

UNDERGRADUATE CATALOG 2005-6
DEPARTMENT OF PLANT SCIENCES

120 Introduction to Plant Sciences (2) Survey of the disciplines and professions addressed by the department's four academic undergraduate concentrations: landscape design and construction; turfgrass science and management; public horticulture; plant science, biotechnology and horticulture. For departmental majors: enrollment is restricted to freshmen and transfer sophomores. Open to all non-majors.

210 Horticulture: Principles and Practices (2) An introduction to the biology and technology underlying the use and production of horticultural crops and landscape plants. Structure, growth and development of horticultural plants from a practical and scientific approach, environmental effects, basic principles of propagation, greenhouse and outdoor production, nutrition, pruning and chemical control of growth, pest control and branches of horticulture. Prereq: Biology 111 and 112.

220 Basic Landscape Plants (3) Identification, classification, adaptation, culture and landscape design uses of basic ornamental trees, shrubs, and vines. 2 hours and 1 lab. Prereq: Biology 111 and 112.

226 Public Horticulture (2) Study of the public horticulture profession. Attention given to the diversity of public horticulture institutions, career opportunities, and research. Discussion of current topics and issues. Prereq: 120.

230 Interior Plantscaping (3) History and introduction of the interior plantscaping industry. Identification, culture, propagation, and use of plants for the commercial interior landscape. Management of the interior environment including light, humidity, growing media, insects, and diseases. Commercial use of containers, planters, water features, and artificial plants. Prereq: 120.

240 Turfgrass Management (2) Practical turfgrass management; cultivar selection, identification, and establishment; basic fertility programs, mowing, irrigation practices, and thatch removal and compaction control; pest identification and basic controls. 2 hours lecture. Prereq: Environmental and Soil Sciences 210; Biology 111 and 112.

241 Turfgrass Management Lab (1) Laboratory addressing topics presented in 240. 2-hour lab. Prereq: Environmental and Soil Sciences 210; Biology 111 and 112. Coreq: 240.

280 Fundamentals of Landscape Design (3) History of landscape design as it relates to contemporary applications. Awareness and sensitivity to the landscape; basic graphic skills and design theory with an emphasis on residential landscape planning. Introduction to landform, landscape materials, and planting design. 1 hour and 2 labs.

290 Fall Herbaceous Ornamental Plants (3) Identification, culture, and landscape use of late summer and fall herbaceous ornamental plants including annuals, perennials, herbs, and ornamental grasses. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq: 120.

291 Spring Herbaceous Ornamental Plants (3) Identification, culture, and landscape use of spring and early summer herbaceous ornamental plants including annuals, perennials, herbs, bulbs, and wildflowers. Basic gardening practices and design elements using such herbaceous ornamental plants. Prereq: 120.

328 Conservatories: Management, Operations, and Display (1) Study of the history, value and role of public garden conservatories. Management, operations and display of plants in controlled environments for research, conservation, and public education and entertainment. Prereq: 226.

329 Horticultural Interpretation: Educational Programming for Adults and Children (1) Strategic planning, programming and budgeting for adult and youth education within a public garden. Prereq: 226.

330 Plant Propagation (2) Physiology, methodology, and environmental requirements for propagation. 2 hours and 1 lab. Prereq: Biology 111 and 112.

331 Interpreting Research Findings (1) Basic statistical concepts required for understanding and evaluating research findings. Prereq: Two mathematics courses.

335 World Food and Fiber Plant Production (3) Introduction to important world crops and production systems. Emphasis on plant terminology, origin and development, world agro-ecosystems, environmental and economic sustainability, current technology in crop production. Prereq: Biology 111- 112 or 101-102 or 130-140.

341 Integrated Turfgrass Management and Environmental Benefits (2) Utilization of resources available to the turfgrass manager (e.g, extension, research, professional associations). Benefits of turfgrass in the environment, including bioremediation, urban greening, carbon sequestration. Prereq: 240.

343 Turfgrass Entomology (1) Biological study and collection of arthropods that challenge maintenance of healthy grasses, turf, and sod. Review and discussion of sampling/monitoring strategies and decisionmaking guidelines to help manage turfgrass pests. Prereq: 240.

348 Landscape Plant Physiology (2) Physiological principles as they relate to landscape design and construction, turfgrass management, and public horticulture: photosynthesis and transpiration, respiration, water and hormonal relations, mineral nutrition, plant development, and response to the environment. Prereq: Biology 111 and 112.

350 Basic Landscape Construction (3) Basic materials and detailing. Introduction to the landscape construction and contracting industry; application of landscape materials, wood, concrete and masonry construction; site drainage, and landscape grading. 2 hours and 1 lab. Prereq: 280.

353 Plant Genetics, Breeding, and Biotechnology (3) Genetic principles and techniques used in plant modification. Principles of molecular, transmission, and quantitative genetics as applied to plant breeding. Prereq: Biology 111 and 112.

360 Practicum in Landscape Construction (3) Practical experience in implementation of landscape development projects. Directed lab and field instruction in planting operations and basic landscape construction including interpreting and implementing landscape design drawings and specifications. Two 3-hour labs. Prereq: 350.

370 Grounds Maintenance (3) Identification and understanding of maintenance tasks; transplanting, soil amendments, growth control, irrigation, climate protection, and pest control. Maintenance and use of equipment; management practices. 2 hours and 1 lab.

380 Supplemental Landscape Design Graphics (3) Refinement of graphic skills. Sketches, elevations, sections, isometric projections, and perspectives. Lettering, plan graphics, color rendering, and other visual presentation media. Two 2-hour labs. Prereq: 280.

410 Nursery Management and Production (2) Management methods as applied to retail and wholesale nurseries and landscape contracting firms. Methods of producing liners, container and field-grown woody ornamental plants. 2 hours and 1 lab. Prereq: 220, 330, Environmental and Soil Sciences 210.

421 Native Plants in the Landscape (3) Native plants and plant communities as a basis for landscaping and environmental restoration. Weekly lecture coupled with either an outing or service practicum of invasive exotic plant removals or planting of natives. Study and work sites will primarily be demonstration projects of the University of Tennessee Environmental Landscape Design Lab. They include local schoolyard habitats, greenways, wetlands, streambanks, and shorelines. Prereq: 220 or Ecology and Evolutionary Biology 330.

427 Management and Administration of Public Horticulture Institutions (2) Management of resources in non-profit institutions, support organizations and communities. Theoretical framework and institutional mission; strategic planning and programming; financial accounting and budgeting; development and fund raising; personnel policies; volunteer development; marketing and publicity; legal issues; relationships between staff and governing boards; the use of information technology in management and governance systems; and conservation/preservation roles in community development. Prereq: 226.

429 Field Study of Public Horticulture Institutions (2) Extended 10-12 day field study of various public horticulture institutions such as botanical gardens, arboreta, historical grounds, zoos, conservatories, cemeteries, and nature preserves. Application and travel fee required. Prereq: 226.

430 Greenhouse Management (3) Principles of greenhouse operation and management for commercial crop production. Greenhouse construction and operation, crop scheduling and cost accounting. Environmental inputs and cultural practices as they affect plant physiological processes and influence plant growth and development. 2 hours lecture and one 2-hour lab. Prereq: Agriculture and Natural Resources 290 or Computer Sciences 100 or equivalent.

432 Weed Management (3) Principles of weed interference, integrated management, herbicide selectivity and behavior, specific recommendations for various crop and non-crop situations. 2 hours and 1 lab. Prereq: Environmental and Soil Sciences 210. Students who have received credit for 334 may not receive credit for 432.

434 Fruit and Vegetable Crops (3) Botanical description, geographical distribution, general cultural practices of warm and cool season vegetables, small fruits, and deciduous tree fruits. A Saturday field trip is required. 2 hours lecture and one 2-hour lab. Prereq: 120, Biology 111 and 112.

435 Field and Forage Crops (2) Agronomic principles of crop production and management. Crop improvement, cropping systems, tillage, fertilization, pest management, harvest and utilization of major field and forage crops. 2 hours and 1 lab. Prereq: 335.

436 Plant and Garden Photography (2) Principles and techniques of photography as they relate to plants and gardens. Study of equipment options and field shooting under various weather conditions and in different seasons. Prereq: Senior standing and consent of the instructor.

437 Public Garden Operations and Management (2) An analysis of yearround operations and management of public gardens. Case studies involving time and labor management, budget development and management, implementation of volunteer programs, information dissemination methods for public outreach, management of grounds and facilities using the University of Tennessee Institute of Agriculture Gardens as a model. Prereq: 226.

441 Advanced Turfgrass Management (2) Principles and scientific basis of turfgrass culture; adaptation, ecology, physiology, climatic influences on grass culture; clipping and water management; design. 1-hour lecture and one 1-hour lab. Prereq: 240.

442 Turf Root-zone Construction (2) Construction and management of root-zones for home lawns, golf courses and athletic fields. Prereq: 240.

446 Horticultural Therapy (2) Introduction to the application of horticulture as therapy for treatment, rehabilitation and/or training of individuals with disabilities. Prereq: Senior standing.

448 Horticultural Internet Technology (3) Creation and management of information resources for the internet, with a focus on development of visual and oral communications skills through a series of individual and team exercises in writing, graphics and public speaking. Prereq: Communication Studies 210 or 240, and senior standing. *(WC)*

450 Specialty Landscape Construction (3) Methods of design, materials, and construction techniques for specialized components of the landscape industry. Irrigation systems, outdoor lighting, garden ponds and water features.

451 Plant Tissue Culture (3) *(See Entomology and Plant Pathology 451.)*

454 Plant Biotechniques (3) Lectures will discuss recombinant DNA technology, molecular assisted breeding of economically important crops, gene cloning and transformation technologies. Examples will be given of food and ornamental crops, pharmaceuticals, and renewable energy sources produced using biotechnology as well as potential risks of this technology. Labs will include electrophoresis, tissue culture, plasmid preps, genomic DNA preps, PCR, plant transformation, genomic techniques. 1 hour and one 3-hour lab. Prereq: 353 or Biology 240.

457 Weed Management (2) Principles of weed interference, integrated management, herbicide selectivity and behavior, specific recommendations for various crop and non-crop situations. Prereq: Environmental and Soil Sciences 210.

458 Turf Weed Management Lab (1) Laboratory addressing practices and principles presented in 457, from the standpoint of turf. Prereq: Environmental and Soil Sciences 210. Coreq: 457.

459 Agronomy Weed Management Lab (1) Laboratory addressing practices and principles presented in 457, from the standpoint of agronomy. Prereq: Environmental and Soil Sciences 210. Coreq: 457.

460 Professional Practices in Landscape Construction and Management (2) Professionalism, salesmanship, proposals, bidding, estimating, specifications, and contract management in landscape services industry. Computer technology applicable to landscape construction and contracting industry. Includes presentations by industry representatives. 2 hours. Prereq: 350.

461 Statistics for Biological Research (3) Application of statistics to interpretation of biological research. Notation, descriptive statistics, probability, distributions, confidence intervals, t- and chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation. Students may not receive credit for both 461 and 561. Prereq: Mathematics 125 or 152.

470 Professional Practices for the Green Industry (3) Professionalism, sales, sales proposals, budgeting, managerial skills, estimating, specifications, and contract management in the turf, public horticulture and landscaping professions. Prereq: Two 300-level or 400-level Plant Sciences courses.

480 Advanced Landscape Design (3) Comprehensive application of landscape design skills to a variety of project experiences with an emphasis on landscape planning and analysis, planting design, and materials estimating. Two 3-hour labs. Prereq: 280, 380.

485 Computer Aided Landscape Design (3) Overview of Computer Aided Design (CAD) as it relates to landscape design and construction. Emphasis on development of landscape design drawings through utilization of LANDCADD software. Prereq: 280, 380, and Agriculture and Natural Resources 290 or Computer Science 100 or equivalent.

492 Internship in Horticultural and Plant Sciences (1-3) Supervised work experience with a departmentally-approved employer within the ornamental horticulture, turfgrass, production horticulture, or field crop science industry. May be repeated. Maximum of 6 hours. Satisfactory/No Credit grading only.

493 Problems in Horticultural and Plant Sciences (1-3) Supervised individual problems relating to the plant sciences or landscape design. May be repeated. Maximum of 6 hours.

494 Professional Horticultural Communications (3) Communication for public horticulturists through written, oral, and visual media. Emphasis on communication skills using proper writing techniques and grammar for print media, brochure design using desktop publishing, slide show development, oral presentations, and video use for educational and informational presentations in ornamental horticulture. Prereq: Agriculture and Natural Resources 290, Computer Science 100 or equivalent, and senior standing.

497 Undergraduate Research Participation (1-3) Experiences in active research projects under supervision of staff members. Student should make arrangements for research project with instructor prior to enrollment. Prereq: Junior or senior standing, minimum grade point average 3.00 and consent of instructor. May be repeated. Maximum 6 hours.