

HOS 4283C
Advanced Organic and Sustainable Crop Production
Spring 2022 (3 credits)

INSTRUCTOR: Dr. Xin Zhao, Professor
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Teaching Assistants: Isaac Vincent (ivincent@ufl.edu), Zach Ray (ray.ztyler@ufl.edu)

CLASS MEETING TIMES AND LOCATION:

Lectures: MW 10:40-11:30 am, 2316 Fifield Hall

Labs: F 10:40 am-1:40 pm, Horticultural Sciences Teaching Garden

OFFICE HOURS: Friday 1:40-2:20 pm. Students unable to meet me at this time need to request an appointment, preferably by email (in Canvas).

PREREQ: HOS 3281C.

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 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 post-harvest 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 team working 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 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 absence. When 3 or more unexcused absences occur, 25 points will be deducted for each absence.

Quizzes: There are 10 open-book online quizzes throughout the semester. Each quiz is worth 40 points. Quizzes will be focused on lecture contents and assigned readings.

Lab journal (electronic): Each student must record weekly lab activities and observations of crop development in their journal. The journal may include lab instruction notes, reports, photographs, drawings, etc.

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.

Individual project: Each student will develop a teaching module and deliver a well-structured 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 absence. When 3 or more absences occur, 25 points will be deducted for each absence.**

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/>.

COVID Related Practices

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, please consider getting vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
- You are highly encouraged to wear approved face coverings at all times during class (indoors) and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
 - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
 - Hand sanitizing stations will be located in every classroom.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.
 - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
 - If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- Continue to regularly visit coronavirus.UFHealth.org and coronavirus.ufl.edu for up-to-date information about COVID-19 and vaccination.

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/>

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/>.

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/>.

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 Honor 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. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. 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:

- *Counseling & Wellness Center:* Visit www.counseling.ufl.edu or call 352-392-1575 for information on crisis services as well as non-crisis services.
- *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.
- *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/emergency-room-trauma-center>.
- *GatorWell Health Promotion Services:* For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, <https://gatorwell.ufsa.ufl.edu/>.

Academic Resources

- *E-learning Technical Support:* Contact the UF Computing Help Desk (<https://helpdesk.ufl.edu/>) 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/find/ask/>.
- *Teaching Center:* Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.
- *Writing Studio:* 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.
- *Student Complaints On-Campus:* Visit the Student Honor Code and Student Conduct Code webpage for more information. <https://sccr.dso.ufl.edu/policies/student-honor-%20code-student-conduct-code/>.
- *On-Line Students Complaints:* View the Distance Learning Student Complaint Process at <https://distance.ufl.edu/getting-help/student-complaint-process/>.

Tentative Schedule

Week	Day	Date	Topic
1	W	Jan 5	Welcome, syllabus, course introduction and discussion
	F	Jan 7	<i>Lab 1</i> : Weed identification and management plan; Field examination; Project planning; Integrative use of cover crops
2	M	Jan 10	Sustainable production systems and organic agriculture recap
	W	Jan 12	Organic greenhouse production; Protected crop production systems
	F	Jan 14	<i>Lab 2</i> : Dream Farm project design, transplant production
3	M	Jan 17	<i>No class (Martin Luther King Jr. Day)</i>
	W	Jan 19	Implementing whole farm IPM strategies
	F	Jan 21	<i>Lab 3</i> : Project design, transplant production; composting ideas
4	M	Jan 24	“Push-pull” strategy and beyond
	W	Jan 26	Allelopathy and pest management; Biodiversity and intercropping system – Case studies
	F	Jan 28	<i>Lab 4</i> : Project planning and transplant production; Fertilization program development
5	M	Jan 31	Cultivation and tillage
	W	Feb 2	Rotational no-till, mulching, and conservation tillage for organic vegetable farms – Case studies
	F	Feb 4	<i>Lab 5</i> : Project planning and transplant production; Field preparation; Fertilization program development
6	M	Feb 7	Crop breeding for organic production systems
	W	Feb 9	Disease triangle and disease management; Vegetable grafting
	F	Feb 11	<i>Lab 6</i> : Vegetable grafting hands-on practice; Field preparation and project; Fertilization program development
7	M	Feb 14	Compost and compost tea
	W	Feb 16	Soil health indicators; Suppressive soils
	F	Feb 18	<i>Lab 7</i> : Field project activities
8	M	Feb 21	Soil-borne disease management and alternative approaches
	W	Feb 23	Anaerobic soil disinfestation; organic amendment for disease management
	F	Feb 25	<i>Lab 8</i> : Soil and water analysis lab; Field project
9	M	Feb 28	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 2	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 4	<i>Lab 9</i> : Field project activities

10	M	Mar 7	<i>Spring Break</i>
	W	Mar 9	
	F	Mar 11	
11	M	Mar 14	<i>No class (a make-up day for our full-day field trip)</i>
	W	Mar 16	Best Management Practices and organic farming
	F	Mar 18	<i>Lab 10:</i> Field project activities; nutrient management calculations (I)
12	M	Mar 21	Introduction to precision agriculture and applications in specialty crops
	W	Mar 23	Postharvest handling and storage, food safety
	F	Mar 25	<i>Lab 11:</i> Field project activities; nutrient management calculations (II)
13	M	Mar 28	Biodynamic farming and integrated farming
	W	Mar 30	Carbon sequestration and beyond
	F	Apr 1	<i>Lab 12:</i> Field trip
14	M	Apr 4	Organic livestock systems
	W	Apr 6	International organic agriculture; Organic innovations; Organic vs. conventional
	F	Apr 8	<i>Lab 13:</i> Field project activities; Harvest
15	M	Apr 11	Designing innovative farm systems
	W	Apr 13	Emerging issues in organic agricultural and food systems
	F	Apr 15	<i>Lab 14:</i> Field project activities; Harvest; Dram Farm project showcase
16	M	Apr 18	Can organic agriculture feed the world?; The organic debate
	W	Apr 20	Future of organic farming
	F	Apr 22	Reading Day