COMMON COURSE OUTLINE: Course discipline/number/title: HORT 2330: Plant Propagation

A. CATALOG DESCRIPTION
1. Credits: 4
2. Hours/Week: 2 hours lecture, 4 hours lab
3. Prerequisites (Course discipline/number): READ 0900
4. Co-requisites (Course discipline/number): None
5. MnTC Goals (if any): None

This course will present a study of plant propagation principles and techniques. The course will focus on basic biological concepts associated with plant structure, function, and reproduction. Students will apply these concepts to the propagation of plants. This course includes a hands-on laboratory component that upon satisfactory completion students will be proficient in sexual and asexual propagation of plants.

B. DATE LAST REVISED (Month, year): May, 2015

C. OUTLINE OF MAJOR CONTENT AREAS:
1. Evolution of Plant Propagation in human society
2. Biology of Plant Propagation
3. The Propagation Environment
4. Seed Propagation (Sexual Propagation)
5. Vegetative Propagation (Asexual Propagation)
   a) Cuttings
   b) Grafting and Budding
   c) Layering
   d) Separation and Division
6. Cell and Tissue Propagation
7. Consider the ethics in dealing with proprietary issues, consumer issues, environmental issues and the future of germplasm.

D. LEARNING OUTCOMES (GENERAL): The student will be able to:
1. Differentiate between meristematic and nonmeristematic tissues.
2. Identify and describe tissues found in root, stem, leaf, flower, and fruit and seed structures.
3. Know the pathway, movement and utilization of water in plants.
4. Compare and contrast mitosis and meiosis.
5. Describe principles and practices of seed selection.
6. Describe the processes of pollination, fertilization, and embryo formation including polyembryony and apomixes.
7. Perform techniques of seed production including harvesting, processing, testing, and storage.
8. Perform treatments necessary to break dormancy for germination.
9. Propagate plants from seed.
10. Understand the genetic differences in cultivated plants which use asexual rather than sexual propagation.
11. Describe and perform asexual propagation methods such as hardwood, semi-hardwood, softwood, and herbaceous cuttings; grafting and budding, layering, specialized stems and roots, and tissue culture.
12. Analyze the effects of environmental factors (light, gas water, temperature, and nutrients) on plant propagation and subsequent plant growth.
13. Analyze the effects of plant hormones and plant growth substances on plant propagation and subsequent plant growth.
15. Communicate experimental data or experiences in a written lab report and orally in class.
16. Consider the ethics in dealing with proprietary issues, consumer issues, environmental issues, and the future of germplasm resources.
17. Propose and assess solutions to ethical issues.
18. Articulate and defend their solutions to ethical issues.

E. LEARNING OUTCOMES (MNTC): NA
METHODS FOR EVALUATION OF STUDENT LEARNING:
1. Tests
2. Quizzes
3. Lab work/Lab reports
4. Other assignments
5. Class presentations
6. Class Discussion

RCTC CORE OUTCOME(S) ADDRESSED:
- Communication
- Critical Thinking
- Global Awareness/Diversity
- Civic Responsibility
- Personal/Professional Accountability
- Aesthetic Response

SPECIAL INFORMATION (if any): None