

HORT 31: HORTICULTURAL PRACTICES: PLANT PROPAGATION

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2022
Units:	3
Hours:	2 lecture, 3 laboratory per week (60 total per quarter)
Advisory:	Completion of or concurrent enrollment in HORT 15 strongly recommended; not open to students with credit in HORT 52B.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU/UC
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- Demonstrate an understanding of the propagation methods used in commercial plant production.
- Identify basic anatomy of various different types of seeds.

Description

Principles of plant propagation with an emphasis on techniques that are used in the nursery and greenhouse industries. Seeds, cuttings, grafting techniques, and the separation and division of specialized structures.

Course Objectives

The student will be able to:

1. Demonstrate an understanding of the propagation methods used in the commercial production of plants around the world.
2. Identify the basic anatomy of various different types of seeds and determine requirements for germination, harvesting storage and propagation.
3. Demonstrate knowledge and skills required to select and employ common techniques of vegetative propagation for various plants species.
4. Organize, schedule, and implement skills and practices used in the production and merchandising of selected nursery crops.
5. Manage the environmental conditions for growing propagules.
6. Interpret experimental results and determine their significance relative to commercial crop production.

Course Content

1. Seed anatomy and development
 - a. Methods for selecting seeds
 - b. Methods for preserving seed quality
2. Evaluation of seed lots based on experiments to determine germination rate and percentage

3. Techniques in seed handling and commercial seed production
4. Vegetative methods of propagation
 - a. Cutting propagation
 - b. Separating and division of specialized structures
 - c. Grafting and layering
5. Schedule and implement a variety of propagation experiments
6. Evaluation of cuttings based on responses to various concentrations of root stimulating hormones
7. Overview of current tissue culture techniques
 - a. Culture preparation
 - b. Plant separation and grow out
8. Overall comparison of propagation techniques and their application to production of specific crops worldwide
 - a. Use of techniques specific to certain crops
 - b. Use of general techniques applied to a variety of crops

Lab Content

1. Starting seed
 - a. Scarification
 - b. Stratification
 - c. Light treatment
 - d. Heat treatment
 - e. Other seed treatments
2. Division of plants
3. Grafting
4. Cutting plants
 - a. Hardwood cuttings
 - b. Softwood cuttings
 - c. Tip cuttings
 - d. Root cuttings

Special Facilities and/or Equipment

1. Horticultural laboratory, greenhouse, and related horticultural facilities and equipment.
2. Students provide pruning shears with sheath, work boots, leather gloves and clothing for fieldwork.
3. When taught online, on-going access to computer with email and internet access.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Quizzes
Midterm
Lab journal and/or project
Final examination

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lectures
Discussions
Lab activities
Guest speakers
Assigned reading activities

Self-guided research

Representative Text(s) and Other Materials

Toogood, Allan. The Complete Book of Plant Propagation. 2001.

Hartmann, Hudson, and Dale Kester. Plant Propagation: Principles and Practices, 8th ed.. 2010.

Despite being older than five years, these books are seminal works in the field of plant propagation.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments will include reading approximately 30-50 pages per week from assigned text. Supplemental reading will be provided in hand-out form or through reference to online resources
 - a. Boodley, The Commercial Greenhouse: Propagation
2. Writing assignments include:
 - a. Topical white papers
3. Other:
 - a. Lectures will address reading topics and experiences of instructor. Classroom discussion and demonstrations in support of lecture topics will be provided
 - b. Guest speakers from industry will provide supplemental lecture and demonstration

Discipline(s)

Ornamental Horticulture