Syllabus

HRT 110 Introduction to Horticulture

General Information

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Department Conservation

Course Prefix HRT

Course Number 110

Course Title Introduction to Horticulture

Course Information

Catalog Description This is a hands-on course that emphasizes the numerous specialties in the horticulture field. It includes a study of plants as living organisms, the fundamentals of integrated pest management and plant growth requirements. An introduction to a variety of plant care techniques is included. This is a required beginning course in both Horticulture and Viticulture and Wine Technology degree programs.

Credit Hours 3

Lecture Contact Hours 3

Lab Contact Hours 0

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

None

Co-requisites

HRT 102 First Year Experience in Horticulture

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed categories
None

FLCC Values

Institutional Learning Outcomes Addressed by the Course
Vitality, Inquiry, Perseverance, and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Compare and contrast morphological and physiological differences among diverse plant materials as well as how environmental variables influence plant growth and form.

2. Identify and practice horticultural principles and techniques within landscape and greenhouse settings.

3. Evaluate and correct plant problems caused by nutritional, environmental, and cultural issues.

4. Describe greenhouse operations, materials and supplies, and technologies (e.g., structures and equipment, heating and cooling systems, lighting, irrigation, and fertilization).

5. Describe the collection, preservation, analysis, and presentation of quantitative data in the culture and maintenance of plants using spreadsheet software.

Outline of Topics Covered

1. Introduction to the history of horticulture
    a. Brief review of historical transitions relative to horticulture
    b. Contributions made by Rochester, NY area business to the industry
    c. Brief review of major landscape designers and landscape architects

2. Introduction to greenhouse operations
    a. Common materials, supplies and equiptment
    b. Environmental controls (i.e., climate and lighting systems)
    c. Irrigation and fertigation systems
3. Introduction to plant parts and processes
    a. Internal vascular system
    b. Roots
        i. Identification of parts

ii. Monocot vs Dicot root systems
iii. Location of feeder roots

c. Stems
i. Woody components
ii. Herbaceous components
iii. Monocot vs Dicot stem systems

d. Leaves
i. Discussion of function
ii. Identificaiton of features
iii. Monocot vs Dicot leaf attributes

e. Flowers
i. Discussion of functions
ii. Identification of features
iii. Introduction to various flower shapes with terms
iv. Monocot vs Dicot flower features

f. Plant Processes
i. Transpiration
ii. Respiration
iii. Photosynthesis

4. Plant taxonomy
a. Botanical nomenclature
b. Terms used in plant identification
c. Introduction to dichotomous keys
d. Introduction to USDA hardiness zone maps

5. Introduction to soils
a. Components
b. Soil separates
c. Texture classes and standard texture triangle
d. Horizons and Profile
e. Structure and Aggregate types

6. Introduction to plant nutrients
a. Introduction to Primary and Secondary Macronutrients
b. Introduction to Micronutrients
c. Introduction to signs of deficiencies of macro- and micronutrients
d. pH and adjusting compounds
e. Introduction to fertilizer math

7. Introduction to plant growth regulators
a. Introduction of five (5) key regulators
b. Introduction to the effects of the five key regulators on plant growth
c. Introduction to commercial, scientific growth regulators

8. Introduction to plant reproduction and propagation

a. Propagation tools
b. Introduction to sexual reproduction
    i. Introduction to seed propagation and usage
c. Introduction to asexual reproduction
    i. Introduction to various asexual propagation techniques

9. Introduction to plant pests
    a. Introduction to insects
    b. Introduction to pathogens
    c. Introduction to weeds
        i. Definition of weeds
        ii. Introduction to identification of several common weeds
    d. Control methods and formulations
    e. Resistance
    f. Introduction of Integrated Pest Management
        i. Basic premise
        ii. When and how to apply the premise

10. Introduction to plant installation
    a. Installation tools
    b. Herbaceous
        i. Installation of seedlings & larger potted plants
        ii. Installation of divisions
    c. Woody
        i. Techniques in woody installation
    d. Care of new installations
        i. Water requirements
        ii. Staking – if an when necessary

11. Introduction to pruning and maintenance
    a. Pruning tools
    b. Introduction to tree pruning
        i. Correct limb pruning techniques when keeping the tree
        ii. Introduction to pruning safety
    c. Introduction to shrub pruning
        i. Round over pros and cons
        ii. Selective branch pruning of shrubs
        iii. Hedge pruning
    d. Introduction to pruning vines
    e. Tree and Shrub Maintenance
        i. Correct watering
        ii. Correct fertilizing techniques and timing
        iii. Correct mulching