HORTICULTURE HRT

Department of Horticulture
College of Agriculture and Natural Resources

100 Horticulture: Plants and People
Spring. 3(2-2) R: Not open to juniors or seniors in the Department of Horticulture.
Functional uses of plants: aesthetics, food, industry, recreation. Growing and using horticultural plants. Consumer and environmental issues related to horticulture in daily living.

109 Introduction to Applied Plant Science
Fall. 2(2-0) R: Open only to students in the Institute of Agricultural Technology.
Plant growth and development. Interrelationship between cultural practice and plant performance. Plant classification, plant physiology and metabolism.

111 Landscape Design
Spring. 3(3-3) Not open to students with credit in HRT 072 or HRT 311.
Functional uses of the landscape, landscape design process, drafting and graphic representation, plant selection and use, planting design principles, construction materials and specifications.

203 Principles of Horticulture I
Fall. 2(2-0) SA: HRT 201
Contributions of horticulture to society. Cultivar development, crop geography, environmental factors, vegetative and reproductive development, and crop management.

203L Principles of Horticulture I Laboratory
Fall. 1(0-3) P:M: HRT 203 or concurrently SA: HRT 201L
Growing, handling, and identifying plants. Irrigation, fertilization, and media for plant production. Pruning and control of flowering and growth. Measuring environmental factors.

204 Plant Propagation
Spring. 2(2-3) SA: HRT 204L, HRT 104
Asexual propagation including rooting of cuttings, micropropagation, grafting, layering, and underground structures. Sexual propagation including seed germination, storage, and production. Offered first 10 weeks of the semester.

207 Horticulture Career Development
Fall. 1(1-0)
Internship preparation and identification of employment opportunities. Career goal establishment, resume construction, correspondence development, personal budgeting, interview skills and strategies.

208 Pruning and Training Systems in Horticulture
Spring of odd years. 3(2-2) R: Open only to n the Applied Plant Science major.
Principles and practices of plant growth management. Plant biology. Crown and canopy development. Crop specific training systems. Pruning techniques.

210 Nursery Management
Fall. 3(2-3) P:M: (HRT 203 or concurrently) and (HRT 204 or concurrently) SA: HRT 071, HRT 310
Management of field and container grown nursery operations. Site selection and development, financing, legal restrictions, production practices, nutrition, irrigation, weed and pest control, modification of plant growth, storage, shipping, and marketing.

211 Landscape Plants I
Fall. 3(2-3)
Identification, adaptation, and evaluation of shade trees, narrow-leaved evergreens, shrubs, woody vines, herbs, ornamental grasses, and herbaceous perennials.

212 Landscape Plants II
Fall, Spring. 3(2-3)
Identification, adaptation, and evaluation of flowering trees and shrubs, broad-leaved evergreens, herbaceous vines, ground covers, bulbs, wildflowers, ferns, and aquatic plants.

213 Landscape Maintenance
Fall. 2(2-0) R: Open only to students in the Institute of Agricultural Technology.
Ornamental plant management. Plant growth and development related to pruning, fertilization, irrigation, weed control, transplanting; development of landscape management specifications; integrated plant management and plant health care programs.

213L Landscape Maintenance Field Laboratory
Fall. 1(0-2) P:M: HRT 213 or concurrently R: Open only to students in the Institute of Agricultural Technology.
Landscape maintenance. Site analysis. Pruning woody plants, transplanting by hand and mechanical tree spade, and planting techniques for ornamentals. Herbaceous perennial care, cutting back, dividing. Scouting as a component of integrated pest management and plant health care programs.

214 Landscape and Turfgrass Business Operations
Spring. 2(3-0) R: Open only to students in the Institute of Agricultural Technology. SA: AT 082 Not open to students with credit in AT 082.
Organizing, marketing, and directing a business enterprise within the turf and landscape industry. Project estimating, bidding, payroll, equipment, and accounting.

215 Landscape Industries Seminar
Fall. 1(0-2) RB: Interest or experience in the 'green industries'. R: Open only to students in the Institute of Agricultural Technology. SA: HRT 064 Not open to students with credit in HRT 207 or HRT 064.
Landscape, nursery and related 'green industry' firms. Career opportunities. Horticulture operations, products, services and marketing practices. Personal and professional development.

216 Landscape Construction
Fall. 3(2-2) R: Open only to students in the Institute of Agricultural Technology. SA: HRT 076 Not open to students with credit in HRT 076.
Construction installation techniques encountered in landscape development. Field installation of patios, retaining walls, ponds, and plant materials. Construction estimating and bidding procedures.

217 Landscape Plant Diagnostics
Fall of odd years. 3(2-2) RB: Ornamental plant identification (host plant); basic plant science R: Open only to students in the Institute of Agricultural Technology. SA: HRT 063 Not open to students with credit in HRT 063.
Problem diagnosis of insect pests, diseases and non-infectious disorders of woody and herbaceous ornamental plants. Plant and site inspection, sampling and testing techniques. Cultural, mechanical and chemical control strategies.

218 Landscape Irrigation
Spring. 3(3-3) Not open to students with credit in HRT 078.
Design, installation and maintenance of irrigation systems for turfgrass and landscape plants. Design hydraulics, equipment selection, pump stations, water features, water quality and conservation. Offered the first ten weeks of the semester.

219 Landscape Computer Aided Design
Spring. 2(0-4) RB: CSE 101 or CSS 110
Computer Aided Design (CAD) for landscape design. Calculations, take offs, perspective drawings, AutoCAD and LandCADD software.

221 Greenhouse Structures and Management
Fall. 3(3-0)
Planning and operation of a commercial greenhouse. Structures, coverings, heating, cooling, ventilation, irrigation, fertilization, root media, and pest control.

225A Basic Floral Design
Fall, Spring. 2(1-2)
Principles and mechanics of floral design. Line and mass designs, symmetrical and asymmetrical designs. Contemporary techniques. Flower identification. Retail pricing. Laboratory fee required. First half of semester.

225B Advanced Floral Design
Fall, Spring. 2(1-2) P:M: HRT 225A or concurrently
Marketing, selling, and designing flowers for weddings, funerals, and other special events. Identification, handling, and design use of fresh flowers and other materials. Laboratory fee required. Second half of semester.

290 Independent Study in Ornamental Horticulture
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to students in the Institute of Agricultural Technology. SA: HRT 075 Not open to students with credit in HRT 075.
A planned learning experience developed by the student in cooperation with a faculty member.

291 Current Issues in Commercial Horticulture
Spring of even years. 2(2-0) A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to students in the Applied Plant Science major.
Current topics related to commercial horticulture. Crop biology. Biotechnology. Applications of new technologies. Economic, environmental, social and legal concerns.

311 Landscape Design and Management Specifications
Spring. 4(3-2) Interdepartmental with Landscape Architecture. Administered by Horticulture. P:M: HRT 211 and (HRT 212 or concurrently)
Landscape design techniques, spatial organization, plant selection, plant and site interaction. Relationship between design, construction and maintenance. Preparation of planting and maintenance specifications.

322 Floriculture Production I: Potted Plants and Cut Flowers
Fall. 3(1-4) P:M: HRT 203 and HRT 203L and HRT 204 and HRT 204L and (HRT 221 or concurrently)
Commercial greenhouse and outdoor production of flowering and foliage potted plants and cut flowers. Plant identification, propagation, production, scheduling, and finishing procedures based on specific plant growth requirements.

323 Floriculture Production II: Herbaceous Perennials and Annuals
Spring. 3(2-3) P:M: HRT 203 and HRT 203L and (HRT 204 or concurrently) and (HRT 204L or concurrently) and HRT 221
Commercial greenhouse and outdoor production of herbaceous perennials, annuals, and other plants typically sold in retail nurseries for outdoor gardens. Plant identification, propagation, production, scheduling, and finishing procedures based on specific plant growth requirements. Plant selection, marketing and retailing issues.

331 Tree and Small Fruit Production and Management
Spring. 3(2-3) P:M: HRT 203 and HRT 203L and HRT 204 and HRT 204L RB: BOT 301 SA: HRT 330
Commercial aspects of tree and small fruit production. Procedures used in production of major fruit crops grown in Michigan: apples, cherries, peaches, grapes, blueberries, brambles, and strawberries.

333 Wine Judging
Fall. 3(3-0) R: Open only to students in the Viticulture and Enology major. Approval of department; application required.
Sensory evaluation and selection of wines. World and regional wine production. Characteristics influenced by grape cultivar and wine production methodology. Aroma and flavor components. Quality assessment. Identification of specific wine "faults" and suggested means for amelioration in the cellar and prevention in future wine production.

334 Current Issues in Viticulture and Enology
Spring of even years. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to students in the Viticulture and Enology major.
Grape, juice, and wine production. Current and new technologies. Wine sales and marketing. Vineyard and winery establishment and management. Presentations and discussions by MSU faculty and Michigan grape and wine industry professionals.

341 Vegetable Production and Management
Spring. 3(2-3) P:M: HRT 203 and HRT 203L and (HRT 204 or concurrently) and (HRT 204L or concurrently) SA: HRT 440, HRT 442
Field production of vegetable crops. Marketing systems, tillage practices, field establishment, cultural management, pest management, harvesting, and postharvest handling and storage.

382 Turfgrass Physiology
Spring. 2(3-0) Interdepartmental with Crop and Soil Sciences. Administered by Crop and Soil Sciences. P:M: (CSS 232) Completion of Tier I writing requirement. RB: PLB 105 SA: CSS 282, CSS 068 Not open to students with credit in CSS 332.
Physiological principles of turfgrass growth and development. Water relations, light, temperature, respiration, photosynthesis, mineral nutrition, and hormone action. Impact of mowing, cultivation, and traffic on turfgrass growth.

391 Special Topics
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 9 credits in all enrollments for this course.
Specific topics in horticulture of current interest and importance. Possible field trips.

394 Retail Florist Practicum
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. A student may earn a maximum of 6 credits in HRT 394 and HRT 493. R: Approval of department; application required. SA: HRT 394A
Customer relations. Floral design, flower buying, holiday planning. Advertising, display. Financial recordkeeping. Flower care and handling.

401 Physiology and Management of Herbaceous Plants
Fall. 3(3-0) P:M: HRT 221 and BOT 301 R: Not open to freshmen or sophomores.
Physiological and flowering responses of herbaceous plants to light, temperature, nutrients, and gases. Management of these factors for optimum production.

403 Handling and Storage of Horticultural Crops
Fall. 3(2-3) P:M: BOT 105 or BS 110 R: Not open to freshmen or sophomores. SA: HRT 482
Biological principles involved in quality maintenance of horticultural products. Control of deterioration during harvesting, handling, transport, and storage.

404 Horticulture Management (W)
Spring. 3(2-2) P:M: Completion of Tier I writing requirement. RB: (EC 201 or EC 202) and (HRT 203 and HRT 204)} or (CSS 370 or FOR 404) R: Open only to seniors in the College of Agriculture and Natural Resources. SA: HRT 488
Integration of management, economic, marketing, and horticultural production principles to develop personnel, financial, and resource strategies. Horticultural business plan development in a team situation. Effects of business decisions on people and profits.

407 Horticulture Marketing
Fall. 3(2-2) RB: (HRT 203 and HRT 204) and (EC 201 and EC 202) and ((HRT 210 or concurrently) or (HRT 322 or concurrently) or (HRT 323 or concurrently) or (HRT 331 or concurrently) or (HRT 341 or concurrently))
Demographic and purchase trends of perishable horticultural commodities including landscape and floral crops, and fruits and vegetables. Market segmentation and product targeting, distribution, branding and packaging, and advertising and promotion. Services as a critical component of strategic business planning.

411 Landscape Contract Management
Fall. 3(2-2) RB: HRT 311
Management of landscape construction and maintenance operations. Working drawing, contracts, bonds, and insurance. Estimating and bidding procedures. Installation techniques for hardscapes and plant material.

419 Landscape Design Practicum
Fall, Spring. 2 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: HRT 111 or HRT 311 R: Approval of department; application required.
Application of landscape design theory and practice to landscape development projects. Client interaction, site visits and design, plan development, and construction and management specifications. Residential, commercial and public landscape projects.

432 Principles and Practices of Grape Production I
Spring. 3(3-0) P:M: CEM 141 and CEM 161 and CSE 101 R: Open only to students in the Viticulture and Enology major.
Grapevine physiology, structure, and function. Techniques for vineyard establishment. Cultivar and rootstock selection, influence of environmental factors on vine growth, pre-plant site selection and preparation, training and trellising systems, cultural practices for canopy management, and methods of crop control.

432L Principles and Practices of Grape Production I Laboratory
Spring. 2(0-4) P:M: CEM 141 and CEM 161 and CSE 101 R: Open only to students in the Viticulture and Enology major. C: HRT 432 concurrently.
Grafting, pruning, and training of grapevines. Determination of vineyard structure and methods of trellis construction. Assessment of grapevine nutrient needs, irrigation management, and disease and pest control strategies.

433 Principles and Practices of Grape Production II
Summer. 3(3-0) P:M: HRT 432 and HRT 432L R: Open only to students in the Viticulture and Enology major.
Canopy management, disease and pest control, and the influence of crop adjustment on vine physiology. Environmental effects on fruit maturation. Vineyard sampling techniques and harvesting practices for improved fruit quality.

433L Principles and Practices of Grape Production II Laboratory
Summer. 2(0-4) P:M: HRT 432 and HRT 432L R: Open only to students in the Viticulture and Enology major. C: HRT 433 concurrently.
Vineyard management. Climate, crop load and vine physiology. Effects of pre- and post-veraison practices on vine and fruit development. Disease and pest control strategies. Vineyard berry sampling techniques and laboratory methods to assess fruit quality for harvest.

434 Principles and Practices of Wine Production I
Fall. 3(3-0) P:M: CEM 142 and CEM 162 and CSE 101 R: Open only to students in the Viticulture and Enology major.
Origin and history of wine and wine production. Determination and timing of harvest, methods of postharvest handling, storage, and processing of grapes into juice and wine. Physical and chemical changes in wine and processes. Must analysis and adjustment, fermentation, fining, and aging. Physiology of yeasts and bacteria involved in winemaking and spoilage. Cellar practices, problems, and operations.

434L Principles and Practices of Wine Production I Laboratory
Fall. 2(0-4) P:M: CEM 142 and CEM 162 and CSE 101 R: Open only to students in the Viticulture and Enology major. C: HRT 434 concurrently.
White and red wine production. Harvest through the aging process. Methods of harvest and factors affecting yield components. Crushing and pressing grapes, must preparation and instrumental analysis of juice and wine. Methods of fermentation, fining treatments, and cellar and small winery operations.

435 Principles and Practices of Wine Production II
Spring. 3(3-0) P:M: HRT 434 and HRT 434L R: Open only to students in the Viticulture and Enology major.
Continuation of wine production and winery practices. Instrumental analyses of wine, filtration testing, and bottling. Principles, microbiology, and chemistry involved in the production of good wines. Product quality, cellar practices and problems, and costs of winery establishment. Federal requirements for licensing and operating a small winery.

435L Principles and Practices of Wine Production II Laboratory
Spring. 2(0-4) P:M: HRT 434 and HRT 434L R: Open only to students in the Viticulture and Enology major. C: HRT 435 concurrently.
Procedures and analysis involved in wine production during the aging process. Management practices of a small winery, including quality analysis of wines and cellar and equipment concerns.

441 Plant Breeding and Biotechnology
Spring of even years. 3(3-0) Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Crop and Soil Sciences. P:M: CSS 101
Plant improvement by genetic manipulation. Genetic variability in plants. Traditional and biotechnological means of creating and disseminating recombinant genotypes and cultivars. Importance of plant breeding to our food system, economy, and environment.

451 Biotechnology Applications for Plant Breeding and Genetics
Spring. 3(2-2) Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Crop and Soil Sciences. RB: (CSS 350 or ZOL 341) and CSS 441
Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology and transformation in relation to plant improvement.

475 International Studies in Horticulture
Spring of odd years, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: HRT 203 and HRT 204 R: Approval of department; application required.
Study and travel experience emphasizing contemporary problems, issues, and trends in horticulture.

477 Pest Management I: Pesticides in Management Systems
Fall. 3(3-0) Interdepartmental with Crop and Soil Sciences and Entomology and Fisheries and Wildlife. Administered by Entomology. RB: (CEM 143 or CEM 251) and (BOT 405 and CSS 402) and (ENT 404 or ENT 470 or FW 328)
Chemistry, efficient use, and environmental fate of pesticides. Legal and social aspects of pesticide use.

478 Pest Management II: Biological Components of Management Systems (W)
Spring of even years. 3(2-3) Interdepartmental with Crop and Soil Sciences and Entomology and Forestry and Fisheries and Wildlife. Administered by Entomology. P:M: (ENT 404 or ENT 470 or PLP 405 or CSS 402) and completion of Tier I writing requirement
Principles of host plant resistance and biological control and their relationship to the design of agroecosystems. Classification of insect biological control agents.

480 Woody Plant Physiology
Spring. 3(3-0) Interdepartmental with Forestry. Administered by Horticulture. P:M: PLB 105 or BS 110 R: Not open to freshmen or sophomores.
Physiology of carbon utilization. Effects of water, temperature, nutrition, and light on apical, vegetative, and reproductive growth of woody plants.

486 Biotechnology in Agriculture: Applications and Ethical Issues
Fall of even years. 3(3-0) Interdepartmental with Crop and Soil Sciences and Forestry and Philosophy. Administered by Horticulture. P:M: BOT 105 or BS 111 RB: CSS 350 or ZOL 341 R: Not open to freshmen or sophomores.
Current and future roles of biotechnology in agriculture: scientific basis, applications. Environmental, social, and ethical concerns.

490 Independent Study
Fall, Spring, Summer. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: HRT 203 and HRT 203L and HRT 204 and HRT 204L R: Approval of department; application required.
Independent study of horticulture on a field, laboratory or library research program of special interest to the student.

491 Selected Topics in Horticulture
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: HRT 203 and HRT 203L and HRT 204 and HRT 204L RB: HRT 202 R: Not open to freshmen or sophomores.
Selected topics in horticulture of current interest and importance.

493 Professional Internship in Horticulture
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CSS 493, EEP 493, FIM 493, FW 493, HRT 493, PKG 493, PLP 493, PRR 493, and RD 493. P:M: (HRT 203 and HRT 203L and HRT 204 and HRT 204L) R: Open only to juniors and seniors in the College of Agriculture and Natural Resources. Approval of department; application required.
Professional career related work experience supervised by a professional horticulturist. Requires 40 hrs per week for 12 to 14 weeks. Must enroll semester prior to completing work experience.

494 Industry Master`s Apprenticeship
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (HRT 433 and HRT 433L) or (HRT 435 and HRT 435L) R: Open only to students in the Viticulture and Enology major. Approval of department; application required.
A focused and supervised work experience with a grape or wine industry master. Intensive training in vineyard or winery techniques, operations and management.

811 Plant Developmental Genetics
Fall. 3(2-2) Interdepartmental with Plant Biology. Administered by Horticulture. RB: (ZOL 341 and CSS 350) and (PLB 415 and ZOL 320)
Genetic mechanisms controlling plant development. Model systems and internal,nonenvironmental factors. Methods for the study of plant development. The plant genome.Genetics underlying developmental diversity in higher plants.

816 Environmental Design Theory
Fall. 3(3-0) Interdepartmental with Human Environment and Design and Landscape Architecture and Park, Recreation and Tourism Resources. Administered by Landscape Architecture. RB: Undergraduate design degree recommended.
Differences between normative theories, scientific theories, models, and constructs. Exploration of normative theories related to thesis or practicum.

817 Environmental Design Studio
Spring. 3(0-6) Interdepartmental with Human Environment and Design and Landscape Architecture and Park, Recreation and Tourism Resources. Administered by Landscape Architecture. P:M: (LA 816 and LA 883) RB: Undergraduate design degree.
Development of a student-selected environmental design project in a collaborative setting.

819 Advanced Plant Breeding
Fall. 3(3-0) Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Horticulture. RB: CSS 450 and STT 422
Genetic expectations resulting from breeding strategies with cross- and self-pollinated crop plants. Germplasm collections, mapping populations, and modifications of reproductive biology useful for crop improvement.

820 Plant Reproductive Biology and Polyploidy
Spring of odd years. 1(3-0) Interdepartmental with Crop and Soil Sciences and Forestry and Plant Biology and Plant Pathology. Administered by Horticulture. RB: Introductory Genetics and Plant Biology
Genetic processes underlying variations in plant reproductive biology and polyploidy. Utilization of these characteristics in plant breeding.

821 Crop Evolution
Spring of odd years. 1 credit. Interdepartmental with Crop and Soil Sciences and Forestry and Plant Biology and Plant Pathology. Administered by Horticulture. RB: Introductory Genetics and Plant Biology
Cultural and biological aspects of the evolution of domestic plants.

822 Historical Geography of Crop Plants
Spring of odd years. 1 credit. Interdepartmental with Crop and Soil Sciences and Forestry and Plant Biology and Plant Pathology. Administered by Horticulture. RB: Introductory Genetics and Plant Biology
Development and spread of the major crop species.

827 Techniques in Cytogenetics
Fall of odd years. 1(0-3) Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Crop and Soil Sciences.
Preparation of chromosomes from commercially important plants for cytogenetic analysis.

842 Population Genetics, Genealogy and Genomics
Fall. 3(3-0) Interdepartmental with Animal Science and Crop and Soil Sciences and Forestry and Fisheries and Wildlife and Genetics. Administered by Forestry. RB: Precalculus, basic genetics
Population genetic processes underlying patterns of molecular genetic variation. Genealogical approaches to the study of genomic diversity, phylogenetic reconstruction, and molecular ecology.

853 Plant Mineral Nutrition
Fall of odd years. 3(3-0) Interdepartmental with Crop and Soil Sciences. Administered by Crop and Soil Sciences. RB: BOT 301
Inorganic ion transport in plant cells and tissues. Physiological responses and adaptation to problem soils. Genetic diversity in nutrient uptake and use by plants. Physiological roles of elemental nutrients in crop growth.

863 Environmental Plant Physiology
Spring of odd years. 3(3-0) Interdepartmental with Plant Biology. Administered by Plant Biology. RB: PLB 301 or PLB 414 or PLB 415 SA: BOT 863
Interaction of plant and environment. Photobiology, thermophysiology, and plant-water relations.

870 Techniques of Analyzing Unbalanced Research Data
Spring. 4(4-0) Interdepartmental with Animal Science and Crop and Soil Sciences and Forestry and Fisheries and Wildlife. Administered by Animal Science. RB: STT 464 R: Open only to graduate students in the College of Agriculture and Natural Resources. SA: ANS 943
Linear model techniques to analyze biological research data characterized by missing and unequal number of observations in classes. Simultaneous consideration of multiple factors. Prediction of breeding values and estimation of population parameters from variance and covariance components.

883 Environmental Design Seminar
Fall. 3(3-0) Interdepartmental with Human Environment and Design and Landscape Architecture and Park, Recreation and Tourism Resources. Administered by Landscape Architecture. RB: Undergraduate design degree.
Examination of the breadth of environmental design projects. Literature review of focused projects. Development of practicum or thesis proposals.

890 Independent Study
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.
Individual study of problems of special interest.

891A Selected Topics in Horticulture
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in the Department of Horticulture. Approval of department.
Horticultural science topics of current interest and importance.

891B Selected Topics in Plant Breeding and Genetics
Fall, Spring, Summer. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Horticulture. R: Open only to graduate students in the Plant Breeding and Genetics major or Genetics major. Approval of department.
Selected topics in plant breeding.

892 Plant Breeding and Genetics Seminar
Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 8 credits in all enrollments for this course. Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Horticulture.
Experience in review, organization, oral presentation, and analysis of research.

894 Horticulture Seminar
Fall, Spring. 1(1-0) A student may earn a maximum of 4 credits in all enrollments for this course.
Experience in review, organization, oral presentation and analysis of research.

898 Master's Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.
Master's degree Plan B project.

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to graduate students in the Department of Horticulture.
Master's thesis research.

941 Quantitative Genetics in Plant Breeding
Spring of even years. 3(2-2) Interdepartmental with Crop and Soil Sciences and Forestry. Administered by Crop and Soil Sciences. RB: CSS 819 and STT 464
Theoretical and genetic basis of statistical analysis of quantitative traits using genetic markers. Computational tools for the study of quantitative traits.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to doctoral students in the Department of Horticulture.
Doctoral dissertation research.