

# HORTICULTURE AND LANDSCAPE ARCHITECTURE

## Courses

### HORT 1013 Principles of Horticultural Science (LN)

**Description:** Basic physical and physiological processes responsible for plant dormancy, growth, flowering, fruiting, and senescence with respect to the science and art of production, cultivation, utilization, and/or storage of horticultural plants. Current research associated with various horticultural commodity groups.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**General Education and other Course Attributes:** Scientific Investigation, Natural Sciences

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

### HORT 2010 Internship in Horticulture or Landscape Management

**Prerequisites:** 24 credit hours and consent of adviser.

**Description:** Supervised work experience with approved public and private employers in horticulture, landscape management, or related fields. Credit will not substitute for required courses. Graded on a pass-fail basis.

Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Undergraduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour and HORT/LA Facil, Equip, Lab fee of \$12 per credit hour apply.

### HORT 2513 Herbaceous Plant Materials

**Description:** Identification, cultural requirements, and use of ornamental garden and indoor herbaceous plants.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

### HORT 2613 Woody Plant Materials

**Description:** Identification, cultural requirements, and use of ornamental woody plants including deciduous and evergreen trees, shrubs and vines.00 per credit hour applies

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

### HORT 3013 Arboriculture

**Prerequisites:** HORT 2613 or NREM 2134 and SOIL 2124.

**Description:** Theory and practice of selecting, planting and maintaining trees, shrubs and vines in the landscape. Previously offered as HORT 3014.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

### HORT 3084 Plant Propagation

**Prerequisites:** HORT 1013 or PLNT 1213, BIOL 1113 and BIOL 1111 or PBIO 1404 and SOIL 2124.

**Description:** Principles and practices involved in propagation of plants. Anatomical, morphological and physiological aspects of sexual and asexual methods of regeneration and their importance.

**Credit hours:** 4

**Contact hours:** Lecture: 3 Lab: 2 Contact: 5

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

### HORT 3113 Greenhouse Management

**Prerequisites:** HORT 1013 or PLNT 1213, BIOL 1113 and BIOL 1111 or PBIO 1404, and MATH 1483.

**Description:** Commercial greenhouse operation with emphasis on floricultural plant production aspects; environment, growing media, fertilizers and application methods, watering, pest and disease control, chemical growth regulators, production costs.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT or LA Course Field Trip fee of \$20 and HORT/LA Facil, Equip, Lab fee of \$12 per credit hour apply.

### HORT 3153 Turf Management

**Description:** Selection, establishment and maintenance of grass species and other plant materials for special use areas.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

### HORT 3213 Fruit and Nut Production

**Prerequisites:** BIOL 1113 and BIOL 1111 or PBIO 1404.

**Description:** Commercial production of fruits and nuts, with emphasis on pecan, apple, peach, strawberry, blackberry and blueberry. A two-day field trip is required.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**HORT 3253 Personnel and Financial Management for Horticulture**

**Prerequisites:** HORT 1013 or LA 1013 and one upper division HORT or LA course.

**Description:** Preparing and executing an operational budget in a horticultural service industry and methods for maintaining an effective work force.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 3433 Commercial Vegetable Production**

**Prerequisites:** HORT 1013 or PLNT 1213, BIOL 1113 and BIOL 1111 or P BIO 1404, and SOIL 2124.

**Description:** Commercial production and marketing of vegetable crops. May not be used for Degree Credit with HORT 5433.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 3513 Landscape Irrigation**

**Prerequisites:** HORT 1013 or LA 1013.

**Description:** Basics of landscape irrigation with an emphasis on residential irrigation design, maintenance and installation.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 3613 Bidding and Estimating**

**Prerequisites:** ACCT 2003 or ACCT 2103.

**Description:** Budgeting, bid preparation and job cost estimation for landscape related industries including golf course budgeting, overhead and labor budgeting, and profitable pricing. Previously offered as HORT 3612.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 3713 Urban Horticulture Production**

**Prerequisites:** HORT 1013.

**Description:** Principles and production of crops for public or community practices with emphasis on production associated with hydroponics, raised beds, containers, controlled environments, roof tops, high tunnels, and farmers markets.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 3833 Hydroponics and Soilless Crop Production**

**Prerequisites:** HORT 1013.

**Description:** Basics of soilless production with emphasis on hydroponics and aquaponic production of vegetables and cut flowers.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**HORT 4010 Special Topics in Horticulture**

**Description:** New and emerging areas of study in Horticulture. Offered for variable credit, 1-4 credit hours, maximum of 9 credit hours.

**Credit hours:** 1-4

**Contact hours:** Lecture: 1-4 Contact: 1-4

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 4053 International Experience in Horticulture (I)**

**Description:** Participation in international travel to develop an understanding of different horticultural systems and technologies used outside the U.S.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**General Education and other Course Attributes:** International Dimension

**HORT 4133 Temperature Stress Physiology**

**Prerequisites:** BIOC 3653 and P BIO 4463 or HORT 4963.

**Description:** Effects of heat, chilling and freezing stress on plants. Responses to temperature extremes at the molecular to whole plant levels with emphasis on mechanisms of injury and resistance. Same course as PLNT 4133. May not be used for degree credit with HORT 5133 and PLNT 5133.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 4453 Turfgrass Physiology and Ecology**

**Prerequisites:** HORT 3153, and BIOL 1113 and BIOL 1111 or P BIO 1404.

**Description:** A study of the relationship between turf physiology and modern turf management practices. Concepts of stand ecology with emphasis on species dominance in stressful environments. May not be used for Degree Credit with HORT 5453.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 4493 Athletic Field Management****Prerequisites:** HORT 3153.**Description:** Principles, practices and challenges associated with natural turf- covered athletic field management; field construction, maintenance and evaluation of playing surface quality; soil physical properties influencing management and field use, construction and maintenance materials specification, and traction, hardness and ball response factors. Offered in combination with HORT 5493. No credit for both HORT 4493 and HORT 5493.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 4543 Sustainable Nursery Production****Prerequisites:** HORT 2613 and SOIL 2124.**Description:** Sustainable commercial production of field- and container-grown woody ornamental crops. Previously offered as HORT 3544. May not be used for Degree Credit with HORT 5543.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 2 Contact: 4**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**HORT 4713 Public Garden Management****Prerequisites:** HORT 1013.**Description:** Issues and methods in public garden management, including database management of collections, conservation of native species, grant writing, volunteer coordination, computerized mapping systems, master planning, and other topics pertaining to a career in public horticulture. Field trips required. May not be used for Degree Credit with HORT 5713.**Credit hours:** 3**Contact hours:** Lecture: 1 Lab: 4 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**HORT 4773 Applied Landscape Planning****Description:** Concepts of landscape management, design and construction including hand graphics and AutoCad with an emphasis on residential landscape. No credit for students in the landscape architecture or landscape management programs. Previously offered as HORT 4774.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 2 Contact: 4**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**HORT 4901 Horticulture in Controlled Environments Laboratory****Prerequisites:** HORT 4903 or concurrent enrollment.**Description:** Hands-on experiences and virtual field trips designed to reinforce principles discussed in HORT 4903, and to develop skill sets important to successful implementation of horticultural practices in controlled environments. May not be used for Degree Credit with HORT 5901.**Credit hours:** 1**Contact hours:** Lab: 2 Contact: 2**Levels:** Undergraduate**Schedule types:** Lab**Department/School:** Hort & Landscape Arch**HORT 4903 Horticulture in Controlled Environments****Prerequisites:** CHEM 1215 and HORT 3113.**Description:** Designing, constructing, monitoring, and manipulating controlled environments for efficient horticultural production. May not be used for degree credit with HORT 5903.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 4933 Principles of Sustainable and Organic Horticulture****Prerequisites:** HORT 1013.**Description:** Principles and practices of sustainable, organic, and alternative horticultural management systems.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 4943 International Horticulture****Prerequisites:** HORT 1013.**Description:** Overview of the horticulture industry worldwide. Export, marketing, and international trade issues in a global horticulture context. Individual country analyses of specific fruit, vegetable and ornamental crops. May not be used for Degree Credit with HORT 5943.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 4953 Plant Growth and Development****Prerequisites:** HORT 1013 and PBI0 1404.**Description:** Plant embryogenesis and organogenesis; growth and development of shoots and reproductive structures; plant developmental processes including shoot expansion and dormancy as influenced by temperature, light, and other environmental factors. May not be used for Degree Credit with HORT 5953.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch

**HORT 4963 Horticulture Physiology**

**Prerequisites:** CHEM 1215, and BIOL 1114 or (BIOL 1113 and BIOL 1111) or PBIO 1404.

**Description:** Physiology of horticultural plants, including water relations, respiration, photosynthesis, and growth and development. May not be used for degree credit with HORT 5963.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 4973 Sustainable Landscape Management**

**Prerequisites:** HORT 1013 or LA 1013.

**Description:** The ecological principles and landscape resources supporting decision-making for sustainable landscape management. Retrofits of existing development for enhanced sustainability, including equipment selection, stormwater management, use of successional landscapes, permaculture, and organic methods. May not be used for Degree Credit with HORT 5973.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 4990 Horticultural Problems**

**Prerequisites:** Consent of instructor.

**Description:** Study of horticultural problems under the supervision of a faculty member. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Undergraduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 5000 Master's Research and Thesis**

**Description:** Research on thesis problems required of master's degree candidates. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Graduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 5020 Graduate Seminar**

**Prerequisites:** Graduate standing.

**Description:** Proposal and results seminars for graduate programs. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.

**Credit hours:** 1

**Contact hours:** Contact: 1 Other: 1

**Levels:** Graduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 5110 Advanced Horticultural Problems**

**Description:** Selected research problems in horticulture, floriculture, landscape design; nursery production, olericulture and pomology. Offered for variable credit, 1-12 credit hours, maximum of 20 credit hours.

**Credit hours:** 1-12

**Contact hours:** Contact: 1-12 Other: 1-12

**Levels:** Graduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**HORT 5133 Temperature Stress Physiology**

**Prerequisites:** BIOC 3653 and PBIO 4463 or HORT 4963.

**Description:** Effects of heat, chilling and freezing stress on plants. Responses to temperature extremes at the molecular to whole plant levels with emphasis on mechanisms of injury and resistance. Same course as PLNT 5133. May not be used for degree credit with PLNT 4133 and HORT 4133.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 5233 Experimental Horticulture**

**Description:** Methods of conducting research with horticultural crops, including organization and plans, field plot techniques and analysis of data.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 5293 Plant Response to Water Stress**

**Prerequisites:** BIOC 3653 and PBIO 4463.

**Description:** Physiological ramifications of water deficit stress on cells, tissues, plants and canopies. Discussion of the soil/plant/atmosphere continuum, and avoidance and tolerance mechanisms leading to drought resistance. Photosynthesis, transpiration, and water-use efficiency and their relationship to biomass accumulation and crop yield. Same course as PLNT 5293.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 5403 Commercial Vegetable Production**

**Prerequisites:** HORT 1013, SOIL 2124 and PBIO 1404.

**Description:** Commercial production and marketing of vegetable crops. May not be used for degree credit with HORT 3433.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Graduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**HORT 5423 Flowering and Fruiting in Horticultural Crops****Prerequisites:** PBIO 3463.**Description:** Environmental, chemical and cultural factors affecting the flowering and fruiting of horticultural crops. Previously offered as HORT 5422.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5433 Postharvest Physiology****Prerequisites:** BOT 3463 and BOT 3460.**Description:** Physiological causes for post-harvest changes in horticultural crops (ripening and senescence) and the basis for certain postharvest treatments (precooling at harvest, controlled atmosphere storage, refrigeration, and packaging techniques). Commodity-specific postharvest phenomena.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5443 Basic Laboratory Experimentation****Description:** Principles and theory of safe laboratory practice and experimentation. Techniques for developing and optimizing plant sample acquisition, extraction and analysis protocols. Theory of operation and maintenance of common laboratory instrumentation (pH measurement, solid and liquid analytical measurement, temperature measurement, spectrophotometry, HPLC, GC). Laboratory provides hands-on experience for integrated protocol development and instrument use.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Graduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**HORT 5453 Turfgrass Physiology and Ecology****Prerequisites:** HORT 3153, PBIO 1404.**Description:** A study of the relationship between turf physiology and modern turf management practices. Concepts of stand ecology with emphasis on species dominance in stressful environments. May not be used for degree credit with HORT 4453.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5493 Athletic Field Management****Prerequisites:** HORT 3153.**Description:** Principles, practices and challenges associated with natural turf- covered athletic field management; field construction, maintenance and evaluation of playing surface quality; soil physical properties influencing management and field use, construction and maintenance materials specification, and traction, hardness and ball response factors. Offered in combination with HORT 4493. No credit for both HORT 4493 and HORT 5493.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5543 Sustainable Nursery Production****Prerequisites:** HORT 2613 and SOIL 2124.**Description:** Sustainable commercial production of field and container grown woody ornamental crops. No credit for both HORT 4543 and HORT 5543.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5713 Public Garden Management****Prerequisites:** HORT 1013.**Description:** Issues and methods in public garden management, including database management of collections, conservation of native species, grant writing, volunteer coordination, computerized mapping systems, master planning, and other topics pertaining to a career in public horticulture. Field trips required. May not be used for degree credit with HORT 4713.**Credit hours:** 3**Contact hours:** Lecture: 1 Lab: 4 Contact: 5**Levels:** Graduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**HORT 5901 Horticulture in Controlled Environments Laboratory****Prerequisites:** HORT 4903 or concurrent enrollment.**Description:** Hands-on experiences and virtual field trips designed to reinforce principles discussed in HORT 4903, and to develop skill sets important to successful implementation of horticultural practices in controlled environments. May not be used for Degree Credit with HORT 4901.**Credit hours:** 1**Contact hours:** Lab: 2 Contact: 2**Levels:** Graduate**Schedule types:** Lab**Department/School:** Hort & Landscape Arch

**HORT 5903 Horticulture in Controlled Environments****Prerequisites:** CHEM 1215 and HORT 3113.**Description:** Designing, constructing, monitoring, and manipulating controlled environments for efficient horticultural production. May not be used for degree credit for HORT 4903.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5943 International Horticulture****Prerequisites:** HORT 1013.**Description:** Overview of the horticulture industry worldwide. Export, marketing, and international trade issues in a global horticulture context. Individual country analyses of specific fruit, vegetable and ornamental crops. May not be used for Degree Credit with HORT 4943.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5953 Plant Growth and Development****Prerequisites:** HORT 1013 and PBI0 1404.**Description:** Plant embryogenesis and organogenesis; growth and development of shoots and reproductive structures; plant development processes including shoot expansion and dormancy as influenced by temperature, light, and other environmental factors. May not be offered for degree credit with HORT 4953.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 5963 Horticulture Physiology****Prerequisites:** CHEM 1215 and BIOL 1114 or (BIOL 1113 or BIOL 1111).**Description:** Physiology of horticultural plants, including water relations, respiration, photosynthesis, and growth and development. Offered in combination with HORT 4963. May not be used for degree credit with HORT 4963.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**HORT 5973 Sustainable Landscape Management****Prerequisites:** HORT 1013 and LA 1013.**Description:** The ecological principles and landscape resources supporting decision-making for sustainable landscape management. Retrofits of existing development for enhanced sustainability, including equipment selection, stormwater management, use of successional landscapes, permaculture, and organic methods. No credit for both HORT 4973 and HORT 5973.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**HORT 6000 Doctoral Rsch & Dissertation****Description:** Research on dissertation problems required of PhD candidates in multidisciplinary programs. Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.**Credit hours:** 1-12**Contact hours:** Contact: 1-12 Other: 1-12**Levels:** Graduate**Schedule types:** Independent Study**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 1013 Introduction to Landscape Architecture****Description:** An overview of the field of landscape architecture with an emphasis on the application of artistic and scientific principles of design, planning and management of natural and built environments.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 1213 Visual Communication I for Landscape Architecture****Description:** The practice and application of hand graphics, professional drafting, and freehand sketching skills to explore, communicate, and represent natural, designed, and built landscapes. Previously offered as LA 2002 and LA 2213.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 1223 Visual Communication II for Landscape Architecture****Description:** The practice and application of digital visualization in the landscape architectural design process. Introduction to computer applications used in the industry for conceptualizing, drafting, modeling, and graphic communications. Previously offered as LA 3002 and LA 2223.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 1323 Computer-Aided Design for Landscape Architecture****Description:** Principles and applications of computer-aided design (AutoCAD) in landscape architecture. Visual communication techniques related to technical and construction drawings. Introduction to portfolio design. Previously offered as LA 1122 and LA 2323.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 2 Contact: 4**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**LA 1525 Studio 1: Principles and Theory of Design****Prerequisites:** Concurrent enrollment in LA 1223.**Description:** Introduction to basic elements, principles, and theory of design. Exploration of design process, both 2D and 3D form, spatial organization, and temporal nature of landscape. Applied projects in small scale landscape design. Previously offered as LA 3314, LA 3315, and LA 3773.**Credit hours:** 5**Contact hours:** Lecture: 2 Lab: 9 Contact: 11**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 2413 Ecological Landscape Design****Description:** Introduction to principles of ecological landscape design, natural systems, and landscape performance as applied in contemporary landscape architecture. Includes the natural, cultural, and aesthetic components involved with analyzing existing space for design and planning purposes. Exposure to historical and contemporary individuals that have inspired ecological landscape design and planning.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**LA 2513 Native American Symbolism in Landscape Design (D)****Description:** Study of cultural diversity through Native American symbolism and application of these symbols as design elements relating to functional and aesthetic qualities in landscape design.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**General Education and other Course Attributes:** Diversity**LA 2515 Studio 2: Site Design****Prerequisites:** LA 1223, LA 1525, and concurrent enrollment in LA 1213.**Description:** Design process, site inventory and analysis as it relates to physical and social site design. Place making, experiential, behavioral, and environmental considerations among several issues to be examined. Applied projects will focus on residential design, site design and design development. Previously offered as LA 3324, LA 3325, and LA 4013.**Credit hours:** 5**Contact hours:** Lecture: 2 Lab: 9 Contact: 11**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 2523 Garden Design in Harmony with Local Ecology****Description:** History, theory, and practice of creating gardens in harmony with local ecology to express aesthetic and cultural values of individuals and societies. Environmental aspects of place related to design form and expression.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**LA 2525 Studio 3: Recreation and Open Space Design****Prerequisites:** LA 2515.**Description:** Recreation and play, the interface of nature, human-kind and land ethic. Applied projects will address structured and nature play, active and passive parks, open space planning, and natural landscapes. Previously offered as LA 4023, LA 4414 and LA 4415.**Credit hours:** 5**Contact hours:** Lecture: 2 Lab: 9 Contact: 11**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 3010 Internship in Landscape Architecture****Prerequisites:** 45 credit hours and consent of internship chairperson.**Description:** Supervised work experience with approved public or private employers in landscape architecture or related fields. May not be substituted for other required courses. Graded on a pass-fail basis. Offered for variable credit, 1-7 credit hours, maximum of 10 credit hours.**Credit hours:** 1-4**Contact hours:** Contact: 1-4 Other: 1-4**Levels:** Undergraduate**Schedule types:** Independent Study**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 3020 Long-Term Internship in Landscape Architecture****Prerequisites:** LA 3515 and approval of academic advisor and faculty internship coordinator.**Description:** Supervised continuous work experience for 6 months or more with approved public or private employers in landscape architecture or related fields. Presentation required following the internship experience.**Credit hours:** 1-8**Contact hours:** Contact: 1-8 Other: 1-8**Levels:** Undergraduate**Schedule types:** Independent Study**Department/School:** Hort & Landscape Arch**LA 3112 Landscape Architecture National Survey****Prerequisites:** LA 3315.**Description:** Examination and exposure to the state of landscape architecture practice and issues critical to profession. Includes 4- to 6-day out-of-state field trip component to the city hosting the American Society of Landscape Architects National Convention, observation of nationally recognized built works, participation in the convention and networking with professionals from across the country. Includes pre-trip research and post-trip documentation. Required for third-year landscape architecture students.**Credit hours:** 2**Contact hours:** Lecture: 2 Contact: 2**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch

**LA 3515 Studio 4: Landscape Planting Design****Prerequisites:** LA 2525, HORT 2613.**Description:** Introduction and application of the techniques, methods, and concepts for exploring, expressing, and representing landscape planting designs. Medium to large scale landscape architectural planting design projects and the preparation of concept sketches, illustrative plans, construction documents, and specifications. Emphasis on plant selection and arrangement criteria based on ecology and horticultural practices, the principles of design, and the fundamentals of bioregionalism. Previously offered as LA 4033 and LA 4034.**Credit hours:** 5**Contact hours:** Lecture: 2 Lab: 9 Contact: 11**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 3525 Studio 5: Sustainable Construction and Design****Prerequisites:** LA 3515 and LA 3884 or LA 4894.**Description:** Explore sustainable issues to improve the design and implementation of natural, cultural, and built environments in the practice of landscape architecture. Applied projects will focus on and apply sustainable construction and design solutions at various scales while considering impacts on human beings and the environments. Previously offered as LA 3893 and LA 3894.**Credit hours:** 5**Contact hours:** Lecture: 2 Lab: 9 Contact: 11**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**LA 3673 History and Theory of Landscape Architecture (H)****Description:** Introduction to the history of the built environment from ancient to contemporary time that has created the styles of historical significance in landscape architecture. Examination of the social, philosophical, cultural, economic, political, and environmental conditions of the built environment within design theory.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**General Education and other Course Attributes:** Humanities**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 3683 Professional Practice & Office Procedure****Description:** Ethics, office practice and procedure. Contract documents and specifications relating to landscape architecture. Previously offered as LA 3682.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**LA 3884 Landscape Construction: Site Grading****Prerequisites:** LA 1323.**Description:** Review mechanical drafting and lettering techniques, understanding contours, principles of stormwater runoff, site grading and earthwork calculations, methods of managing stormwater runoff, erosion control, introduction to paving and drainage construction materials, specifications, cost estimating. Computer applications and hand graphics used for projects. Previously offered as LA 3883.**Credit hours:** 4**Contact hours:** Lecture: 2 Lab: 4 Contact: 6**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Hort & Landscape Arch**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.**LA 4010 Special Topics in Landscape Architecture****Description:** New and emerging areas of study in Landscape Architecture. Offered for variable credit, 1-4 credit hours, maximum of 9 credit hours.**Credit hours:** 1-4**Contact hours:** Lecture: 1-4 Contact: 1-4**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**LA 4053 International Experience in Landscape Architecture - Asia (I)****Prerequisites:** Consent of appropriate faculty member.**Description:** Participation in a formal or informal educational experience related with landscape architecture in Asia.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**General Education and other Course Attributes:** International Dimension**LA 4063 International Experience in Landscape Architecture - Peru (I)****Prerequisites:** Consent of appropriate faculty member.**Description:** Participation in a formal or informal educational experience related with landscape architecture in Peru.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Hort & Landscape Arch**General Education and other Course Attributes:** International Dimension**LA 4112 Landscape Architecture Career Survey****Prerequisites:** LA 2525.**Description:** Examination and exposure to built works and landscape architecture professional offices with diverse practices and market niches. Targeted networking and career exploration opportunities for students. Includes a 4- to 6-day out-of-state regional field trip component, pre-trip research, and post-trip documentation. Required for fourth-year landscape architecture students.**Credit hours:** 2**Contact hours:** Contact: 2 Other: 2**Levels:** Undergraduate**Schedule types:** Independent Study**Department/School:** Hort & Landscape Arch



**LA 4423 Planning and Design for Sustainable Landscapes**

**Prerequisites:** For LA students, LA 3894. For all other students, NREM 3013 or NREM 2013 and SOIL 2124.

**Description:** Explore the origins of sustainability as a basis for understanding how to improve the planning and design of natural and cultural environments in the practice of landscape architecture.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**LA 4433 Land Use and City Planning**

**Description:** Land use and city planning within the framework of a municipality's comprehensive plan, zoning, and subdivision regulations that affect the development of city form. Origins of land use form as a basis for understanding how to improve the future of urban and suburban form through the practice of landscape architecture.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Hort & Landscape Arch

**LA 4453 Principles of Landscape Analysis for Site Design**

**Prerequisites:** LA 3515.

**Description:** Analysis of landscapes for design and management decision-making using real-world projects integrating computer-aided design (CAD) and geographic information systems (GIS), aerial photography, and global positioning system (GPS) technologies. Applications will be related to landscape architecture and site design.

**Credit hours:** 3

**Contact hours:** Lecture: 1 Lab: 4 Contact: 5

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**LA 4515 Studio 6: Urban Design**

**Prerequisites:** LA 3515.

**Description:** Contemporary urban issues affecting the design process, site master planning, and multi-disciplinary problem solving. Applied project will address influences on urban design, from regional influences to user behavior. Previously offered as LA 4514 and LA 5024.

**Credit hours:** 5

**Contact hours:** Lecture: 2 Lab: 9 Contact: 11

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**LA 4525 Studio 7: Community Development and Neighborhood Design**

**Prerequisites:** LA 3525 or LA 4515.

**Description:** Exposure to contemporary issues of community development over a range of scales including landscape planning, schematic design, and design development. Projects will address issues at multiple forms and densities. Exploration of professional office dynamics, environments, and community involvement.

**Credit hours:** 5

**Contact hours:** Lecture: 2 Lab: 9 Contact: 11

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**LA 4573 Recreation Planning**

**Prerequisites:** Consent of instructor.

**Description:** Theory and methods for small and large scale area planning with emphasis on natural and cultural resources.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**LA 4894 Landscape Construction: Materials and Methods**

**Prerequisites:** LA 1323 and LA 3884.

**Description:** A capstone course using design techniques, computer skills, construction materials, methods and applications for the landscape industry. Detailed computerized construction drawings of pavement, fences, walls, wood structures, and water features. Comprehensive construction documents using computer drafting, design and calculation applications. Previously offered as LA 4893.

**Credit hours:** 4

**Contact hours:** Lecture: 2 Lab: 4 Contact: 6

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**LA 4990 Landscape Architecture Special Problems**

**Prerequisites:** Consent of appropriate faculty member.

**Description:** Landscape architectural related problems. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Undergraduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.

**LA 5110 Advanced Special Problems**

**Prerequisites:** Consent of appropriate faculty member.

**Description:** Specific landscape architectural problems. Offered for variable credit, 1-12 credit hours, maximum of 20 credit hours.

**Credit hours:** 1-12

**Contact hours:** Contact: 1-12 Other: 1-12

**Levels:** Graduate, Undergraduate

**Schedule types:** Independent Study

**Department/School:** Hort & Landscape Arch

**Additional Fees:** HORT/LA Facil, Equip, Lab fee of \$12 per credit hour applies.