Lecture Contact Hours: 32-36; Outside-of-Class Hours: 64-72;
Laboratory Contact Hours: 48-54; Outside-of-Class Hours: 0;
Total Student Learning Hours: 144-162

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

Ornamental Horticulture 121 – Plant Propagation

2 hours lecture, 2 units
3 hours laboratory, 1 unit
Total units: 3 units

Catalog Description
Principles of plant propagation from seed, cutting, budding, grafting, layering, division and tissue culture. Greenhouses, cold frames, mist chambers and other propagating structures will be discussed along with stock selection, use of rooting hormones, proper sanitation procedures, and protection of young seedlings from disease. Lab exercises include propagation of plant material by various methods and working with various structures, tools and equipment common to plant propagation.

Prerequisite
None

Course Content
1) Lecture:
   a. Propagating structures, media, fertilizing, soil mixtures and containers
   b. Development of fruits, seeds, and spores
   c. Principles and techniques of propagation by seed
   d. General aspects of asexual propagation
   e. Theory and techniques of propagation by cuttings
   f. Theory and techniques of propagation by grafting
   g. Theory and techniques of propagation by budding
   h. Theory and techniques of propagation by layering
   i. Aseptic methods of micropropagation
2) Lab:
   a. Sanitation procedures
   b. Propagation by seed
   c. Hardwood and semi-hardwood cuttings
   d. Softwood and herbaceous cuttings
   e. Root cuttings
   f. Leaf and leaf bud cuttings
   g. Grafting and budding

Course Objectives
Students will be able to:
1) Describe the principles of plant propagation by seed.
2) Execute the principles and techniques of propagation by seeds.
3) Explain the principles and techniques of propagation by cuttings, grafting, division and tissue culture.
4) Describe and implement the various sanitation requirements for successful plant propagation.

Method of Evaluation
A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for

evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

1) Exams, final exam which measure students' ability to:
   a. Explain the principles of plant propagation from seed, cutting, budding, grafting, layering, division and tissue culture.
   b. Describe the requirements of plant propagation including the uses of greenhouses, cold frames, mist chambers and other propagating structures, stock selection, uses of rooting hormones, proper sanitation procedures and protection of young seedlings from disease.
2) Lab assignments and quizzes which measure students' ability to propagate plant material by various methods and work with various propagating structures, tools and equipment common to plant propagation.

Special Materials Required of Student
None

Minimum Instructional Facilities
1) Greenhouse (2400 square feet or more)
2) Shade house (5000 square feet or more)
3) Cold frame
4) Mist controller
5) Steam soil sterilizer with aerator and cart
6) Two yards soil mixer
7) Skip loader
8) Flats, containers, deepots, peat, perlite
9) Outdoor bench space (1000 square feet or more)

Method of Instruction
1) Lecture and demonstration
2) Laboratory

Out-of-Class Assignments
1) **Reading:** course materials; other course related multimedia.
2) **Writing:** paper.
3) **Other:** preparation of oral presentation.

Texts and References
1) Required (representative example): Davies, Geneve, and Wilson. *Hartmann & Kester's Plant Propagation Principles and Practices.* 9th edition. Pearson, 2018 (classic).
2) Supplemental: Toogood. *Propagating Plants.* DK, 2019.

Student Learning Outcomes
Upon successful completion of this course, students will be able to:
1) Describe and execute the principles and techniques of propagation by seeds.
2) Explain the principles and techniques of propagation by cuttings, grafting, division and tissue culture.
3) Describe and implement the various sanitation requirements for successful plant propagation.