

## HOS 6932 Section 1E19 and 1E20: Nutrient Management for Container-Grown Crops (Advanced)

2 Credit-Hours

**Prerequisite:** None

**Instructors:** Paul Fisher, Environmental Horticulture Dept., 2549 Fifield Hall, (352) 273-4581, [pfisher@ufl.edu](mailto:pfisher@ufl.edu); Rosanna Freyre, Environmental Horticulture Dept., 2551 Fifield Hall, (352) 273-4575, [rfreyre@ufl.edu](mailto:rfreyre@ufl.edu).

**Course description:** This course on nutrient management for container-grown crops is intended for graduate students who understand the fundamentals of plant nutrition in greenhouse crops, but would like to improve their technical advising and decision-making skills.

**Course learning objectives:** Students who take this course will be able to select and design a fertilizer program for controlled environments; know how to balance factors such as limestone, water quality, and fertilizer that affect substrate-pH; perform, interpret, and act on soil, tissue, and water nutrient tests; and identify, prevent, and correct typical nutritional disorders.

**Weekly course schedule:**

### Course introduction. All assignments must be completed before October 2.

Module	Week	Date	Topic	Activity
1.1	1	Aug 24-28	Overview and common nutrient problems	Pre-test of existing knowledge
1.2	2	Aug 31-Sep 4	Supplying essential nutrients	Quiz on common nutrient problems
1.3	2	Aug 31-Sep 4	Fertilizer types	
1.4	3	Sep 7-11	Interpreting a fertilizer label	Review fertilizers being used at your location and interpret a label
1.5	4	Sep 14-18	Managing total nutrient level	
1.6	4	Sep 14-18	Acidity and basicity – the importance of pH	Sep 19 lecture and hands-on activities (A) Hydroponics
1.7	5	Sep 21-25	Onsite testing of pH and EC	Sep 26 Lecture and hands-on activities (B) Test the pH and EC of samples and interpret results. Evaluation of the course introduction

### Advanced Topics. All assignments must be completed by November 13.

Module	Week	Date	Topic	Activity
2.1	1	Oct 5-9	Fertilizer concentration and calculations	Use Back Pocket Grower ppm tools, check injector
2.2	2	Oct 12-16	Fertilizer formulation	Design a two-tank fertilizer program
2.3	2	Oct 12-16	Fertilizer programs for specific crops	
2.4	3	Oct 19-23	Substrate, lime and pH	
2.5	3	Oct 19-23	Water, fertilizer, plant species, and pH	Use Back Pocket Grower fertilizer pH tool
2.6	4	Oct 26-30	Correcting high substrate-pH problems	
2.7	4	Oct 26-30	Correcting low substrate-pH problems	
2.8	4	Oct 26-30	Testing substrate, water, and plant tissue	Interpret soil, water, and tissue tests
2.9	5	Nov 2-6	Trouble-shooting problems	Diagnose and solve problem case studies Final course evaluation

**Critical course dates:**

August 24 to Sept. 26 2015 take the course introduction and complete all required assignments for this section by October 2.

October 5 to Nov 6 continue into the Advanced level material and complete all required assignments for this section by November 13.

All lectures can be accessed online via Canvas at any time during the week they are activated until the end of the semester.

**Required chat hours Tues and Thurs 3.30 to 5 pm ET in addition to the formal lectures.**

**Required face-to-face instruction hours at Gainesville Environmental Horticulture Dept. Greenhouse Facility Sept 19 and Sept. 26, 9 am to 12 pm (noon).**

There is a required pre-test before each of the two course sections, and a course evaluation at the end of each section.

There are 16 online lectures, two face-to-face lecture and hands-on sessions at the UF Gainesville campus, and several assignments (see table above).

The assignments have due dates:

Pre-test for introductory section: Aug 28 2015

Quiz on common nutrient problems: Sep 4 2015

Interpret a fertilizer label: Sep 11 2015

Onsite testing of pH and EC; Evaluation of introductory material: Sep 25 2015

Pre-test for advanced section: Oct 9 2015

Design a two-tank fertilizer program: Oct 16 2015

Use Back Pocket Grower fertilizer pH tool: Oct 30 2015

Interpret soil, water, and tissue tests: Nov 6 2015

Diagnose and solve problem case studies; Final course evaluation: Nov 13 2015.

**Recommended text book:** Nutrient management for container-grown crops will be provided online. Understanding pH management for container-grown crops (<http://store.meistermedia.com/understanding-ph-management/>, \$20).

**Grading:** Will be based on the assignments for the Course Introduction: Quiz on common nutrient problems, Interpret a fertilizer label and Onsite testing of pH and EC; the assignments for the Advanced Level: Design a two-tank fertilizer program, Use Back Pocket Grower fertilizer pH tool, Interpret soil, water, and tissue tests, and Diagnose and solve problem case studies; plus class participation.

**Online Course Evaluation Process:**

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students will have the opportunity 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 <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete

during the last two or three weeks of the semester; students will be notified of the specific times when they are open. It is expected that you will contribute your feedback for this course and the others in which you are enrolled this term. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

### **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 as appropriate.

### **Services for Students with Disabilities**

The Disability Resource Center coordinates the needed accommodations of students with disabilities (0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/) . 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

### **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.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,*  
[www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)  
Counseling Services

Groups and Workshops  
Outreach and Consultation  
Self-Help Library  
Training Programs  
Community Provider Database

- *Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

**Additional information**

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See <http://distance.ufl.edu/student-complaints> for more details.