HOS 4283C
Advanced Organic and Sustainable Crop Production
Spring 2025 (3 credits)

INSTRUCTOR: Dr. Xin Zhao, Professor
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CLASS MEETING TIMES AND LOCATION:
Lectures: MW 10:40-11:30 am, 1306 Fifield Hall
Labs: F 10:40 am-1:40 pm, Horticultural Sciences Teaching Garden

OFFICE HOURS: Monday and Wednesday at 11:30 am - 12:15 pm. Students unable to meet me at this time need to request an appointment, preferably by email (in Canvas).

PREREQ: HOS 3281C or with instructor's permission

COURSE DESCRIPTION: The purpose and intent of HOS 4283C is to further develop the concepts learned in HOS 3281C by exploring the up-to-date scientific literature, acquaint students with the methods of sustainable and organic vegetable production, and critically evaluate relevant agricultural issues that affect the industry, the food system, the environment, and the society.

LEARNING OBJECTIVES
Upon successful completion of this course, students will be able to:

- Apply principles and practices of sustainable and organic production to commercial farm situations for soil and water management, disease, pest, and weed control, and postharvest handling.
- Synthesize and assess scientific information from peer-reviewed literature to develop recommendations on agricultural techniques and ecological practices for sustainable and organic farming systems.
- Evaluate critically the advantages and disadvantages of various production systems.
- Develop a farm plan for organic and sustainable crop production that addresses environmental, economic, and social sustainability.
- Assess the growth of organic food market at both local and national levels.
- Demonstrate an in-depth science-based understanding and a long-term vision of sustainable food systems.
- Improve communication and teamwork skills through class presentations and collaborations with peers in class projects and field activities.

FORMAT: Lecture/discussion, critical thinking activity, vegetable production in the field laboratory, field trip, class project.

TEXTBOOK: There are no required textbooks for this course. Book chapters, journal articles, websites, videos, and other materials will be collectively used. **E-learning** (http://elearning.ufl.edu/) is used in this course to post lectures, assignments, reading materials, useful websites and resources, video clips, study guides, and grades.

LECTURE FORMAT:

1. Invite announcements relating to student club activities and any other departmental, college or campus activities related to agriculture and the content of this course.
2. Invite students to share popular press clippings of current events related to organic and sustainable agriculture.
3. Briefly review previous material.
4. Present the current material.
5. In class questions and discussions are encouraged and expected.

LABORATORY GUIDELINES:

We will meet in the Horticultural Sciences Teaching Garden every Friday and will begin promptly at 10:40 am. Try to be in class at least 5 minutes before it begins. Please monitor weather conditions and dress appropriately. Class will not be cancelled for inclement weather, but will be relocated to the Teaching Garden pavilion area (outdoor classroom) or the Fifield Hall classroom at the discretion of the instructor.

For your safety, the health of the plants, and respect for your peers, please:

- No smoking or chewing tobacco in the field.
- No cell phone calls unless there is an emergency.
- Wear closed-toe shoes that you don't mind getting muddy.
- Bring water bottle to the field lab – it gets hot in the field!
- Bring sunglasses, hat, and sunscreen as needed.

Students will be assigned to two teams, and will work with their teams throughout the semester. I will occasionally mix teams up so everyone has a chance to work together.

ASSIGNMENTS: ALL the assignments should be submitted electronically to **E-learning**. They are expected to be in neat, legible format with grammar, punctuation, and spelling errors at a very minimum. Without any documented emergency situation, anything submitted after the deadline will **NOT** be acceptable and thus receive a grade of zero.

OTHER RESOURCES STUDENTS WILL NEED: 1) an effective tool for keeping notes, 2) notebook for lab journal, 3) ready access to an Internet-ready computer, 4) appropriate clothes for working outside when applicable (closed-toe shoes, hat/sunglasses/sunscreen).

GRADING: Grades will be based upon the following:

Attendance: Attendance will be rewarded as: 100 points for 0-2 unexcused absences (0-2 class periods). When 3 or more unexcused absences occur, 25 points will be deducted for each absence.

Quizzes: There are 8 open-book online quizzes throughout the semester. Each quiz is worth 50 points. Quizzes will be focused on lecture contents and assigned readings. The quiz schedule remains flexible as our learning journey progresses, and typically students will have 3 days during the week to complete each quiz.

Writing assignments: There will be two literature review-based writing assignments.

Market survey project: Organic food market survey and report.

Dream Farm project: Each team will establish a field-to-market Dream Farm in the teaching garden.

Lab journal (electronic): Each student must record weekly lab activities (including the Dream Farm project activities) and observations of crop development in their journal. The journal may include lab instruction notes, reports, photographs, drawings, etc. Specific tasks and instructions will be provided for each week's lab journal.

Individual project: Each student will develop a teaching module and deliver a well-structured, interactive lesson during the semester assuming the role of an instructor.

Activity	Points possible
Attendance	100
Quizzes	400
Lab journal	400
Writing assignments	100
Dream Farm project	200
Market survey project	100
Individual project	200
Total	**1500**

All points earned in the course will be summed to calculate your final grade. Letter grades will be based on the performance of each student relative to the following standard percentages (%):

93 – 100	A	73 – 76.9	C
90 – 92.9	A-	70 – 72.9	C-
87 – 89.9	B+	67 – 69.9	D+
83 – 86.9	B	63 – 66.9	D
80 – 82.9	B-	60 – 62.9	D-
77 – 79.9	C+	< 60	E

Please feel free to discuss your grades with the instructor at any time during the semester. Additional information on current UF grading policies for assigning grade points can be found here:

- *Grading policy*, https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

COURSE POLICIES

Attendance and Make-up Policy

Students are required to be present for every class. All students are encouraged to actively participate in class discussions and other in-class activities. Absences will be excused and late assignments will be graded only for documented emergencies as per UF's attendance policy. Students who are not granted an excused absence will receive a zero for the day, including any quizzes or assignments conducted during class time. To establish an excused absence, please notify the course instructor as soon as possible if you will have to miss a class or field trip due to an emergency. Class attendance is counted in the final grade. If you are absent, it is your responsibility to obtain and learn the materials you missed. **Attendance will be rewarded as: 100 points for 0-2 unexcused absences (0-2 class**

periods). When 3 or more absences occur, 25 points will be deducted for each absence. When you email the instructor about your absence, please be sure to use "Absence" in the subject line.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

- *UF Attendance policy,* https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/.

Accommodations for Students with Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

- *Disability Resource Center*, 001 Reid Hall, (352) 392-8565, https://disability.ufl.edu/get-started/.

Technical Difficulties

If you are experiencing technical difficulties with Canvas, you should immediately contact the UF Help Desk. This will generate a ticket number, which documents the date and time of your technical difficulty. Any requests to make-up late work due to technical difficulties must be accompanied by this ticket number.

- *UF Help Desk*, HUB 132, (352)-392-4357, http://helpdesk.ufl.edu/

Online Course Evaluation Process

- Student assessment of instruction is an important part of efforts to improve teaching and learning. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/.
- Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/.
- Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

Materials and Supplies Fees

The additional course fee of $49 per student will be used to cover the costs of materials and supplies needed for conducting the field lab and other hands-on learning activities in this course throughout the semester.

Academic Honesty

UF students are bound by The Honor Pledge which states "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Conduct Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TA in this class.

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. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Health and Wellness Resources:

- *U Matter, We Care*: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit www.umatter.ufl.edu to refer or report a concern and a team member will reach out to the student in distress.
- *Counseling & Wellness Center*: Visit www.counseling.ufl.edu or call 352-392-1575 for information on crisis services as well as non-crisis services.
- *Student Health Care Center:* Call 352-392-1161 for 24/7 information to help you find the care you need, or visit shcc.ufl.edu/.
- *University Police Department*: 352-392-1111 (or 9-1-1 for emergencies), www.police.ufl.edu.
- *UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608, https://ufhealth.org/locations/uf-health-shands-emergency-room-trauma-center/.
- *GatorWell Health Promotion Services:* For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit https://gatorwell.ufsa.ufl.edu/ or call 352-273-4450.

Academic Resources

- *E-learning Technical Support:* Contact the UF Computing Help Desk (https://it.ufl.edu/helpdesk/) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- *Career Connections Center*: Career assistance and counseling services. Reitz Union Suite 1300, 352-392-1601, www.career.ufl.edu.
- *Library Support:* Various ways to receive assistance with respect to using the libraries or finding resources. https://uflib.ufl.edu/. Call 866-281-6309 or email ask@ufl.libanswers.com for more information.
- *Teaching Center:* 1317 Turlington Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring. https://umatter.ufl.edu/office/teaching-center/.
- *Writing Studio:* Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.
- *Academic Complaints:* Office of the Ombuds; https://www.ombuds.ufl.edu/complaint-portal/.
- *Enrollment Management Complaints (Registrar, Financial Aid, Admissions):* View the Student Complaint Procedure webpage for more information: https://em.ufl.edu/complaint.

Tentative Schedule

Week	Day	Date	Topic
1	M	Jan 13	Welcome, syllabus, course introduction and discussion
	W	Jan 15	Sustainable production systems and organic agriculture recap; Emerging trends in the world of organic farming; The organic debate
	F	Jan 17	***Lab 1*****:** Weed identification and management plan (Dr. Peter Dittmar); Field examination and gleaning; Cover crop discussion; Dream Farm project design brainstorming
2	M	Jan 20	***No class (Martin Luther King Jr. Day)***
	W	Jan 22	Protected crop production systems; Organic hydroponics
	F	Jan 24	***Lab 2*****:** Dream Farm project design, transplant production; Cover crop demo plot setup
3	M	Jan 27	Biodiversity and intercropping system – Case studies; "Push-pull" strategy and beyond
	W	Jan 29	The hidden cost of food (Dr. Mickie Swisher)
	F	Jan 31	***Lab 3*****:** Dream Farm project design, transplant production; Field preparation
4	M	Feb 3	Rotational no-till, mulching, and conservation tillage for organic vegetable farms – Case studies
	W	Feb 5	Implementing whole farm IPM strategies (Bob Hochmuth)
	F	Feb 7	***Lab 4*****:** Dream Farm project planning and transplant production; Fertilization program development; nutrient management calculations (I); Field preparation; Anaerobic soil disinfestation demo
5	M	Feb 10	Allelopathy and pest management
	W	Feb 12	The growth in research and support for organic agriculture in the U.S. and the opportunities to join its workforce (Juan Carlos Rodriguez from FOG)
	F	Feb 14	***Lab 5*****:** Vegetable grafting lab; Dream Farm project planning and transplant production; Field preparation; Fertilization program development; nutrient management calculations (II)
6	M	Feb 17	Making the best use of composts and other organic amendments
	W	Feb 19	Introduction to precision agriculture and applications in specialty crops (Dr. Daniel Lee)
	F	Feb 21	***Lab 6*****:** Field preparation and project; Fertilization program development
7	M	Feb 24	Soil health indicators; Suppressive soils; Biostimulants
	W	Feb 26	Organic disease management and alternative approaches
	F	Feb 28	***Lab 7*****:** Field project activities
8	M	Mar 3	Is soil fertility in organic farming systems fundamentally different from that in conventional systems? An in-depth look at nutrient cycling, soil quality, and soil health (I)
	W	Mar 5	Is soil fertility in organic farming systems fundamentally different from that in conventional systems? An in-depth look at nutrient cycling, soil quality,

			and soil health (II)
	F	Mar 7	***Lab 8*****:** Field project activities
9	M	Mar 10	Future development of organic agriculture; NOP updates; Career opportunities in organic agriculture (Meagan Collins from Oregon Tilth)
	W	Mar 12	Integrating crops and livestock in organic systems (Dr. Kathleen Delate)
	F	Mar 14	***Lab 9*****:** Field project activities
	M	Mar 17	***Spring Break***
	W	Mar 19	
	F	Mar 21	
11	M	Mar 24	***No class*** *(a make-up day for our full-day field trip)*
	W	Mar 26	Crop breeding for organic production systems; Regenerative organic agriculture
	F	Mar 28	***Lab 10*****:** Field project activities; Dream Farm products and outcomes
12	M	Mar 31	Biodynamic farming and integrated farming; Carbon sequestration, biochar and beyond
	W	Apr 2	*Teaching your individual lesson (flexible schedule)*
	F	Apr 4	***Lab 11*****:** Field project activities; Harvest; Dream Farm products and outcomes
13	M	Apr 7	*Teaching your individual lesson (flexible schedule)*
	W	Apr 9	*Teaching your individual lesson (flexible schedule)*
	F	Apr 11	***Lab 12*****:** Field trip (full-day)
14	M	Apr 14	*Teaching your individual lesson (flexible schedule)*
	W	Apr 16	*Teaching your individual lesson (flexible schedule)*
	F	Apr 18	***Lab 13*****:** Field project activities; Harvest; Dream Farm tour; Dream Farm products and outcomes
15	M	Apr 21	*Teaching your individual lesson (flexible schedule)*
	W	Apr 23	Organic innovations; Designing innovative farm systems; Building resilient agricultural and food systems
	F	Apr 25	Reading day