

HOS 4283C
Advanced Organic and Sustainable Crop Production
Spring 2020 (3 credits)

INSTRUCTOR: Dr. Xin Zhao
Associate Professor
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CLASS MEETING TIMES AND LOCATION:

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

Labs: F 10:40 am-1:40 pm, 2316 Fifield and the Horticultural Sciences Vegetable Teaching Garden

OFFICE HOURS: Monday 11:30 am-12:20 pm. Students unable to meet me at this time need to request an appointment, preferably by email.

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 2316 Fifield or in the field across from Fifield Hall 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 greenhouse or 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 or some other beverage to the field lab – it gets hot in the field!
- Bring sunglasses, hat, and sunscreen as needed.
- There are no restroom facilities in the field lab, so please take your breaks before class begins.

Students will be assigned to teams, and will work with that team 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) Students will need a three-ring notebook to keep notes, handouts, quizzes and other course materials, 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 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: The class as a whole 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

- 93-100 = A
- 90-92 = A-
- 87-89 = B+
- 83-86 = B
- 80-82 = B-
- 77-79 = C+
- 73-76 = C
- 70-72 = C-
- 67-69 = D+
- 63-66 = D
- 60-62 = D-
- < 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/ugrad/current/regulations/info/grades.aspx>

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.**

Additional information on class attendance and make-up exams, assignments and other work can be found here:

- *UF Attendance policy*, <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

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, www.lss.at.ufl.edu/help.shtml

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit 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."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action.

- For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>

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 when appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

- *Disability Resource Center*, 0001 Reid Hall, (352)-392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *Counseling and Wellness Center*, 3190 Radio Road, (352)-392-1575, www.counseling.ufl.edu
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- *U Matter We Care*, www.umatter.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university's on-campus resources.

- *Career Connections Center*, Reitz Union Suite 1300, (352)-392-1601, <https://career.ufl.edu/>

Course Evaluation Process

Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at:

- *Course evaluations*, www.evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- *Evaluations summary*, www.evaluations.ufl.edu/results

Student Complaints

You can file and resolve any complaints about your experience in this course in the following site:

- *Student complaints in residential courses*, <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

Tentative Schedule

Week	Day	Date	Topic
1	M	Jan 6	Welcome, syllabus, course introduction and discussion
	W	Jan 8	Sustainable production systems and organic agriculture recap
	F	Jan 10	<i>Lab 1: Weed identification and management plan (Dr. Peter Dittmar); Field examination; Project planning</i>
2	M	Jan 13	Organic greenhouse production; Protected crop production systems
	W	Jan 15	“Push-pull” strategy and beyond
	F	Jan 17	<i>Lab 2: Project design, transplant production</i>
3	M	Jan 20	<i>No class (Martin Luther King Jr. Day)</i>
	W	Jan 22	Organic certification and inspection discussions with QCS
	F	Jan 24	<i>Lab 3: Project design, transplant production</i>
4	M	Jan 27	Cultivation and tillage; field capacity and available water
	W	Jan 29	No class (a make-up day for our full-day field trip)
	F	Jan 31	Lab 4: Project planning and transplant production
5	M	Feb 3	Biodiversity and Intercropping system (I)
	W	Feb 5	Biodiversity and Intercropping system (II)
	F	Feb 7	Lab 5: Implementing whole farm IPM strategies (Bob Hochmuth); Project planning and transplant production
6	M	Feb 10	Organic and sustainable pest management
	W	Feb 12	Introduction to precision agriculture and applications in specialty crops (Dr. Daniel Lee)
	F	Feb 14	<i>Lab 6: Field preparation and project; Fertilization calculator introduction</i>
7	M	Feb 17	Disease triangle and disease management
	W	Feb 19	Vegetable grafting; cucumber grafting hands-on practice
	F	Feb 21	<i>Lab 7: Field project activities</i>
8	M	Feb 24	Allelopathy and pest management
	W	Feb 26	Soil-borne disease management and alternative approaches
	F	Feb 28	<i>Lab 8: Visit UF/IFAS soil and water analysis lab; Field project</i>
9	M	Mar 2	<i>No class (Spring Break)</i>
	W	Mar 4	
	F	Mar 6	

10	M	Mar 9	Dream Farm project
	W	Mar 11	Anaerobic soil disinfestation; organic amendment for disease management
	F	Mar 13	<i>Lab 9</i> : Field project activities
11	M	Mar 16	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
	W	Mar 18	Organic livestock systems
	F	Mar 20	<i>Lab 10</i> : Field project activities; nutrient management calculations (I)
12	M	Mar 23	Postharvest handling and storage, food safety (Catherine Belisle)
	W	Mar 25	Best Management Practices and organic farming; compost and compost tea
	F	Mar 27	<i>Lab 11</i> : Field project activities; nutrient management calculations (II)
13	M	Mar 30	Integrative use of cover crops
	W	Apr 1	Rotational no-till, mulching, and conservation tillage for organic vegetable farms – Case studies
	F	Apr 3	<i>Lab 12</i> : Field trip (full day farm visits)
14	M	Apr 6	Carbon sequestration and beyond
	W	Apr 8	Biodynamic farming and integrated farming
	F	Apr 10	<i>Lab 13</i> : Field project activities; Harvest
15	M	Apr 13	Biodiversity and designing innovative farm systems
	W	Apr 15	International organic agriculture; Emerging issues in organic agricultural and food systems
	F	Apr 17	<i>Lab 14</i> : Field project activities; Harvest
16	M	Apr 20	Dream Farm project showcase
	W	Apr 22	Can organic agriculture feed the world?; The organic debate