

**HORT 72 Course Outline as of Fall 2019****CATALOG INFORMATION**

Dept and Nbr: HORT 72            Title: GREENHOUSE PRODUCTION  
 Full Title: Greenhouse Production  
 Last Reviewed: 2/11/2019

Units	Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled 35.00
Minimum	3.00	Lab Scheduled	3.00	8	Lab Scheduled 52.50
		Contact DHR	0		Contact DHR 0
		Contact Total	5.00		Contact Total 87.50
		Non-contact DHR	0		Non-contact DHR 0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable  
 Grading: Grade Only  
 Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP  
 Also Listed As:  
 Formerly: AG 92.3

**Catalog Description:**

Analysis, description, and operation of greenhouses and other structures and facilities as they relate to a variety of ornamental and agricultural crops. Included are: relationships of light, temperature, moisture, aeration, humidity, and fertility; identification and investigation of major greenhouse grown crops including foliage plants, flowering potted plants, bedding plants, cut flowers, color and specialty crops; creating and implementing several cropping plans for greenhouse plants and products.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100 or appropriate placement based on AB705 mandates; and Eligibility for CS 5 or proficiency in basic productivity software including word processing, spreadsheet, and presentation software

**Limits on Enrollment:****Schedule of Classes Information:**

Description: Analysis, description, and operation of greenhouses and other structures and

facilities as they relate to a variety of ornamental and agricultural crops. Included are: relationships of light, temperature, moisture, aeration, humidity, and fertility; identification and investigation of major greenhouse grown crops including foliage plants, flowering potted plants, bedding plants, cut flowers, color and specialty crops; creating and implementing several cropping plans for greenhouse plants and products. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100 or appropriate placement based on AB705 mandates; and Eligibility for CS 5 or proficiency in basic productivity software including word processing, spreadsheet, and presentation software

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective: Spring 1985	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

**Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Demonstrate knowledge and skills in the growing and marketing of greenhouse products.
2. Identify and evaluate the markets for greenhouse products.
3. Propagate, grow and market greenhouse products for specific sale date.
4. Explain and apply propagation principles involved in the production of greenhouse crops.

**Objectives:**

Students will be able to:

1. Outline environmental factors affecting plant growth.
2. Manipulate the growth environment for efficient use of resources and facilities.
3. Identify selected plants from the various categories of greenhouse crops.
4. Identify markets for greenhouse products and market crops grown by the class.
5. Propagate, grow and market greenhouse products for specific sale dates.
6. Discuss factors affecting plant growth.
7. Describe facilities and equipment used in growing greenhouse crops.
8. Apply propagation principles involved in the production of greenhouse crops.
9. Identify and properly utilize a variety of growing media.
10. Describe factors affecting plant fertility and demonstrate proper fertilizer application methods.

11. Discuss pests and diseases of greenhouse crops.
12. The student will demonstrate manual skill in the following areas:
  - a. Planting seed
  - b. Spotting off and transplanting
  - c. Pest and disease control
  - d. Watering crops properly
  - e. Development of value-added products
  - f. Perform tests important to crop production. e.g. pH, salinity
  - g. Handling and applying fertilizers

### **Topics and Scope:**

- I. Basic Introduction to the Greenhouse Industry
- II. Environmental Factors Affecting Plant Growth
  - A. Light
  - B. Temperature
  - C. Humidity
  - D. Moisture
  - E. Air quality
  - F. Photoperiod
- III. Manipulation of Environment
  - A. Coldframes, hotbeds, greenhouses, shade houses, etc.
  - B. Glazing materials for the above
  - C. Heating, Cooling and ventilating growing facilities
  - D. Manipulating humidity, fertility, air quality and soil moisture
  - E. Hardening off product
- IV. Propagation, and Production of Various Greenhouse Crops
  - A. Potted plants -- foliage
  - B. Potted plants -- flower
  - C. Bedding plant production
  - D. Specialty greenhouse crop production
- V. Media and Containers for Rooting, Growing and Marketing Greenhouse Crops
  - A. Media for vegetative and seed propagation.
  - B. Growing media for greenhouse crops.
  - C. Containers used for greenhouse crops
- VI. Soil Fertility
  - A. Essential plant food elements
  - B. Fertilizers
  - C. Ways to deliver fertilizer to your plants
  - D. Salinity and pH: how they affect the growing media
- VII. Pests and Diseases of Greenhouse Crops
- VIII. Greenhouse Crop Production

All Topics are covered in both lecture and lab.

### **Assignment:**

#### Lecture-Related Assignments:

1. Term paper (10 - 15 page) and oral report on selected greenhouse-grown crop
2. Weekly reading (5 - 10 pages)
3. Complete homework problems, including calculating materials, production and labor costs for an assigned crop

4. Conduct research and complete written exercise on production timelines for a greenhouse crop as assigned
5. Tests (2 - 3) and a final exam

**Lab-Related Assignments:**

1. Cropping plan and implementation for greenhouse plants and products
2. Four to six industry field trips with 2-page report for each summarizing production data
3. Field work, including planting, media mixing, pinching, deadheading, watering, and fertilizing

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Field trip reports; term paper	Writing 10 - 30%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Cropping plans; homework problems; written exercise on production timelines	Problem solving 10 - 40%
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**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Field work	Skill Demonstrations 5 - 20%
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**Exams:** All forms of formal testing, other than skill performance exams.

Tests and final exam: multiple choice, true/false, matching items, completion	Exams 30 - 60%
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**Other:** Includes any assessment tools that do not logically fit into the above categories.

Field trip participation; oral report	Other Category 10 - 30%
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**Representative Textbooks and Materials:**

- Greenhouse Operation and Management. 7th ed. Nelson, Paul. Pearson. 2012 (classic)
- Ball Red Book. 18th ed. Beyetes, Chris. Ball Publishing. 2011 (classic)
- The Commercial Greenhouse. 3rd ed. Boodley, James and Newman, Steven. Del Mar. 2008 (classic)
- A Grower's Guide to Water, Media, and Nutrition for Greenhouse Crops: A Growers Guide. Reed, David. Ball Publishing. 1996 (classic)