Botany 3000 Plant Propagation

I. General Information

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Lecture: MW 8-8:50
Lab: W 9-11:50
Field Trips: Several
Required Textbook for Lab: *The American Hort. Soc. Plant Propagation*, ed by Alan Toogood.
Recommended for the Lecture: *Plant Propagation: Principles and Practice*, Hartman, Kester, et al. 7th ed.

II. Course Description: In plant propagation we will discuss the techniques, facilities, and materials and maintenance in the propagation of both horticulturally important plants and California native plants. We will also discuss some methods of pest/disease control as well as greenhouse maintenance and practice.

The nature of this course is very hands on, but also requires learning the "theory" of plant propagation that takes place during the lecture. The hands-on comes in lab to demonstrate what you learned in class. During class and lab we will be in the greenhouse and lab as well as around campus mixing media (soil, sand, vermiculite, etc.). We will be walking around campus and pruning some plants outside (Biology Field Site). You may (likely) get dirty on class days, but almost certainly on lab days. Be prepared to get dirty. On lab days prepare to be outside in any kind of weather. We will also take a few field trips to learn techniques practiced in commercial nurseries.

Prerequisites: Botany 1050 or equivalent (e.g., a lower-division Botany course) will be necessary to understand what is happening. <u>If you do not meet the Pre-requisite, you will be dropped from the class on the first day</u>.

III. Course Objectives & Expectations

Objectives

At the end of the course, students will be able to

1. Successfully take cuttings that actually root, or if not root in the time class arrives, will survive for the duration of class
2. Describe why cuttings, grafting, and other propagation techniques work.
3. Discuss the use of plant hormones in a propagation system
4. Demonstrate correctly and completely at least two techniques of plant propagation for the instructor or TA.
5. Know where to go to find information for unknown plants.
6. Be able to identify woody plants in the Central Valley.

Expectations

I expect that you will:

Be Courteous
Be Clean
Be Organized
Be Attentive
Be on time to class and lab
Take professional pride in your work
Very good students.

IV. Grading

In general, **late work** will lose you 20% a day for each day it is late. Please turn in work on time. During **exams**, remain in the classroom and complete your own work. **Texting** during class is not helpful to you and demonstrates your lack of respect for others and the instructor. **Phones** should be turned off and put away, in particular during exams. Because the lecture and lab will be essentially integrated, no separate lecture/lab grade given, but the entire course (lecture and lab) will be taken and graded together.

A. Quizzes

I will give weekly quizzes covering the material from the past week's information in lecture and lab. Each weekly quiz will be **comprehensive** from all previous information, but will focus on the most recent material. Factual and analytical questions will be asked. You will have to keep up with the lecture and lab material to perform consistently well on quizzes.

B. **Lab Notebook**

Keep **detailed** records of what you are doing in lab when propagating the plants. Things to keep in your lab notebook include: plant species, provenance (where the plant came from), technique, media, conditions of the propagation procedure (temperature, mist/no mist, shade, etc.). Record the concentration of rooting hormone used. Make any notes, descriptions, etc., so you can know what you did, how it turned out and what you would have done differently if you did it again. Someone should be able to read your notebook and be able to perform the same procedures. Your lab notebook will be worth about 10-15 points/lab date. You will need to turn your lab notebook in after class on Fridays and I will return your notebook in class on Wednesday.

C. **Field Trip Reports**

On each field trip take notes and pay close attention. Please submit a **1 page report of the field trip**. Where we went, what was taught, what you learned. With the information you learned, describe some application of that knowledge you would do.

D. **Plant Project**

Seed propagation can be done out of the season. You will choose three different crop plants to propagate in the greenhouse and then plant outside. You will need to decide the appropriate method of propagating/sowing the seeds, the timing of planting outside (i.e. 6 weeks after sowing in greenhouse), and the care (e.g., water, fertilizer) of those plants while growing outside. Your success in propagating living plants will, in part, determine your grade for this project.

Ways to earn points	Points given
Quizzes	30-50 each
6 lab notebook evaluations	15 each
3-4 Field-trip reports	20 each
Final lab practical	50
Project	100

Grade Calculations
Grades will be based on the percentage of points earned.

A	93-100%	A-	90-93%		
B+	87-90%	B	83-87%	B-	80-83%
C+	77-80%	C	73-77%	C-	70-73%
D+	67-70%	D	63-67%	D-	60-63%
F	0-60%				

Options: You can only change your grading option (CR/NC) by the census date. I will strictly follow the grading option indicated **No exceptions**. You must receive a C to get credit for the course.

Schedule

Lecture	**Lab**
Week 1	**Week 1**
Introduction; Plant Anatomy & Physiology	Pruning
Anatomy and Physiology	
Week 2	**Week 2**
Anatomy and Physiology	Greenhouse Management
Anatomy and Physiology	Seed Project and Propagation
Week 3	**Week 3**
Seed Biology	Tour Christmas tree farm-conifer cuttings
Week 4	**Week 4**
Seed propagation	Hoop house building
Seed genetics and handling	
Week 5	**Week 5**
Vegetative Propagation	Division
Week 6	**Week 6**
Grafting & Budding	Layering
Week 7	**Week 7**
Layering/Stems and roots	Landscape
Week 8	**Week 8**
Clonal selection/Cultivars	Frantz Nursery (3/20)
Week 9	**Week 9**
Micropropagation	Dry Creek Labs
Week 10	**Week 10**
Orrnamentals	Nursery visit (April 10)
Week 11	**Week 11**
Week 12	**Week 12**
Week 13	**Week 13**
Week 14	**Week 14**

Subject to change as needed.