Instructor
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Credit Hours: 3
Prerequisites: Intro to Biology or intro to Horticulture

Office Hours: contact instructor by email to arrange times

Textbook: Greenhouse Operation & Management, 7th edition, Paul V. Nelson; NRAES 33, available as a PDF on line

Class Dates: Wednesdays, periods 4 and 5

Course Description

This course will cover the various technologies and management skills needed to operate greenhouses. Students will learn how to identify and trouble shoot greenhouse climate control systems and components through an interactive problem solving approach. Greenhouse computer control systems will be presented.

Course Objectives:
- Understand the basic technical knowledge needed to operate a commercial or research greenhouse.
- Understand the needs of plants in regards to: insect/disease management, irrigation & fertilization, soils and substrates, regulation of plant growth and basic business management.
- Understand computer environmental control systems and their management and analyze graphs to determine corrective needs in the greenhouse.
- Develop an understanding of the responsibilities required for effective greenhouse management.

Course Assignments:
- Assigned readings
- 1 independent project: select an annual plant to grow for a target date, include dates for sowing, transplanting and any other horticultural treatments (including insect & disease control) needed to grow a salable plant by target date. Include climate conditions needed for plant and costs of all materials (soil, flats/pots, fertilizer, growth regulators & etc.). The student will present this information to the class in a 10 minute PowerPoint presentation.
- 4 quizzes
- Midterm test
- Final

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**Basis for Grading**

- Class participation 10%
- Independent project 25%
- Quizzes (4) 15%

Midterm 25%
Final 25%

**Grading**

A= 90-100  
B= 80-89  
C= 70-79  
D= 60-69  
F= Below 60

**Assessment Measures**

Class participation and engagement in discussions including on-campus field trips will be assessed for the class participation portion of the grade. Completion, content and presentation of independent project will be assessed for grading. Comprehension of reading assignments and in class discussions will be assessed by quizzes. Midterm and Final exam will assess overall knowledge of subject material.

**Academic Integrity**

It is expected that students comply with all aspects of the Rutgers University Academic Integrity policies [http://search.rutgers.edu/web.html?q=academic+integrity](http://search.rutgers.edu/web.html?q=academic+integrity)

**Classes will be held during periods 4 and 5, (2:15 pm to 5:15 pm) on Wednesdays, Room 191B at Foran Hall**

**Week 1, January 21, 2015**

Introduction to course, brief history of greenhouses and types of greenhouses

Planning & site selection

Designing a greenhouse, who should do it?

Construction management issues

**Week 2 January 28, 2015**

Greenhouse structures & materials (GS)

Bench efficiency & materials, Floor materials
Week 3 February 4, 2015

Greenhouse Lighting

Shade Systems

Tour of NJAES Research Greenhouse to observe these systems

Week 4 February 11, 2015

Quiz

Greenhouse glazing

Different types, pro & cons

Re-glazing projects, options and what to watch out for

Week 5 February 18, 2015

Heating & cooling greenhouses

Energy use & conservation (GS)

Week 6 February 25, 2015

Greenhouse Environment & Climate Control 1

Week 7 March 4, 2015

Quiz

Greenhouse Environment & Climate Control part 2

Week 8 March 11, 2015

Refrigeration and Environmental Chambers

Tour of Foran Hall & NJAES growth chambers

Spring Break March 15-22, 2015

No class this week

Week 9 March 25, 2015

Irrigation & Fertilization (GS)
Week 10 April 1, 2015
Quiz
Soils & Substrates

Week 11 April 8, 2015
Insect & Disease Management (GS)

Week 12 April 15, 2015
Quiz
Regulation of plant growth & post production Quality

Week 13 April 22, 2015
Greenhouse Business Management (GS)

Week 14 April 29, 2015
Greenhouse Maintenance

Final Exam to be announced