



ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Natural Sciences and Business

COURSE: AGR 1226 Greenhouse Management

Date: Spring 2023

Credit Hours: 2

Complete all that apply or mark "None" where appropriate:

Prerequisite(s): None

Enrollment by assessment or other measure? Yes No
If yes, please describe:

Corequisite(s): None

Pre- or Corequisite(s): None

Consent of Instructor: Yes No

Delivery Method: **Lecture** **2 Contact Hours** (1 contact = 1 credit hour)
 Seminar **0 Contact Hours** (1 contact = 1 credit hour)
 Lab **0 Contact Hours** (2-3 contact = 1 credit hour)
 Clinical **0 Contact Hours** (3 contact = 1 credit hour)

Offered: **Fall** **Spring** **Summer**

CATALOG DESCRIPTION and IAI NUMBER (if applicable):

This course will cover topics related to greenhouse structures and their operation. Included topics are design, construction, location, heating and cooling systems, cultural practices and cost accounting as they are related to greenhouse management.

ACCREDITATION STATEMENTS AND COURSE NOTES:

None

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. Greenhouse structures and materials
2. Greenhouse benches and beds
3. Alternative cropping systems
4. Greenhouse heating and cooling
5. Root media
6. Watering and watering systems
7. Fertilization
8. Carbon dioxide
9. Light/lighting
10. Temperature
11. Chemicals (growth regulators/disease/insect)
12. Business management (scheduling, cost accounting)

INSTRUCTIONAL METHODS:

- Lecture
- Discussion
- Groupwork
- Field Trips

EVALUATION OF STUDENT ACHIEVEMENT:

A= 90-100

B= 80-89

C= 70-79

D= 60-69

F= 0-59

Exams: 40%

Quizzes: 30%

Homework: 20%

Participation: 10%

INSTRUCTIONAL MATERIALS:

Textbooks

Nelson, Paul. Greenhouse Operation and Management. 7th Edition. Pearson, 2012.

ISBN: 9780131591707

Resources

None

LEARNING OUTCOMES AND GOALS:

Institutional Learning Outcomes

- 1) Communication – to communicate effectively;
- 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;
- 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;
- 4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies

1. Identify and select greenhouses based on structural characteristics
 - a. Explain the history of greenhouses
 - b. Identify glazing materials
 - c. Analyze desirable attributes of various greenhouse structures
 - d. Select suitable beds and benches
2. Explain the operation and benefit of equipment and technology used in greenhouse structures
 - a. Operate fertilizer injectors
 - b. Operate heating and cooling systems
 - c. Explore high-end technology opportunities in the greenhouse industry
3. Describe alternative cropping systems
 - a. Identify economically viable systems
 - b. Identify crops best suited for alternative systems
 - c. Assemble hydroponic systems
4. Calculate heating and cooling requirements for greenhouse structures
 - a. Compare and contrast heating and cooling systems
 - b. Using formulas, calculate heating and cooling output
 - c. Analyze the effect of glazing materials on heating and cooling
5. Identify the virtues of various types of media
 - a. Identify the different medias used in greenhouses by sight and texture
 - b. Compare and contrast the water holding capacity of different medias
 - c. Explain the importance of bulk density
6. Explain fertilizer programs and calculations
 - a. Identify the essential elements and trace elements
 - b. Identify common fertilizer formulations
 - c. Calculate ppm
7. Discuss the important of light and temperature on production
 - a. Explain photoperiodism and thermoperiodism
8. Develop production schedules for various greenhouse crops
 - a. Explain the importance of scheduling
 - b. Identify the key concepts of crop scheduling