### 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. Additional flat fee of $12.00 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
**General Education and other Course Attributes:** Scientific Investigation, Natural Sciences

### HORT 2613 Woody Plant Materials
**Description:** Identification, cultural requirements, and use of ornamental garden and indoor herbaceous plants. Additional fee of $12.00 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

### HORT 2513 Herbaceous Plant Materials
**Description:** Identification, cultural requirements, and use of ornamental garden and indoor herbaceous plants. Additional fee of $12.00 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

### 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, 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

### HORT 3113 Greenhouse Management
**Prerequisites:** HORT 1013, PBIO 1404, 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

### HORT 3153 Turf Management
**Prerequisites:** PBIO 1404.
**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:** 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 workforce.
**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, SOIL 2124 and PBIO 1404.
**Description:** Commercial production and marketing of vegetable crops. May not be used for Degree Credit with HORT 5433.
**Credit hours:** 3
**Contact hours:** Lecture: 3 Contact: 3
**Levels:** Undergraduate
**Schedule types:** Lecture
**Department/School:** Hort & Landscape Arch
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
<th>Credit hours</th>
<th>Contact hours</th>
<th>Levels</th>
<th>Schedule types</th>
<th>Department/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 3513</td>
<td>Landscape Irrigation</td>
<td></td>
<td>Basics of landscape irrigation with an emphasis on residential irrigation</td>
<td>3</td>
<td>2 lab: 2</td>
<td>Undergraduate</td>
<td>Lecture, Lab</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 3613</td>
<td>Bidding and Estimating</td>
<td>ACCT 2003 or ACCT 2103</td>
<td>Budgeting, bid preparation and job cost estimation for landscape related</td>
<td>3</td>
<td>2 contact: 4</td>
<td>Undergraduate</td>
<td>Lecture</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 3713</td>
<td>Urban Horticulture Production</td>
<td></td>
<td>Principles and production of crops for public or community practices with</td>
<td>3</td>
<td>2 lab: 2</td>
<td>Undergraduate</td>
<td>Lecture, Lab</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 3833</td>
<td>Hydroponics and Soilless Crop Production</td>
<td></td>
<td>Basics of soilless production with emphasis on hydroponics and aquaponic</td>
<td>3</td>
<td>Lecture: 3</td>
<td>Undergraduate</td>
<td>Lecture</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 4053</td>
<td>International Experience in Horticulture (I)</td>
<td></td>
<td>Participation in international travel to develop an understanding of</td>
<td>3</td>
<td>Lecture: 3</td>
<td>Undergraduate</td>
<td>Lecture</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 4133</td>
<td>Temperature Stress Physiology</td>
<td></td>
<td>Effects of heat, chilling and freezing stress on plants.</td>
<td>3</td>
<td>3 contact: 3</td>
<td>Undergraduate</td>
<td>Lecture</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 4433</td>
<td>Athletic Field Management</td>
<td></td>
<td>Principles, practices and challenges associated with natural turf- covered</td>
<td>3</td>
<td>2 lab: 2</td>
<td>Undergraduate</td>
<td>Lecture, Lab</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 4543</td>
<td>Sustainable Nursery Production</td>
<td></td>
<td>Sustainable commercial production of field- and container-grown woody</td>
<td>3</td>
<td>2 contact: 4</td>
<td>Undergraduate</td>
<td>Lecture, Lab</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
<tr>
<td>HORT 4713</td>
<td>Public Garden Management</td>
<td></td>
<td>Issues and methods in public garden management, including database</td>
<td>3</td>
<td>1 lab: 4</td>
<td>Undergraduate</td>
<td>Lecture, Lab</td>
<td>Hort &amp; Landscape Arch</td>
</tr>
</tbody>
</table>

**General Education and other Course Attributes:** International Dimension
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 PBIO 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.
Description: Physiology of horticultural plants, including water relations, respiration, photosynthesis, and growth and development. Offered in combination with HORT 5963. 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

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. Retros 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

HORT 5000 Master's Research and Thesis
Description: Research on thesis problems required of master's degree candidates. Additional fee of $12.00 per credit hour applies. 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
HORT 5020 Graduate Seminar
Prerequisites: Graduate standing.
Description: Proposal and results seminars for graduate programs. Additional fee of $12.00 per credit hour applies. 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

HORT 5110 Advanced Horticultural Problems
Description: Selected research problems in horticulture, floriculture, landscape design; nursery production, olericulture and pomology. Additional fee of $12.00 per credit hour applies. 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

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 5422 Flowering and Fruiting in Horticultural Crops
Prerequisites: BOT 3463 and BOT 3460.
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. Additional fee of $12.00 per credit hour applies.
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

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

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 PBIO 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.
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

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. Additional fee of $12.00 per credit hour applies. 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