

# HORTICULTURE (HORT)

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## HORT 801 Biology of Plant Pathogens

**Crosslisted with:** PLPT 801, AGRO 801

**Prerequisites:** PLPT 369 or equivalent

**Description:** Molecular and cellular approach to the study of plant pathological principles.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**Prerequisite for:** PLPT 866; PLPT 965, AGRO 965, HORT 965

## HORT 802 Ecology and Management of Plant Pathogens

**Crosslisted with:** PLPT 802, AGRO 802

**Prerequisites:** PLPT 369 or equivalent; an introduction to biochemistry course

**Description:** Principles of plant disease epidemiology and disease control through cultural, biological, chemical and host plant resistance strategies.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**Prerequisite for:** PLPT 866; PLPT 965, AGRO 965, HORT 965

## HORT 803 Scientific Writing and Communication

**Crosslisted with:** PLAS 403, AGRO 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

**Grading Option:** Graded

## HORT 806 Plant Ecophysiology: Theory and Practice

**Crosslisted with:** AGRO 806, NRES 406, NRES 806, PLAS 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

**Grading Option:** Grade Pass/No Pass Option

## HORT 807 Bio-Atmospheric Instrumentation

**Crosslisted with:** GEOG 469, PLAS 407, METR 469, MSYM 469, NRES 469, AGRO 869, GEOG 869, 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

**Grading Option:** Grade Pass/No Pass Option

## HORT 808 Microclimate: The Biological Environment

**Crosslisted with:** PLAS 408, GEOG 408, METR 408, NRES 408, WATS 408, AGRO 808, GEOG 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.

**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

**Grading Option:** Grade Pass/No Pass Option

**Prerequisite for:** BSEN 954, NRES 954

## HORT 809A Case studies in plant breeding: Breeding for Disease Resistance

**Crosslisted with:** PLAS 409A, AGRO 809A

**Notes:** A previous class in genetics is highly recommended.

**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

**Grading Option:** Grade Pass/No Pass Option

**Offered:** FALL/SPR

## HORT 809B Case Studies in plant breeding: Transgenic strategies for disease resistance

**Crosslisted with:** PLAS 409B, AGRO 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

**Grading Option:** Grade Pass/No Pass Option

**Offered:** FALL/SPR

### **HORT 810 Plant Molecular Biology**

**Crosslisted with:** AGRO 810, BIOC 810

**Prerequisites:** AGRO 215 or BIOS 206; BIOC 831

**Description:** Molecular genetic basis of biological function in higher plants. Genome organization, gene structure and function, regulation of gene expression, recombinant DNA, and genetic engineering principles. Material taken primarily from current literature.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**Offered:** SPRING

### **HORT 811 Plant Tissue Culture**

**Crosslisted with:** BIOS 811, NRES 811

**Description:** Survey of techniques used in plant cell, tissue and organ culture, including current research. Laboratory emphasizes practical manipulation of plant cells, tissues, and organs, including examples from woody and herbaceous plant species.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Grade Pass/No Pass Option

**Course and Laboratory Fee:** \$25

### **HORT 812 Landscape Ecology**

**Crosslisted with:** NRES 810

**Prerequisites:** 12 hrs biological sciences or related fields including BIOS 320

**Description:** Spatial arrangements of ecosystems, the interaction among component ecosystems through the flow of energy, materials and organisms, and alteration of this structure through natural or anthropogenic forces.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

### **HORT 813 Turfgrass and Landscape Weed Management**

**Crosslisted with:** AGRO 813, TLMT 813

**Description:** Fundamental terminology associated with turfgrass and landscape weed management. Weed identification and the cultural practices and herbicide strategies to limit weed invasion and persistence.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Grade Pass/No Pass Option

### **HORT 814 Turfgrass Disease Management**

**Crosslisted with:** AGRO 814, PLPT 414, PLPT 814, PLAS 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

**Grading Option:** Grade Pass/No Pass Option

### **HORT 817 Plant Pathology Principles and Application**

**Crosslisted with:** PLPT 817, AGRO 817

**Prerequisites:** 12 hours of prior coursework in the plant sciences

**Description:** Introduction to the biology of plant pathogenic organisms; pathogen-plant interactions; environmental influences; cultural, resistance, and chemical strategies for plant disease management.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

### **HORT 818 Agroforestry Systems in Sustainable Agriculture**

**Crosslisted with:** PLAS 418, 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

**Grading Option:** Grade Pass/No Pass Option

### **HORT 821 Learning Biotechnology**

**Crosslisted with:** AGRO 821

**Description:** Investigate biotechnology and its application in solving problems and connect biotechnology to basic science concepts in biology and chemistry. Integrate individually-designed biotechnology lessons into learning standards.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

### **HORT 822 Integrated Weed Management**

**Crosslisted with:** AGRO 822

**Prerequisites:** 12 hrs AGRO and/or closely related HORT and/or BIOS

**Description:** Principles and application of (IWM). Noxious and invasive weed species. Crops and weed control. Plant population shifts. Use of herbicides and the biologically effective dose. Critical period of weed control and weed threshold. Herbicide tolerant crops.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Grade Pass/No Pass Option

### **HORT 824 Plant Nutrition and Nutrient Management**

**Crosslisted with:** AGRO 824

**Prerequisites:** AGRO 325 or basic course in plant physiology. A course in organic chemistry or biochemistry recommended

**Notes:** Offered spring semesters.

**Description:** Macro and micro nutrient elements and their function in the growth and development of plants. Role of single elements. Interaction and/or balances between elements and nutrient deficiency and/or toxicity symptoms as they affect the physiology of the whole plant. Relationship between crop nutrition and production and/or environmental considerations (e.g. yield, drought, temperature, pests).

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 826 Invasive Plants****Crosslisted with:** PLAS 426, AGRO 826, NRES 426, NRES 826**Prerequisites:** PLAS/SOIL 153; PLAS 131**Description:** 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.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Offered:** SPRING**HORT 827 Turfgrass Systems Management****Crosslisted with:** PLAS 427, AGRO 827, TLMT 827**Prerequisites:** PLAS 227 and PLAS 327**Description:** Critical evaluation of turfgrass settings to create economical and environmentally friendly management systems for professionally managed turf areas.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Course and Laboratory Fee:** \$50**HORT 828 Scientific Illustration****Crosslisted with:** ENTO 828, AGRI 828, AGRO 828**Prerequisites:** 12 hrs agricultural and/or biological sciences.**Description:** Prepare scientifically accurate, high quality illustrations and graphics for the teaching, presentation, and publication of scientific information. Drawing techniques, drafting, copyright, and publication and presentation of scientific art work.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Course and Laboratory Fee:** \$10**HORT 829A Food Security: A Global Perspective****Crosslisted with:** ANTH 429A, ANTH 829A, PLAS 429A, AGRO 829A, NRES 429A, NRES 829A, NUTR 429A, NUTR 829A**Prerequisites:** Junior standing**Description:** Overview of the technical and sociocultural dimensions of global food insecurity.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**HORT 832 Learning Plant Science****Crosslisted with:** AGRO 832**Description:** The biology of plants grown for food, fiber, fuel and fun. Connect applied plant science to basic science concepts in biology and chemistry. Integrate individually-designed plant science lessons into learning standards.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**HORT 833 Permaculture: Sustainable Living****Crosslisted with:** PLAS 433**Notes:** This is a Great Plains IDEA course. Restricted to upper level undergraduate, graduate, or matriculated continuing education students.**Description:** Permaculture means "permanent culture," and "...is the conscious design and maintenance of cultivated ecosystems that have the diversity, stability, and resilience of a natural ecosystem." [Bill Mollison] This course will explore a design/thinking methodology that seeks to provide our essential physical needs, food, water, shelter, energy, etc., while doing so in an environmentally friendly, sustainable manner.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**HORT 836 Agroecosystems Analysis****Crosslisted with:** PLAS 436, AGRO 836**Prerequisites:** Senior standing.**Notes:** Cost of travel required. Summer travel course with multi-state faculty. Farm visits to Iowa, Minnesota and Nebraska.**Description:** Analysis of production, economics, environmental impacts, and social integration aspects of farms and farming systems**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**HORT 839 Organic Farming and Food Systems****Crosslisted with:** AGRO 839, PLAS 439**Prerequisites:** 12 credits of agricultural or biological science, economics, or natural resources**Description:** 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.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**HORT 840 Turfgrass and Landscape Integrated Pest Management****Crosslisted with:** TLMT 840**Description:** Principles of turfgrass and landscape plant pest management and tools to implement Integrated Pest Management (IPM) approaches. Creating healthy landscapes and effectiveness of IPM alternatives.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Grading Option:** Grade Pass/No Pass Option**HORT 841 Perennial Plant Function, Growth, and Development****Crosslisted with:** PLAS 441, AGRO 841, RNGE 441, GRAS 441**Prerequisites:** PLAS 325 or equivalent.**Description:** 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.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Offered:** SPRING

**HORT 842A Plant Pathology**

**Description:** Survey of the principles and practice of plant pathology. The main and genetic elements in plant disease will be covered. Many of the major diseases, as well as their causes and effects, will be surveyed. Course is taught by faculty from the University of Nebraska-Kearney, and will be offered in the spring semester of even-numbered calendar years. To enroll, students must be accepted into the horticulture graduate certificate program or get permission.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 842B Plant Physiology**

**Description:** Life processes of plants, with an emphasis on water relations and hormonal and stress physiology. Includes fundamental concepts underlying the science of crop physiology, including crop phenology, canopy development and light interception, photosynthesis and respiration, and dry matter partitioning. Course is taught by faculty from the University of Nebraska-Kearney, and will be offered in the fall semester of even-numbered calendar years. To enroll, students must be accepted into the horticulture graduate certificate program or get permission.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 843A Greenhouse Crop Production**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by Texas Tech University. Hort 843A is offered spring semester of odd-numbered calendar years.

**Description:** Introduction to the concepts of greenhouse construction, operation and management for a variety of horticultural crops, with an emphasis on ornamental crops. Greenhouse construction, heating, cooling, growing media, pest management, nutrition, fertility, growth regulation, irrigation, post-harvest handling, and marketing of greenhouse crops.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Grade Pass/No Pass Option

**HORT 843E Advanced Interiorscaping**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by Texas Tech University. HORT 843E is offered spring semester of even-numbered calendar years.

**Description:** Physiological principles and industry practices in the production, moving, care, and maintenance of interior plants. Career tools to design, install and maintain interior plant-scapes. Review of pertinent literature and class exercises designed to improve skills and knowledge of interior plant physiology, care and maintenance.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 843K Advanced Arboriculture**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by Texas Tech University. HORT 843K is offered fall semester of odd-numbered calendar years.

**Description:** Physiological principles and industry practices in the production, moving, care, and maintenance of ornamental trees, shrubs, and ground covers. Provides career tools for installation and maintenance woody plants.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 843M Weed Science**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by Texas Tech University. HORT 843M is offered fall semester of odd-numbered calendar years.

**Description:** Weeds and weed control methods in agronomic and horticultural crops and turf grass with chemical weed control. History of weed control, weed characteristics, weed competition, and methods of weed control including mechanical, cultural, biological, and chemical. Discussion of herbicides by family with regard to chemical structure, efficacy, mode and mechanism of action, crop selectivity, soil activity and persistence, and cost.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Grade Pass/No Pass Option

**HORT 844A Environmental Nursery Production Practices**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by North Carolina State University. HORT 844A is offered spring semester of odd-numbered calendar years.

**Description:** Cultural nursery crop production practices presented in consideration of current best management practices, conservation of resources, scientific research-based investigations related to nursery cultural practices, potential risks to nursery personnel, and off-site movement of airborne materials and effluents to surrounding areas and public watersheds.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 844B Environmental Stress Physiology**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by North Carolina State University. HORT 844B is offered spring semester every year and fall semester of even-numbered calendar years.

**Description:** Physiology of plant responses to environmental stresses, with emphasis on current research in selected physiological, molecular, and biochemical mechanisms for tolerance to environmental stresses, such as temperature extremes, drought, salt, pathogens and other plants.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Grade Pass/No Pass Option

**HORT 844E General Viticulture**

**Prerequisites:** Admission to the Horticulture graduate certificate program; and permission

**Notes:** Distance education course delivered by North Carolina State University. HORT 844E is offered spring semester of odd-numbered calendar years.

**Description:** Aspects of grapes from vine anatomy to final products. Cultivars, propagation, canopy management, diseases, weed control, physiology, anatomy, irrigation, wine production, climates and soils.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 849 Woody Plant Growth and Development**

**Crosslisted with:** BIOS 849, NRES 849

**Prerequisites:** CHEM 251 and AGRO 325

**Description:** Plant growth and development specifically of woody plants as viewed from an applied whole-plant physiological level. Plant growth regulators, structure and secondary growth characteristics of woody plants, juvenility, senescence, abscission and dormancy.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**HORT 862 Cannabis Growth, Production and Breeding Basics**

**Crosslisted with:** PLAS 462, AGRO 862

**Prerequisites:** PLAS 131 or LIFE 121; PLAS 215 or BIOS 206

**Notes:** PLAS 221 recommended

**Description:** History, breeding and production of cannabis for medicinal marijuana and hemp for fiber use when grown using a growth room, greenhouse, high tunnel and/or field. Clarification between scientific evidence and casual information.

**Credit Hours:** 2

**Max credits per semester:** 2

**Max credits per degree:** 2

**Grading Option:** Graded

**Offered:** FALL/SPR

**HORT 871 Vines, Wines and You**

**Crosslisted with:** PLAS 471, 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

**Grading Option:** Grade Pass/No Pass Option

**Course and Laboratory Fee:** \$95

**HORT 878 Plant Anatomy**

**Crosslisted with:** BIOS 478, BIOS 878, PLAS 478, AGRO 878

**Prerequisites:** 8 hrs biological sciences

**Notes:** BIOS 109 recommended.

**Description:** Development, structure, and function of tissues and organs of the higher plants. Relationships of structure to physiology and ecology of plants.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Grade Pass/No Pass Option

**Prerequisite for:** BIOS 879

**HORT 880 Modified Root Zones**

**Crosslisted with:** PLAS 480, TLMT 880, AGRO 880

**Prerequisites:** PLAS 153/SOIL 153

**Notes:** Recommend CHEM 105A/CHEM 105L or CHEM 109A/CHEM 109L, PLAS 131, PLAS 227, and PLAS 453 or PLAS 472

**Description:** Modified root zones and their applications in the turfgrass and landscape management industry. Correct applications and construction techniques.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Grade Pass/No Pass Option

**Offered:** SPRING

**HORT 888 Entrepreneurship and Enterprise Development**

**Crosslisted with:** PLAS 488, EAEP 488, ENTR 488, EAEP 888, AGRO 888, ENTR 888, ABUS 488

**Description:** The process of starting your own enterprise. Competitive environment, risk management, finance for business startups, funding, and business plan writing.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Grade Pass/No Pass Option

**Offered:** FALL/SPR

**HORT 889 Urbanization of Rural Landscapes**

**Crosslisted with:** PLAS 489, AGRO 889, CRPL 489, CRPL 889

**Prerequisites:** Senior standing or graduate standing.

**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

**Grading Option:** Grade Pass/No Pass Option

**HORT 894 Graduate Degree Project Credits****Crosslisted with:** AGRO 894**Prerequisites:** Admission to Master of Agronomy or Horticulture degree program**Notes:** Project activity for the nonthesis option II MS degree.**Description:** Design, develop and complete a project that requires synthesis of the course topics covered in the primary area of emphasis.**Credit Hours:** 1-6**Min credits per semester:** 1**Max credits per semester:** 6**Max credits per degree:** 6**Grading Option:** Pass No-Pass**HORT 896 Independent Study****Prerequisites:** 12 hrs plant sciences, permission and advance approval of plan of work**Description:** Individual or group projects in research and literature review under supervision and evaluation of a departmental faculty member.**Credit Hours:** 1-5**Min credits per semester:** 1**Max credits per semester:** 5**Max credits per degree:** 5**Grading Option:** Grade Pass/No Pass Option**HORT 897 Master of Applied Science Project****Crosslisted with:** AGRI 897, AGRO 897, NRES 897, ASCI 897**Prerequisites:** Admission to Master of Applied Science degree program**Notes:** Project activity for the Master of Applied Science degree.**Description:** Design, develop and complete a project that requires synthesis of the course topics covered in the primary area of emphasis.**Credit Hours:** 1-6**Min credits per semester:** 1**Max credits per semester:** 6**Max credits per degree:** 6**Grading Option:** Grade Pass/No Pass Option**HORT 899 Masters Thesis****Prerequisites:** Admission to masters degree program and permission of major adviser**Credit Hours:** 1-10**Min credits per semester:** 1**Max credits per semester:** 10**Max credits per degree:** 99**Grading Option:** Pass No-Pass**HORT 919 Advanced Crop Genetics and Genomics****Crosslisted with:** AGRO 919**Prerequisites:** AGRO 215**Description:** Focus student learning on principles related to mendelian, population, and molecular genetics of plants including allelisms, nonallelic gene interaction, linkage and recombination, mode of inheritance, mutation, epigenetics, DNA-based markers and mapping techniques, inheritance of qualitative and quantitative traits, and plant transformation.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Offered:** FALL**HORT 920 Xenobiotics in the Environment****Crosslisted with:** AGRO 920, ENTO 920, EOHT 920, NRES 920**Prerequisites:** Recommend one course each in organic chemistry, soil science, biochemistry, plant physiology, microbiology and ecology**Description:** Fate and ecotoxicological impacts of biologically foreign compounds in soil-water-plant environments; uptake, mechanisms of toxicity and metabolism in plants and other biota. Herbicides and other pesticides.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**HORT 931 Population Genetics****Crosslisted with:** AGRO 931, ASCI 931**Prerequisites:** AGRO 215 and STAT 801A**Description:** Structure of populations, forces affecting gene frequency and frequency of genotypes, continuous variation, population values and means, genotypic and environmental variances and covariances.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Prerequisite for:** AGRO 932, STAT 847; ASCI 932; ASCI 933; ASCI 944, STAT 844**HORT 963 Genetics of Host-Parasite Interaction****Crosslisted with:** AGRO 963, PLPT 963**Prerequisites:** BIOS 820; and permission**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Graded**HORT 965 Plant Virology****Crosslisted with:** PLPT 965, AGRO 965**Prerequisites:** PLPT 801 or 802; and permission.**Notes:** PLPT 865 is offered odd-numbered calendar years.**Description:** Virus molecular biology; virosphere; virus-vector relationships; plant resistance to virus infection economic impact and control of plant diseases by viruses.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Grade Pass/No Pass Option**Offered:** SPRING**HORT 968 Seminar in Plant Pathology****Crosslisted with:** PLPT 968, AGRO 968**Prerequisites:** Permission**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 1**Grading Option:** Grade Pass/No Pass Option**Offered:** SPRING**HORT 991 Seminar Presentation and Evaluation****Crosslisted with:** AGRO 991**Description:** Various topics in horticulture, agronomy or related subjects. Emphasis on techniques.**Credit Hours:** 1**Max credits per semester:** 1**Max credits per degree:** 2**Grading Option:** Grade Pass/No Pass Option

**HORT 992 General Seminar**

**Crosslisted with:** AGRO 992, NRES 992

**Notes:** Agronomy and Horticulture PhD students should enroll in this course twice.

**Description:** Expected of all Agronomy and Horticulture graduate students. Presentation of thesis/dissertation or non-thesis topics in agronomy, horticulture or related subjects. Agronomy and Horticulture PhD students should enroll in this course twice.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 5

**Grading Option:** Pass No-Pass

**HORT 996 Research Other Than Thesis**

**Prerequisites:** Permission

**Description:** Investigations, without reference to thesis work, on genetic, physiological, ecological, meteorological, and morphological aspects of horticultural crops.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Grade Pass/No Pass Option

**HORT 999 Doctoral Dissertation**

**Crosslisted with:** AGRO 999

**Prerequisites:** Admission to doctoral degree program and permission of supervisory committee chair.

**Notes:** AGRO 999 is pass/no pass only.

**Credit Hours:** 1-24

**Min credits per semester:** 1

**Max credits per semester:** 24

**Max credits per degree:** 99

**Grading Option:** Pass No-Pass