HORTICULTURE (HORT)

HORT 1 — COOPERATIVE EDUCATION/CO-OP IN HORTICULTURE
1 credit.

Full-time off-campus work experience which combines classroom theory with practical knowledge of operations to provide students with a background upon which to base a professional career. Students receive credit only for the term in which they are actively enrolled and working. The same work experience may not count towards credit in HORT 399.

Requisites: So st, and consent of supervising instructor and academic advisor.
Repeatable for Credit: Yes, unlimited number of completions

HORT 120 — SURVEY OF HORTICULTURE
3 credits.

For the beginning student. Scientific basis for horticultural practices; scope of the field of horticulture; introduction to propagation, culture, management, improvement, storage, and marketing of flowers, fruits, ornamentals and vegetables.

Requisites: None
Repeatable for Credit: No
Last Taught: Fall 2017

HORT 121 — HORTICULTURE COLLOQUIUM
1 credit.

Overview of world, national, and regional horticulture plants and industries presented by various faculty. History and profiles of research advancing horticulture presented by department faculty.

Requisites: Open to Fr
Repeatable for Credit: No
Last Taught: Fall 2017

HORT 227 — PROPAGATION OF HORTICULTURAL PLANTS
3 credits.

Methods of propagation of herbaceous and woody plants, fundamental anatomical and physiological principles underlying sexual and asexual propagation of plants. Open to Fr

Requisites: An intro course in botany.
Repeatable for Credit: No
Last Taught: Spring 2017

HORT 234 — ORNAMENTAL PLANTS
3 credits.

On-site identification and description, aesthetic qualities and uses, environmental requirements and adaptability of selected ornamental plants with emphasis on annuals, herbaceous perennials, and those used for interior design. Three credits, offered every Fall.

Requisites: None
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/PL PATH 261 — SUSTAINABLE TURFGRASS USE AND MANAGEMENT
2 credits.

Sustainable use and management of turfgrass landscapes in urban and suburban environments, including home lawns, golf courses, and sports fields. Focus is on creating sustainable and attractive turfgrass landscapes through proper species selection, use of slow-release or organic fertilizer practices, and minimizing the use of pesticides and supplemental irrigation.

Requisites: None
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/PL PATH 262 — TURFGRASS MANAGEMENT LABORATORY
1 credit.

Hands-on turf establishment, cool- and warm-season grass, seed and weed identification, chemical application, and turf cultivation techniques and equipment use, plus field trips to major league sport facilities and golf courses.

Requisites: HORT/PL PATH 261 or concurrent enrollment
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/LAND ARC 263 — LANDSCAPE PLANTS I
3 credits.

Field identification, landscape characteristics, uses, environmental requirements, adaptability of woody ornamental plants; their autumn and winter character.

Requisites: An intro botany crse or cons inst
Repeatable for Credit: No
Last Taught: Fall 2017

HORT 289 — HONORS INDEPENDENT STUDY
1-2 credits.

INTER-AG 288

Requisites: Enrolled in the CALS Honors Prgm Sophomore or Junior standing.

Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: Yes, unlimited number of completions

HORT 299 — INDEPENDENT STUDY
1-3 credits.

Requisites: Open to Freshmen, Sophomore or Junior standing written consent of instructor
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

HORT/F&W ECOL/LAND ARC/PL PATH 309 — DISEASES OF TREES AND SHRUBS
3 credits.

Fundamental disease concepts, pathogens and causal agents, diagnosis, and biologically rational principles and practices for management of diseases of trees and shrubs. For degree students and professionals. One extended lecture with discussion and one lab or field trip per week.

Requisites: One semester of plant sci or consent of instructor
Repeatable for Credit: No
Last Taught: Fall 2017
HORT 320 — ENVIRONMENT OF HORTICULTURAL PLANTS
3 credits.
Fluctuations and regulations of temperature, light, water, carbon dioxide and pollutants in natural and controlled environments. Effects upon plant growth and development. Adaptive mechanisms. Significance of air ions, electromagnetic fields and other geophysical factors.
Requisites: Crse in intro hort or intro bot
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/AGRONOMY/SOIL SCI 326 — PLANT NUTRITION MANAGEMENT
3 credits.
Functions, requirements and uptake of essential plant nutrients; chemical and microbial processes affecting nutrient availability; diagnosis of plant and soil nutrient status; fertilizers and efficient fertilizer use in different tillage systems.
Requisites: SOIL SCI/ENVIR ST/GEOG 230 or 301 and one of the following: Bot 100 or 130; HORT 120 or 122; Agron 100
Repeatable for Credit: No
Last Taught: Spring 2017

HORT/AGRONOMY 328 — INTEGRATED WEED MANAGEMENT
4 credits.
Prevalence and persistence of weeds, evaluation of competitive and allelopathic effects, methods and principles of control including proper identification of common weed species.
Requisites: Agron 100 or intro crse in botany or cons inst
Repeatable for Credit: No
Last Taught: Fall 2010

HORT/SOIL SCI 332 — TURFGRASS NUTRIENT AND WATER MANAGEMENT
3 credits.
Nutrient requirements of turfgrasses; nature of turfgrass response to fertilization; soil and tissue testing methodology and interpretation; irrigation scheduling; irrigation water quality; use of irrigation and fertilizer to minimize environmental impact; writing effective nutrient management plans.
Requisites: Soil Sci/Hort/Agron 326
Repeatable for Credit: No
Last Taught: Fall 2016

HORT 334 — GREENHOUSE CULTIVATION
2 credits.
Principles of selection, production, handling, use of fruits, vegetables, flowers, and foliage plants grown indoors. One-day field trip required.
Requisites: Intro botany course or consent of instructor
Repeatable for Credit: No
Last Taught: Spring 2017

HORT 335 — GREENHOUSE CULTIVATION LAB
1 credit.
Provide students with hands-on experience in and understanding of greenhouse cultivation. This course is the optional lab component of Horticulture 334 Greenhouse Cultivation.
Requisites: Horticulture 334 or concurrent registration or consent of instructor
Repeatable for Credit: No
Last Taught: Spring 2017

HORT/AGRONOMY 338 — PLANT BREEDING AND BIOTECHNOLOGY
3 credits.
Principles of transferring plant genes by sexual, somatic, and molecular methods and the application of gene transfer in plant breeding and genetic engineering to improve crop plants.
Requisites: BOTANY/BIOLOGY 130 or Genetics 160 or Biocore 301 or cons inst
Repeatable for Credit: No
Last Taught: Spring 2017

HORT/AGRONOMY/BOTANY 339 — PLANT BIOTECHNOLOGY: PRINCIPLES AND TECHNIQUES I
4 credits.
Theoretical and practical training in plant biotechnology including molecular biology, protein biochemistry and basic bioinformatic techniques used in fundamental and applied research on plants. Valuable hands-on training to those interested in careers in biotechnology.
Requisites: Bot/Zoo 152 or equiv CHEM 104 or equiv
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/AGRONOMY/BOTANY 340 — PLANT CELL CULTURE AND GENETIC ENGINEERING
4 credits.
Theoretical and practical training in plant cell and tissue culture, and plant genetic engineering. Includes overview of current techniques, biosafety and regulatory requirements, and experimental design and analysis used in fundamental and applied research on plants. Valuable hands-on training to those interested in careers in biotechnology.
Requisites: BOTANY/BIOLOGY 130 or Botany/Zoology/BIOLOGY/BOTANY/ZOOLOGY 152 or ZOOLOGY/BIOLOGY 102,and Chemistry 104, 109, or 116
Repeatable for Credit: No
Last Taught: Fall 2016

HORT 345 — FRUIT CROP PRODUCTION
3 credits.
Survey of fruit production, emphasizing commercial production of temperate fruits. Fruit origin, history, classification, physiology, genetics, harvest and postharvest handling. Open to Fr
Requisites: Hort 122 or equiv.
Repeatable for Credit: No
Last Taught: Spring 2016
HORT 350 — PLANTS AND HUMAN WELLBEING
2 credits.

Plants provide not only the foundation of food, clothing, and shelter essential for human existence, but also some of the key raw materials for transcendence and abstraction through music, art, and spirituality. Since antiquity, we have co-evolved with plants and their derivative products, with each exerting a domesticating force on the other. It is, for example, impossible to think of our modern life without its plant-based accompaniments in the form of cotton, sugar, bread, coffee, and wood. Yet they are so ubiquitous we may forget they all derive from plants discovered, domesticated, bred, and farmed for millennia in a never-ending pursuit to improve our wellbeing. This course will explore major points of intersection between plants and human wellbeing from a horticultural point of view. Each week, we will highlight a plant or group of plants that represent a primary commodity or resource through which humans have pursued their own aims. We will examine this plant with hands-on demonstrations and produce extracts and preparations to more deeply explore its effects and impacts in human society. This course is open to all students, and has no prerequisites.

Requisites: None
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/AGRONOMY/ENTOM/PL PATH/SOIL SCI 354 — DIAGNOSING AND MONITORING PEST AND NUTRIENT STATUS OF FIELD CROPS
1 credit.

This course is designed to provide students with information necessary to diagnosis and monitor corn, soybean, alfalfa and wheat for pests (insects, weeds, diseases) and nutrient deficiency symptoms including perspectives from Agronomy, Entomology, Horticulture, Plant Pathology and Soil Science. Proper soil and pest sampling information will be provided as will proper crop staging techniques which are essential for pest and nutrient management.

Requisites: None
Repeatable for Credit: No
Last Taught: Spring 2017

HORT/AGRONOMY 360 — GENETICALLY MODIFIED CROPS: SCIENCE, REGULATION & CONTROVERSY
2 credits.

Explores how and why genetically modified (GM) crops are created and their regulation at the federal and state level. Through case studies, students will learn about the impacts of GM crops and critically evaluate arguments both for and against their use. Readings and discussion introduce students to the complex economic, cultural, and political issues surrounding GM crops.

Requisites: BIOLOGY/BOTANY/BIOLOGY 130, BIOLOGY/BOTANY/ZOOLOGY/BIOLOGY/BOTANY 151, BIOCORE 381, BOTANY/GENETICS/ZOOLOGY 160, BOTANY/GENETICS/ZOOLOGY 466, or BIOLOGY/ZOOLOGY/BIOLOGY 101
Repeatable for Credit: No
Last Taught: Spring 2017

HORT 370 — WORLD VEGETABLE CROPS
3 credits.

An overview of the importance of fresh and processed vegetables worldwide. Vegetable origin, history; classification, culture, marketing, physiology, genetics, handling, quality, significance in world cultures and diets. Open to Freshmen.
Requisites: A course in horticulture and a course in biology.
Repeatable for Credit: No
Last Taught: Fall 2017

HORT 372 — COLLOQUIUM IN ORGANIC AGRICULTURE
1 credit.

Colloquium in which faculty, regional professionals, local organix farmers and students will present and discuss topics relevant to history, marketing, economics, production and social context of organic and sustainable agriculture.
Requisites: At least So st
Repeatable for Credit: No
Last Taught: Spring 2017

HORT 374 — TROPICAL HORTICULTURE
2 credits.

Fall semester colloquia on tropical ecology and crops followed by two-week long winter break (January) field trip to Costa Rica and Nicaragua.
Requisites: Sophomore standing
Repeatable for Credit: No
Last Taught: Fall 2015

HORT 375 — SPECIAL TOPICS
1-4 credits.

Specialized subject matter of current interest to undergrads.
Requisites: Cons inst
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

HORT 376 — TROPICAL HORTICULTURAL SYSTEMS
1 credit.

This course will highlight the interactions between tropical plants and society. How plants are obtained, the systems used to raise the crops, the specific plants that are used and how we use these in the context of local and global markets, have a profound implication on food security, the resilience of the farming systems and the conservation of natural habitats. Class discussions will include reflections on the origins of the tropical crops, the roles of plants in our daily lives, and the effects of our daily choices on the environment, climate change, human health, water access, conflicts, poverty, and development. We will do an overview of tropical horticulture and survey some of the social, scientific and environmental problems associated with the utilization of plants for subsistence, health, aesthetics, and cultural practices.
Requisites: Junior standing
Repeatable for Credit: No
Last Taught: Fall 2017
HORT 378 — TROPICAL HORTICULTURAL SYSTEMS INTERNATIONAL FIELD STUDY  
2 credits.

This international field study will meet during the winter intercession in a tropical country in Central America. We will reflect on the role of plants in our daily lives and the effects that our daily choices have on the environment, human health, conflicts, poverty, and development. This course will provide an opportunity to develop a holistic appreciation of horticulture by highlighting the interactions between plants and society. We will discuss some of the social, scientific and environmental challenges that conventional, sustainable and organic horticulture practices face in the production, marketing, and use of tropical crops. The field study will provide an opportunity to contextualize what students learned during the course “Tropical Horticultural Systems” (HORT 376). We will visit diverse agricultural systems, such as small farms, large-scale operations, market growers, and industrial export businesses. In addition, we will visit agronomic centers, botanical gardens, herbaria, germplasm banks, and nature preserves.  
Requisites: HORT 376  
Repeatable for Credit: No

HORT 399 — COORDINATING INTERNSHIP/COOPERATIVE EDUCATION  
1-8 credits.  
Requisites: So, Jr or Sr st cons supervising inst, advisor, and internship program coordinator  
Repeatable for Credit: Yes, unlimited number of completions  
Last Taught: Fall 2016

HORT 400 — STUDY ABROAD IN HORTICULTURE  
1-6 credits.  
Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. W.-Madison Study Abroad Program  
Requisites: Current registration in a U.  
Repeatable for Credit: Yes, unlimited number of completions

HORT 410 — UNDERGRADUATE SEMINAR  
1 credit.  
Requisites: Horticulture major with at least 5 credits in Hort, or cons inst  
Repeatable for Credit: Yes, unlimited number of completions  
Last Taught: Spring 2009

HORT 461 — ADVANCED TURFGRASS MANAGEMENT AND PHYSIOLOGY  
3 credits.  
Interacting effects of environmental stresses on turfgrass physiology/growth in relation to management practices. Discussion of new and conventional management systems. Use of biotechnology and plant breeding for improving turfgrass.  
Requisites: HORT/PL PATH 261 intro botany crse  
Repeatable for Credit: No  
Last Taught: Fall 2011

HORT/PATH-BIO 500 — MOLECULAR BIOLOGY TECHNIQUES  
3 credits.  
The objective of the course is to familiarize students with recombinant DNA technology. This will be accomplished through lectures as well as hands on exposure to methodologies used in molecular biology laboratories.  
Requisites: BIOCHEM 501 or 621 or GENETICS 466 or Bact 303, 304 or cons inst  
Repeatable for Credit: No  
Last Taught: Spring 2017

HORT/AGRONOMY 501 — PRINCIPLES OF PLANT BREEDING  
3 credits.  
Principles involved in breeding and maintaining economic crops; factors affecting the choice of breeding methods; alternative approaches through hybridization and selection.  
Requisites: Intro crse in genetics, 1 yr biol  
Repeatable for Credit: No  
Last Taught: Spring 2017

HORT/AGRONOMY 502 — TECHNIQUES OF PLANT BREEDING  
1 credit.  
Lab and field techniques used in breeding and maintaining economic crops.  
Requisites: An intro crse in genetics 1 yr of biology  
Repeatable for Credit: No  
Last Taught: Spring 2017

HORT/F&W ECOL/SOIL SCI 524 — URBAN SOIL AND ENVIRONMENT  
3 credits.  
Many environmental issues related to urbanization are derived from the manipulation of soil. By coupling contemporary literature in urban soils with soil science, students will be able to evaluate environmental issues within the urban environment and provide new ways of remediating their impact.  
Requisites: SOIL SCI 301 or 230  
Repeatable for Credit: No  
Last Taught: Fall 2017

HORT/GENETICS 550 — MOLECULAR APPROACHES FOR POTENTIAL CROP IMPROVEMENT  
3 credits.  
Introduction of basic concepts of plant molecular biology and molecular techniques in current use. Topics include: organization and regulation of plant genes, gene cloning and analysis, transformation systems for plants, and molecular techniques for crop improvement.  
Requisites: BIOCHEM 501 and GENETICS 466 or equiv courses  
Repeatable for Credit: No  
Last Taught: Spring 2017

HORT/BOTANY/GENETICS 561 — INTRODUCTORY CYTOGENETICS  
2-3 credits.  
Mitosis, meiosis, variations in chromosome structure and number, cytological aspects of hybridity and apomixis; chromosomes as they affect breeding behavior.  
Requisites: Genetics, Botany, Zoology 466 or cons inst  
Repeatable for Credit: No  
Last Taught: Spring 2015
HORT/F&W ECOL/STAT 571 — STATISTICAL METHODS FOR BIOSCIENCE I
4 credits.

Descriptive statistics, distributions, one- and two-sample normal inference, power, one-way ANOVA, simple linear regression, categorical data, non-parametric methods; underlying assumptions and diagnostic work.
Requisites: College algebra: Grad st or cons inst
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/F&W ECOL/STAT 572 — STATISTICAL METHODS FOR BIOSCIENCE II
4 credits.

Continuation of Forestry 571. Polynomial regression, multiple regression, two-way ANOVA with and without interaction, split-plot design, subsampling, analysis of covariance, elementary sampling, introduction to bioassay.
Requisites: Stats/Forestry/HORT/F&W ECOL/STAT 571
Repeatable for Credit: No
Last Taught: Spring 2017

HORT/BOTANY/SOIL SCI 626 — MINERAL NUTRITION OF PLANTS
3 credits.

Essential and beneficial elements, solutions and soil as nutrient sources, rhizosphere chemistry, nutritional physiology, ion uptake and translocation, functions of elements, nutrient interactions, genetics of plant nutrition.
Requisites: Botany 350 or cons inst
Repeatable for Credit: No
Last Taught: Fall 2017

HORT 681 — SENIOR HONORS THESIS
2-4 credits.

Requisites: Honors program candidacy
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2015

HORT 682 — SENIOR HONORS THESIS
2-4 credits.

Continuation of 681. Honors program candidacy HORT 681
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: No
Last Taught: Spring 2016

HORT 699 — SPECIAL PROBLEMS
1-4 credits.

Requisites: Sr st cons inst
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

HORT 799 — PRACTICUM IN HORTICULTURE TEACHING
1-3 credits.

Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance.
Requisites: Consent of instructor
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

HORT/AGRONOMY 811 — BIOMETRICAL PROCEDURES IN PLANT BREEDING
3 credits.

Use of statistical methods to facilitate improvements in quantitative traits of cultivated plants.
Requisites: Intro crses in genetics stat
Repeatable for Credit: No
Last Taught: Fall 2017

HORT/AGRONOMY 812 — SELECTION THEORY FOR QUANTITATIVE TRAITS IN PLANTS
2 credits.

Discuss advanced topics in selection theory and the utilization of molecular markers in selection.
Requisites: AGRONOMY/HORT/AGRONOMY 811
Repeatable for Credit: No
Last Taught: Spring 2006

HORT/AGRONOMY 850 — ADVANCED PLANT BREEDING
3 credits.

Concepts in improvement of major crop species. Historically important breeding methods and new approaches. Lectures and discussion.
Requisites: Agron/HORT/AGRONOMY 338 or 501 or cons inst
Repeatable for Credit: No
Last Taught: Spring 2010

HORT 875 — SPECIAL TOPICS
1-4 credits.

Requisites: Graduate or professional standing
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017

HORT 910 — SEMINAR
1 credit.

Requisites: Graduate or professional standing
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

HORT/AGRONOMY/GENETICS 957 — SEMINAR-PLANT BREEDING
1 credit.

Requisites: Graduate or professional standing
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017
HORT 990 — RESEARCH
1-12 credits.

Requisites: Consent of instructor
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2017