Postharvest Technologies for Horticultural Crops

HOS5330

SPRING 2026

Course Format: In-person, Hybrid. 2 Credits

Instructors

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Field Trip Assistant

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Course Description

Intensive study of current technologies and procedures for harvesting and handling fresh fruit, vegetable, and ornamental crops grown in Florida.

Course Learning Objectives

1. To familiarize students with the current commercial methods used to harvest, pack, transport and market fresh horticultural crops grown in Florida, with emphasis on maintaining product quality and safety.
2. To prepare students to systematically evaluate and critically analyze these operations based on in-class lectures, guest speakers, field trip observations and course assignments.

Course Prerequisites

HOS 5085 suggested. Open to graduate students (upper-division undergraduate students with instructor consent).

Textbooks, Learning Materials, and Supply Fees

Required Text (free online download) - U.S. Dept. of Agriculture Handbook 66. 2016. The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks. K.C. Gross, C.Y Wang and M. Saltveit (Eds.). https://www.ars.usda.gov/is/np/CommercialStorage/CommercialStorage.pdf

Recommended Reference Text - Kader, A.A. (Ed.). 2002. Postharvest Technology of Horticultural Crops. Third Edition. Publication 3311. University of California, Division of Agriculture and Natural Resources. Oakland CA.

Supplemental materials are accessible on the course website; others will be provided by the instructors as necessary.

Course Format, Expectations and Evaluation

The class will meet weekly prior to a required, 5-day field trip to north and south Florida during Spring Break. Students will self-divide into interdisciplinary teams and will work together on assignments designed to meet the course learning objectives.

Lecture Topics and Field Trips:

1. Postharvest Losses: Introduction to Systems Analysis
2. Postharvest Physiology for Horticultural Crops
3. Harvest and Handling Operations; Temperature Management
4. Sanitation and Food Safety
5. Storage and Shipping Operations; Postharvest Treatments
6. Field trip to a local supermarket produce department
7. Spring Break field trip
8. In-class review/discussion of field trip
9. In-class presentations

Technical Support

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. https://helpdesk.ufl.edu/ | 352-392-4357

Weekly Course Schedule

Date	Topic	Reading Assignments	Assignments for Next Lecture
Jan. 15	Introduction Postharvest Losses Postharvest Physiology & Quality Overview	1) Postharvest Biology (handout-Kader Ch. 4) 2) Respiratory Metabolism (p. 68) 3) Nutritional Quality-Importance in Human Health (p. 166)	
Jan. 23	Systems Analysis Using A.I. Resources at UF		Divide into teams for trip journals; hand out technical report topics and select top two preferences. Determine as a class the topic for each team.

Date	Topic	Reading Assignments	Assignments for Next Lecture
Jan. 29	Harvest, Handling and Storage Operations	1) Postharvest Pathology (p. 111) 2) Temperature Treatments (p. 26) 3) Chilling & Freezing Injury (p. 62) 4) Harvest and Handling (handout-EDIS pub)	Teams conduct literature review on technical report topic
Feb. 5	Temperature Management During Harvest, Handling and Shipping	1) Precooling and Storage (p.11) 2) Ethylene Effects (p. 76) 3) 1-Methylcyclopropene (p. 83)	Teams develop outlines for technical reports
Feb. 12	Mechanization of Hort. Crops Minimizing Produce Injury During Harvest & Handling	1) Controlled Atmosphere Storage (p. 22) 2) Modified Atmosphere Packaging (p. 42) 3) Heat Load Calculation (p. 19)	Teams perform initial A.I. inquiries on topic
Feb. 19	Incorporating AI in Harvest and Postharvest Operations Transportation	1) Flavor (p. 128) 2) Texture (p. 89) 3) Food Safety (p. 149)	Teams refine A.I. inquiries based on literature reviews
Feb 26.	Outline update Sanitation and Food Safety	1) Wholesale Distr. Center Storage (p. 54) 2) Grocery Store Display Storage (p. 59) 1) Fresh-cut Fruits (p. 604) 2) Fresh-cut Vegetables (p. 624)	Technical Report Outlines due
Mar. 5	Fresh-cut Fruits and Vegetables Postharvest Treatments	3) Bedding Plants and Seedlings (p. 642) 4) Cut Flowers and Greens (p. 659)	
Mar. 12	Field trip to the local supermarket produce department		
Mar. 16-20	Spring Break Field Trip: Central & Southeast Florida		Work on trip journals
Apr. 2			Field trip journals due
Apr. 16	Team presentations of technical reports with critique of A.I. output; online course evaluations		Technical reports due
Apr. 23	No class (Reading days)		

Grading Policy

Course grading is consistent with UF grading policies.

Course Grading Structure

- Course Notes Journal: Students will maintain a written record of pertinent information presented on the field trip. This will include a description of the operation, crops, handling methods, and their impacts on quality. Following the field trip, each team will assemble their team members' field trip notes and organize them into a written journal (MS Word format) that

collates team members' field trip observations in a neatly organized and illustrated manner. (30% of grade)

- Technical Report: Each team will develop and write a technical report (MS Word format) on a predetermined technology using examples and details observed during the field trip, pertinent literature and AI inquiries. The goal of the technical report is to describe how fresh produce quality is maintained (or lost) by the appropriate use (and misuse) of the selected technology. (40% of grade)
- PowerPoint Presentation: Each team will present their technical report to the class via a 20-minute PowerPoint presentation. (30% of grade)
- Participation in in-class discussions, during field trip visits and in group assignments is critical to successful completion of this course.

Points Distribution:

Field Trip Journals

Description:	15
Organization/Illustrations:	15
Total:	30 points

Technical Report

Introduction:	5
Description:	10
Discussion/Analysis:	20
Summary/Conclusions:	5
Total:	40 points

Oral Presentations

Introduction	5
Description of the technology	5
Discussion/Analysis	5
Summary	5
Graphics/readability	5
Delivery style	5
Total:	30 points

Participation:	5 points
Course Total:	105 points

Grading Scale

[scale is required; plus and minus grades may be used but are not required]

Grade	Points	Percentage
A	99-105	94-100%
A-	95-98	90-93%
B+	91-94	87-89%
B	87-90	83-86%
B-	84-86	80-82%
C+	81-83	77-79%
C	77-80	73-76%
C-	74-76	70-72%
D+	70-73	67-69%
D	66-69	63-66%
D-	63-65	60-62%
E	<63	<60%

Academic Policies and Resources

Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

Campus Health and Wellness Resources

Visit https://one.uf.edu/whole-gator/topics for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

Please contact UMatterWeCare for additional and immediate support.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Privacy and Accessibility Policies

- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility
- Zoom
  - Zoom Privacy Policy
  - Zoom Accessibility