Horticulture

Department of Horticulture
College of Agriculture and Natural Resources

100 Horticulture: Plants and People
Fall, Spring. 3(2-0) R: Not open to juniors or seniors in the Department of Horticulture.

203 Principles of Horticulture I
Fall, 2(2-0) SA: HRT 211L
Contributions of horticulture to society. Cultivar development, crop geography, environmental factors, vegetative and reproductive development, and crop management. Field trip required.

203L Principles of Horticulture I Laboratory
Fall, 1(0-3) P: HRT 203 or concurrently SA: HRT 211L

204 Principles of Horticulture II
Spring, 2(3-0) SA: HRT 202
Asexual and sexual propagation. Plant population effects, pest management, harvesting, and postharvest handling and marketing of horticultural crops. Field trip required.

204L Principles of Horticulture II Laboratory
Spring, 1(0-3) P: HRT 204 or concurrently SA: HRT 212L

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.

210 Nursery Management
Fall, 3(2-3) P: NUR 203 and NUR 203L and NUR 204 and NUR 204L R: Not open to freshmen or sophomores. SA: HRT 071, NUR 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. Field trip required.

211 Landscape Plants I
Fall, 3(3-3)
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.

218 Landscape Irrigation
Spring. 3(3-3) Not open to students with credit in HRT 076.
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 10 weeks of the semester.

219 Landscape Computer Aided Design
Spring. 2(0-4) P: 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, Spring. 3(3-0)
Planning and operation of a commercial greenhouse. Structures, coverings, heating, cooling, ventilation, irrigation, fertilization, root media, and pest control. Field trips required.

225A Basic Floral Design
Fall, Spring. 2(1-2)

225B Advanced Floral Design
Fall, Spring. 2(1-2) P: 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.

310 Nursery Management
Fall. 3(2-3) P: NUR 203 and NUR 203L and NUR 204 and NUR 204L R: Not open to freshmen or sophomores.
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. Field trip required.

311 Landscape Design and Management
Spring. 4(3-2) Interdepartmental with Landscape Architecture. 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.
Horticulture–HRT

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
Commercial greenhouse and outdoor production of flowering and foliage potted plants and cut flowers. Plant identification, propagation, production, sched-
323 Floriculture Production II: Herbaceous Perennials and Annuals
Spring. 3(-1-4) P.M. (HRT 203 and HRT 203L and HRT 204 and HRT 204L 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, sched-
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) P.N.M: (BOT 301) SA HRT 331
Commercial aspect of tree and small fruit produc-
333 Wine Judging
Fall. 3(-3-0) R. Open only to students in the IAT Viticulture and Enology program. Ap-
334 Current Issues in Viticulture and Enology
Spring of even years. (1-0-0) A student may earn a maximum of 3 credits in all enrol-
341 Vegetable Production and Management
Spring. 3(-2-3) P.M. (HRT 203 and HRT 203L and HRT 204 or concurrently and HRT 204L) SA: HRT 440, HRT 442
Field production of vegetable crops. Marketing systems, tillage practices, field establishment, cul-
394 Retail Florist Practicum
Fall, Spring, Summer. 1 to 3 credits. A stu-
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.

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. Field trip required.

404 Horticulture Management (W)
Spring. 3(2-2) P.M: Completion of Tier I writ-

407 Horticulture Marketing
Fall. 3(2-1) P.N.M: (HRT 203 and HRT 204) and (EC 201 and EC 202) and (HRT 310 or concurrently or HRT 342 or concurrently or HRT 333 or concurrently or HRT 334 or concurrently) Demographic and purchase trends of perishable horticultural commodities, including landscape and floral crops, and fruits and vegetables. Market seg-

411 Landscape Contract Management
Fall. 3(-2-3) P.M: (HRT 311) Management of landscape construction and mainte-

432 Principles and Practices of Grape Production I
Spring. 3(-3-0) P.M: (CEM 141 and CEM161 and CSE 101) R: Open only to students in the IAT Viticulture and Enology program. 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(0-0-4) P.M: (CEM 141 and CEM 161 and CSE 101) R: Open only to students in the IAT Viticulture and Enology program. C: HRT 432 concurrently. Grafting, pruning, and training of grapevines. De-

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 IAT Viticulture and Enology program. Canopy management, disease control, 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 IAT Viticulture and Enology program. C: HRT 433 concurrently. Vineyard management. Climate, crop load and vine physiology. Effects of pre- and post-veraison prac-

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 IAT Viticulture and Enology program. 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. Physiol-

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 IAT Viticulture and Enology program. C: HRT 433 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 IAT Viticulture and Enology program. Continuation of wine production and winery prac-

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 IAT Viticulture and Enology program. 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.
Plant Breeding and Biotechnology
Spring of even years. 4(3-2) Interdepartmental with Crop and Soil Sciences; Forestry. Administered by Department of Crop and Soil Sciences. P:NM: (CSS 350) Plant improvement by genetic manipulation. Genetic variability in plants. Traditional and biotechnological means of creating and disseminating recombinant genotypes and cultivars.

Cellular and Molecular Principles and Techniques for Plant Sciences
Spring, 4(2-6) Interdepartmental with Crop and Soil Sciences; Forestry. Administered by Department of Entomology. P:NM: (CSS 350 or ZOL 341) Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology, transformation, cell tissue, and organ culture in relation to plant improvement.

Pest Management I: Pesticides in Management Systems
Fall. 3(3-0) Interdepartmental with Entomology, Crop and Soil Sciences; Forestry; Fisheries and Wildlife. Administered by Department of Entomology. P:NM: (CEM 143 or CEM 251) and (BOT 405 and CSS 402) and (ENT 404 or ENT 470 or FW 326) Chemistry, efficient use, and environmental fate of pesticides. Legal and social aspects of pesticide use.

Pest Management II: Biological Components of Management Systems (W)
Spring of even years. 3(2-3) Interdepartmental with Entomology, Crop and Soil Sciences; Forestry; Fisheries and Wildlife. Administered by Department of Entomology. P:NM: (ENT 404 or ENT 470 or BOT 405 or CSS 402 or FW 326) and completion of Tier I writing requirement. Principles of host plant resistance and biological control and their relationship with other components of agroecosystems. Classification of insect biological control agents.

Woody Plant Physiology
Spring. 3(3-0) Interdepartmental with Forestry. P:NM: (BOT 301) 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.

Biotechnology in Agriculture: Applications and Ethical Issues
Fall of even years. 3(3-0) Interdepartmental with Crop and Soil Sciences; Forestry; Philosophy. P:NM: (BOT 105 or BS 111) P:NM: (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.

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:NM: (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.

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:NM: (HRT 203 and HRT 203L and HRT 204 and HRT 204L) R: Not open to freshmen or sophomores. Selected topics in horticulture of current interest and importance.

Professional Internship in Horticulture
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:NM: (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. 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, FIM 493, FW 493, HRT 493, PKG 493, PRM 493, PRR 493, and RD 493. 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.

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:NM: (HRT 203 and HRT 203L and HRT 204 and HRT 204L) R: Open only to students in the IAT Viticulture and Enology program. 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.

Research Procedures in Plant Science
Spring. 3(2-2) P:NM: (STT 422) Applications of epistemology and logic in plant science research. Classical research methods. Hypotheses. Analysis of laboratory, storage, greenhouse, and field experiments.

Growth and Development of Horticultural Crops
Spring of odd years. 3(2-2) P:NM: (BOT 301) Molecular biology of growth and development including dormancy, germination, leaf development, flowering, fruiting, sexual reproduction, and senescence in horticultural crops.

Molecular and Genetic Aspects of Plant Development
Fall of even years. 3(2-2) Interdepartmental with Botany and Plant Pathology. RB: (ZOL 341 or CSS 350) and (BOT 415 and ZOL 410) 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.

Advanced Plant Breeding
Fall. 3(3-0) Interdepartmental with Crop and Soil Sciences; Forestry. P:NM: (CSS 450 or CSS 451) R: Open only to graduate students with credit in ANS 943. Preparation of chromosomes from commercially important plants for cytogenetic analysis. Population genetics, genealogy and genomics. Fall, Spring of odd years. 3(3-0) Interdepartmental with Crop and Soil Sciences. Administered by Department of Crop and Soil Sciences. P:NM: (BOT 301) Population genetic processes underlying patterns of molecular genetic variation. Genealogical approaches to the study of genomic diversity, phylogenetic reconstruction, and molecular ecology.

Plant Mineral Nutrition
Fall of odd years. 3(3-0) Interdepartmental with Crop and Soil Sciences. Administered by Department of Crop and Soil Sciences. P:NM: (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.

Environmental Plant Physiology
Spring of odd years. 3(3-0) Interdepartmental with Botany and Plant Pathology. Administered by Department of Botany and Plant Pathology. P:NM: (BOT 301 or BOT 414 or BOT 415) Interaction of plant and environment. Photobiology, thermophysics, and plant-water relations.

Techniques of Analyzing Unbalanced Research Data
Spring. 4(4-0) Interdepartmental with Animal Science, Crop and Soil Sciences; Forestry; Fisheries and Wildlife. Administered by Department of Animal Science. P:NM: (STT 464) R: Open only to graduate students in the College of Agriculture and Natural Resources. SA: ANS 943. Not open to students with credit in ANS 943. Linear model techniques to analyze biological research data characterized by missing and unequal numbers of observations in classes. Simultaneous consideration of multiple factors. Prediction of breeding values and estimation of population parameters from variance and covariance components.

Independent Study
Fall, Spring, Summer. 1 to 2 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.
Horticulture–HRT

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 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; Forestry. R: Open only to graduate students in Plant Breeding and Genetics or Genetics. Approval of department.

Selected topics in plant breeding.

892 Plant Breeding and Genetics Seminar
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course. Interdepartmental with Crop and Soil Sciences; Forestry. Experience in review, organization, oral presentation, and analysis of research.

894 Horticulture Seminar
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 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 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 Ph.D. students in Horticulture.

Doctoral dissertation research.

HOSPITALITY BUSINESS

HB

School of Hospitality Business

The Eli Broad College of Business and The Eli Broad Graduate School of Management

200 Introduction to the Hospitality Industry
Fall, 3(3-0) R: Open only to freshmen or sophomores or approval of school. SA: HRI 200


210 Introduction to the Casino Industry
Fall, 3(3-0)

Social issues of gaming, casino games of chance, management controls and marketing plans.

211 Club Operations and Management
Spring of odd years, 3(3-0)

Club operations and management. City, country, yacht, and athletic clubs. Field trips required.

237 Management of Lodging Facilities
Spring, 3(3-0) P.M. (HB 200) R: Open only to freshmen or sophomores or juniors. SA: HRI 237

Operational departments and logical functions in the operation of various types of lodging properties. Planning and control of physical, mechanical, and electrical systems.

265 Quality Food Management
Spring, 3(3-0) P.M. (HB 200) R: Open only to freshmen or sophomores or juniors. SA: HRI 265

Standards of microbiology, sanitation, nutrition, and other quality issues in food management. Chemical, health, and workplace standards. Management of product quality and costs.

293 Cooperative Education for Business Students
Fall, Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. Interdepartmental with Marketing and Supply Chain Management; Accounting; Economics; Finance; Management. Administered by Department of Marketing and Supply Chain Management.

By permission of the Department only. Integration of pre-professional educational employment experiences in industry and government with knowledge and processes taught in the student's academic program. Educational employment assignment approved by the Department of Marketing and Supply Chain Management.

302 Hospitality Managerial Accounting
Fall, Spring. 3(3-0) P.M. (ACC 201 and CSE 101 or concurrently and HB 200) R: Open only to juniors or seniors. SA: HRI 302

Principles of managerial accounting applied to hospitality enterprises. Topics include financial statements, forecasting methods, internal control, and accounting ethics.

307 Organizational Behavior in the Hospitality Industry (W)
Spring, 3(3-0) P.M. (MGT 315 or concurrently) and completion of Tier I writing requirement. R: Open only to juniors or seniors in the College of Business. SA: HRI 307

Human resource management and interpersonal skills in the hospitality industry. Managing in a culturally diverse workplace.

320 Casino Operations and Management
Spring of even years, 3(3-0) P.M. (HB 210)

Practices and problems associated with casino management, staffing, security, protection of table games, and control.

337 Hospitality Information Systems
Fall, 3(3-0) P.M. (HB 237 and CSE 101) SA: HRI 337

Technology for gathering, analyzing, storing and communicating information within the hospitality industry.

345 Quantity Food Production Systems
Fall, Spring, 3(3-0) P.M. (HB 265) R: Open only to juniors or seniors. SA: HRI 345

Organization of food and beverage operations. Product knowledge, especially purchasing, storing, preparing and production in food service operations. Menu development and recipe management.

410 Casino Controls and Finance
Fall of odd years, 3(3-0) P.M. (ACC 201 and HB 210)

Gaming regulation of the casino industry, casino cash controls, accounting controls, slot machine controls, financial reporting, requirements.

411 Hospitality Beverages
Spring of odd years, 3(3-0) P.M. (HB 200)

Evaluation and selection of hospitality beverages. Geographical origins of beverages, beverage production, quality assessment, matching beverages with food, health and social considerations.

415 Total Quality Management in the Hospitality Industry
Spring, 3(3-0) P.M. (MGT 315 or HB 307)

Total quality management and continuous quality improvement in the hospitality industry. Quality planning and control, assessment, customer surveys and feedback, cost of quality.

473 Hospitality Industry Research
Fall, Spring, 3(3-0) P.M. (MSC 300 and HB 307 and STT 315) R: Open only to seniors. SA: HRI 473

Not open to students with credit in MSC 317 or STT 317.

Strategies and techniques for obtaining, analyzing, evaluating, and reporting relevant research data.

475 Innovations in Hospitality Marketing
Fall, Spring, 3(3-0) P.M. (MSC 300 and HB 307 and HB 473) R: Open only to seniors. SA: HRI 475

Marketing of hospitality industry products and concepts, amid global competition and culturally diverse markets and workforces.