</th>
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<th>Format</th>
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<tbody>
<tr>
<td>HORT 426</td>
<td>Invasive Plants</td>
<td>AGRO 426, AGRO 826, HORT 826, NRES 426, NRES 826</td>
<td>AGRO/HORT/SOIL 153; BIOS 109.</td>
<td>Identification, biology and ecology of weedy and invasive plants. Principles of invasive plant management by preventative, cultural, biological, mechanical and chemical means using an adaptive management framework. Herbicide terminology and classification, plant-herbicide and soil-herbicide interactions, equipment calibration and dosage calculations.</td>
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<td>HORT 427</td>
<td>Turfgrass Systems Management</td>
<td>AGRO 427, TLMT 427, AGRO 827, HORT 827, TLMT 827</td>
<td></td>
<td>Critical evaluation of turfgrass settings to create economical and environmentally friendly management systems for professionally managed turf areas.</td>
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<tr>
<td>HORT 435</td>
<td>Agroecology</td>
<td>AGRO 435, AGRO 835, NRES 435, NRES 835</td>
<td>AGRO/HORT/NRES 435: Senior standing or permission. For AGRO/NRES 835: 12 hrs biological or agricultural sciences or permission.</td>
<td>Integration of principles of ecology, plant and animal sciences, crop protection, and rural landscape planning and management for sustainable agriculture. Includes natural and cultivated ecosystems, population and community ecology, nutrient cycling, pest management, hydrologic cycles, cropping and grazing systems, landscape ecology, biodiversity, and socioeconomic evaluation of systems.</td>
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<td>HORT 436</td>
<td>Agroecosystems Analysis</td>
<td>AGRO 436, AGRO 836, HORT 836</td>
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<td>Analysis of production, economics, environmental impacts, and social integration aspects of farms and farming systems</td>
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<td>HORT 439</td>
<td>Organic Farming and Food Systems</td>
<td>AGRO 839, AGRO 439, HORT 839</td>
<td>12 credits of agricultural or biological science, economics, or natural resources</td>
<td>History of organic farming and horticultural systems, organic certification, nutrient and pest management in organic systems, planning organic enterprises including production and marketing, resilience of organic systems in ecological, economic, and social terms; future issues and potentials of organic food systems.</td>
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<td>HORT 441</td>
<td>Perennial Plant Function, Growth, and Development</td>
<td>AGRO 441, AGRO 841, HORT 841, RNGE 441</td>
<td>AGRO 325 or equivalent.</td>
<td>Principles of crop physiology and developmental morphology in relation to function, growth, development, and survival of perennial forage, range, and turf plants. The relationship of physiology and morphological development on plant use and management.</td>
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<td>HORT 452</td>
<td>Invasive Plants</td>
<td>AGRO 452, AGRO 852, HORT 852, NRES 452, NRES 852</td>
<td>AGRO/HORT/NRES 452: Senior standing or permission. For AGRO/NRES 852: 12 hrs biological or agricultural sciences or permission.</td>
<td>Identification, biology and ecology of weedy and invasive plants. Principles of invasive plant management by preventative, cultural, biological, mechanical and chemical means using an adaptive management framework. Herbicide terminology and classification, plant-herbicide and soil-herbicide interactions, equipment calibration and dosage calculations.</td>
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<td>HORT 442</td>
<td>Turfgrass Management and Crop Production</td>
<td>AGRO 442, AGRO 842, HORT 842, NRES 442, NRES 842</td>
<td>AGRO/HORT/NRES 442: Senior standing or permission. For AGRO/NRES 842: 12 hrs biological or agricultural sciences or permission.</td>
<td>Critical evaluation of turfgrass settings to create economical and environmentally friendly management systems for professionally managed turf areas.</td>
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<td>History of organic farming and horticultural systems, organic certification, nutrient and pest management in organic systems, planning organic enterprises including production and marketing, resilience of organic systems in ecological, economic, and social terms; future issues and potentials of organic food systems.</td>
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Notes: Offered spring semester of even-numbered calendar years. HORT 462 requires a culminating group project creating one of four types of nursery landscape businesses. Principles underlying the production of nursery crops and the profitable management of a nursery. Propagation, crop scheduling, transplanting, handling, and transportation of nursery crops. Cultural considerations such as media, fertilizers, irrigation, and pest control. Economic aspects of running a business include creating income and balance sheets. Credit Hours: 4 Max credits per semester: 4 Max credits per degree: 4 Format: LEC ACE: ACE 10 Integrated Product
HORT 467 Planting Design
Crosslisted with: ARCH 467, ARCH 567, ARCH 867, LARC 467
Prerequisites: HORT/LARC/NRES 212; ARCH 210 or HORT/LARC 266.
Description: Design processes, principles, and elements as applied to the use of native and ornamental plant materials. Aesthetic, functional, and micro-climatic arrangements of plant material in parks, on commercial property, on home grounds, along roadways, and in urban open spaces. Develop a palette of plants and graphics for designs.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC

HORT 469 Senior Landscape Design
Crosslisted with: ARCH 469
Prerequisites: HORT 341 and/or permission.
Description: Capstone course for the landscape option. Students work individually on real-world projects with actual clients. They select the project location and scope in consultation with the instructor prior to the semester this course is taken. The project must reflect evidence of a design process, design articulation and communication understandable to the client and provide in depth drawings, details needed to carry out the implementation of the design.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC

HORT 470 Critical Thinking in Landscape Management
Crosslisted with: AGRO 470, TLMT 470
Prerequisites: AGRO/HORT/PGMP/TLMT 326.
Description: Using processes and strategies to identify and compare issues, make recommendations, demonstrate proficiency in field application as skills and techniques, and prepare cost estimates in the development of landscape management plans.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 10 Integrated Product

HORT 471 Vines, Wines and You
Crosslisted with: HORT 871, NUTR 471, NUTR 871, HRTM 471, HRTM 871
Prerequisites: 6 hrs science or equivalent experience; 21 years of age or older
Notes: Proof of age is required.
Description: Origin, botany, historical and cultural significance of the grapevine and related species. Principles and practices of vineyard establishment, management and processing of grape products, importance and/or scope of grape and wine industry; global and local significance. Culinary applications, health, environmental and safety-related issues, business and industry relations and experience.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

HORT 480 Modified Rootzones
Crosslisted with: AGRO 480, TLMT 480, TLMT 880, AGRO 880, HORT 880
Description: Modified rootzones and their applications in the turfgrass and landscape management industry. Correct applications and construction techniques. Offered as a five-week course.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

HORT 488 Business Management for Agricultural Enterprises
Crosslisted with: HORT 888, EAEP 488, AGRO 488, ENTR 488, EAEP 888, AGRO 888, ENTR 888, ABUS 488
Description: Research a specific agricultural enterprise. Develop and present a business plan using materials from the primary area of interest. HORT 488/888 requires the completion of a shadowing assignment and the analysis of case studies.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 10 Integrated Product

HORT 489 Urbanization of Rural Landscapes
Crosslisted with: AGRO 489, AGRO 889, CRPL 489, HORT 889, CRPL 889
Prerequisites: Senior standing, graduate standing, or permission.
Description: Development converts rural landscapes into housing, roads, malls, parks, and commercial uses. This process fragments landscapes and changes ecosystem functions, drives up land prices, and pushes agriculture into more marginal areas. This multi-disciplinary, experiential course guides students in learning about the urbanization process, the impacts on landscapes, people, and the community, and the choices that are available to informed citizens.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

HORT 495 Grasslands Seminar
Crosslisted with: AGRO 495, ENTO 495, GRAS 495, NRES 495, RNGE 495, SOIL 495
Prerequisites: Junior standing.
Description: Topic varies and deals with different aspects of forage and/or range and/or livestock, turf and/or landscape grasses, natural habitats, and wetlands.
Credit Hours: 1-2
Min credits per semester: 1
Max credits per semester: 2
Max credits per degree: 4
Format: LEC

HORT 499H Honors Thesis
Prerequisites: Admission to the University Honors Program and permission, AGRI 299H recommended.
Description: Conduct a scholarly research project and write a University Honors Program undergraduate thesis.
Credit Hours: 3-6
Min credits per semester: 3
Max credits per semester: 6
Max credits per degree: 6
Format: IND