**EH 43 Plant Propagation**

**INSTRUCTOR:** Nancy Gutierrez

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**DEPARTMENT :** Agriculture and Natural Resources

**DELIVERY:** In Person; Tuesday, Thursday 6:00-8:15

**Course Welcome:**

Welcome to EH 43 Plant Propagation. This will be a hands on class, we will work to learn techniques for propagating plants. I’m excited to work with you all and learn more about plant propagation together.

If you have any questions please contact me. My email address is nancy.gutierrez@reedleycollege.edu.

**Course Description:**

Plant propagation and production practices with emphasis on nursery operations including sexual

and asexual reproduction, planting, transplanting, fertilizing, plant pest and disease control, structures and site layout. Preparation and use of propagating and planting mediums. Use and maintenance of common tools and equipment. Regulations pertaining to plant production. ADVISORIES: Eligibility for Mathematics 201. (A, CSU) (C-ID AG - EH 116L)

**TEXT:** None Required; Supplemental resources will be provided.

**Student Learning Outcomes:**

EH-43 SLO1: Demonstrate the ability to grow plants from propagation to market size
EH-43 SLO2: Determine the proper timing for the various propagation and production techniques appropriate to the plant species and propagation method
EH-43 SLO3: Practice the procedures of plant propagation including seed, cuttings, budding, grafting, layering, and division.

**POINTS:**
Course grades will be calculated on a straight scale – in other words, there will not be a curve. Course grades will be determined according to the following items:

 Lab activities 40%

Midterm/Final 40%

Lecture/class activities 20%

 Total 100%

Your grade in this course is determined by points (it is not weighted). This course uses the traditional grading scale shown below.

100-90% A
89-80% B
79-70% C
69-60% D
59-0% F

**FINAL EXAM INFORMATION:** Final Exam is scheduled for Tuesday May 17 at 6:00.

**Academic Honesty**

You are expected to abide by ethical standards in preparing and presenting material that demonstrates your level of knowledge. Such standards are founded on basic concepts of integrity and honesty. Plagiarism and cheating will not be tolerated. Such behavior will result in a zero on the assignment/quiz and will be reported to the Dean of Student Services.

**Cell phone use**
You are welcome to use a laptop or tablet in this class as long as it contributes to your learning. Students are expected to actively listen to one another in order to participate in classroom activities. If you are unable to contribute to the discussion or are otherwise distracted by your computer, cell phone, or tablet, I will ask that you refrain from using it in class. There will be some class sessions where we will use technology together, and in those instances, all students should make arrangements to bring a laptop or tablet to class. If you have any questions or concerns, please be in touch with me

**Accommodations**

If you have a verified need for academic accommodation or materials in alternate media (i.e. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible. In addition, please remember that it is the responsibility of the student to provide an accommodation form to the instructor at the beginning of the course.

## Course Outline

I. Introduction to plant environmental requirements

II. light

III. Temperature

IV. Water

V. Air

VI. Anchorage

VII. Minerals

VIII. Photoperiodism and its effect on plant growth

IX. General aspects of plant propagation

X. Objectives in the study of plant propagation

XI. Methods of propagating plants

XII. Basic types of reproduction

XIII. Use and maintenance of common propagation and nursery tools and equipment

XIV. Sexual propagation

Principles of sexual propagation and hybridization

1. Production of flowers

2. Production of the embryo

3. Apomixes

4. Fruit and seed development

5. The mature seed

XV.

XVI. The relationship of plant breeding to nursery practices

XVII. Seed germination requirements and practice

XVIII. Seed collection and processing

Discussion of various seed treatment processes

1. Scarification

2. Stratification

3. Heat treatment

XIX.

XX. Transplanting of seedlings

XXI. Plug production

XXII. Asexual propagation

XXIII. Importance and reasons for using asexual propagation

XXIV. The clone

XXV. The plant patent law

XXVI. Different types of asexual propagation

XXVII. Cuttings

Requirements of cutting propagation

1. Moisture

2. Temperature

3. Media

4. Hormones

5. Disease prevention

6. Mother stock

XXVIII.

Types of cuttings

1. Hardwood, semi-hardwood, softwood, and herbaceous cuttings

2. Stem (tip, straight, heel, mallet, cane), leaf (segments, leaf bud, leaf vein, leaf petiole), root cuttings

XXIX.

XXX. Hardening off of cuttings

XXXI. Potting and canning cuttings

XXXII. Seasonal timing and programming of cutting production

XXXIII. Grafting and Budding

Theoretical aspects

1. Reasons for Grafting and Budding

2. Formation of the graft union

3. Healing of the graft or bud

4. Polarity in grafting

5. Grafting incompatibility (rootstock selection, interstock)

6. Rootstock - scion relationships

XXXIV.

Techniques of Grafting

1. Methods

2. Tools and materials

3. Selection and storage of scion wood

4. Grafting classified according to placement

5. Aftercare of grafted trees

XXXV.

Techniques of Budding

1. Methods

2. Seasonal timing

3. Wrapping buds

XXXVI.

Rootstock selection

1. Fruiting species

2. Ornamental species

XXXVII.

XXXVIII. Other common propagation methods

XXXIX. Layering

XL. Division

XLI. Micropropagation/tissue culture

XLII. Cultural considerations of nursery stock production

XLIII. Planting media formulation and usage

XLIV. Fertilizing and watering of plant stock

XLV. Planting and transplanting nursery stock in a variety of containers

XLVI. Pruning, Pinching, Disbudding

XLVII. Chemical growth regulation

XLVIII. Controlling insect and disease pests of nursery stock

XLIX. Preparation of nursery stock for sale

L. Purchasing nursery stock for growing on or reselling

LI. Labeling/growing standards for retail sales and ads

LII. Propagation structures

LIII. The greenhouse environment

LIV. Cold frames and hot beds

LV. Shade structures and growing blocks