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Nutritional Management of Nursery Crops ORH4256

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Instructor Contact Info

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Email/phone messages: students can expect a response within 24 hrs. M-F and within 72 hrs. on weekends. **My preferred way of communicating with students is using email.** I check my UF email frequently every day and on the weekends. If I plan to be out of the office or out of email communication, I will email the class and post an announcement on the class website.

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Course Overview

This is an online undergraduate level course presenting Techniques for determining, interpreting, and managing the nutritional status of container grown greenhouse and nursery crops. To include: water quality, substrate physical and chemical parameters, irrigation and fertilization practices. Topics that will be covered include: meter selection and calibration, water analysis, substrate/soil analysis, report interpretation and writing, diagnosis and recommendations. Upon successful completion of this course, students will be able to determine, interpret, and adjust: Water quality; Substrate physical parameters; Substrate chemical parameters; Irrigation practices; Fertilization practices.

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Required Reading

Jones, J. Benton. 2012. *Plant Nutrition and Soil Fertility Manual 2nd Edition*. CRC Press, New York. ISBN -978-1-4398-1609-7

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Additional Reading

Agnew, M.L., N.H. Agnew, N.E. Christians, and A. M. VanDerZanden. 2008. *Mathematics for the Green Industry*. John Wiley & Sons Inc. Hoboken, NJ.

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- Epstein, E. and A.J. Bloom. 2004. *Mineral Nutrition of Plants: Principles and Perspectives*. Sinauer Association Inc. Sunderland Mass.
- Glass, A.D. M. 1989. *Plant Nutrition. An Introduction to Current Concepts*. Jones and Bartlett Publishers Inc, Boston. ISBN 0-86720-080-4
- Marschner, H. 1995. *Mineral Nutrition of Higher Plants, Second Edition*. Academic Press, New York.
- Mengel, K. E.A. Kirby, H. Kosegarten, and T. Appeal. 2001. *Principles of Plant Nutrition*. Kluwer AC Pub., Boston.
- Reed, D.W. (ed) 1996. *Water, Media, and Nutrition for Greenhouse Crops*. Ball Publishing, Batavia, IL.
- Whipker, B.E., J.M. Dole, T.J. Cavins, J.L. Gibson, W.C. Fonteno, P.V. Nelson, D.S. Pitchay, and D.A. Bailey. *Plant Root Zone Management*. North Carolina State University.
(www.nccfga.org)

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Course Prerequisites

SWS 3022, ORH 3253C, or consent of instructor

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Acceptable Course Participation

This is an online course with weekly lectures and assignments. The week begins on Monday and ends on Sunday. Students are expected to login to the course website at least once a week (see [schedule](#)) to complete the reading assignments and watch the narrated lecture (see [course goals and assignments](#) & [assessment](#)).

All course materials will be available via the Canvas course website. Students are expected to participate in online discussions and chat room meetings, unless they have an excused 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 in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu>.

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Course Goals and Assignments

Upon successful completion of this course, students will be able to: measure water quality parameters (pH, soluble salts, alkalinity); measure substrate/soil physical parameters (total

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porosity, air filled porosity and container capacity); measure substrate chemical parameters (pH and soluble salt); select and calibrate meters used in nutritional diagnosis; interpret water analysis reports; interpret soil analysis reports; make recommendations for improving crop growth based on data collected in the field.

This course is divided into three modules (see [schedule](#)). Each module consists of four recorded lectures with related reading assignments and a practical. Each week, students will be responsible for completing the reading assignment, and watching the narrated presentation. Each week students are expected to complete an assignment (see [late assignment policy](#)).

Discussion posts: Discussion posts must be completed by Sunday at 5 pm ET. Discussion posts should be well written and address the issue or question being discussed. All posts should be made within in the week assigned. Discussions will be graded on the quality and timeliness of the response (see discussion grading rubric attachment under syllabus tab). Each student is expected to comment on three classmates' posts. Discussion posts will be accepted up to four days after the due date but will be marked down 2 points. They are worth 10 points.

Challenge assignments: Students will be given a crop with a nutritional problem as well as other pertinent data (water quality, fertilization and irrigation practice, substrate physical and chemical parameters) and the student will be asked to: 1) determine the nutritional problem, and 2) develop a recommendation or solution for the problem. They are worth 25 points.

Scholar's Ignite: The Scholar's Ignite Video Presentation is an exciting and fun assignment designed to provide an opportunity for you to generate awareness, stimulate thought, and inspire your peers with horticultural topics or ideas through a short 1-slide, 3-minute multimedia presentation. You will be required to select a topic, prepare a presentation, and present/upload your work to your peers. This assignment is similar to presentations and competitions held at scientific conferences and other academic institutions.

To complete this assignment, you will be responsible for fulfilling the following tasks:

1. Select a presentation topic to research and review. The topic should be selected from a list provided by your instructor. As an alternative, you may develop an idea or identify a topic to present on; however, prior approval from your instructor is required.
2. Develop a 1-slide, 3-minute presentation using computer software. Your instructor may request use of specific software for completion of this assignment or provide you with a list of software along with instructional videos on their use. The presentation should have limited text and rely upon pictures, tables, or graphs to convey your idea(s). Remember that your presentation should be developed for a diverse audience, thus presented information should be comprehensible to individuals without expertise in the subject area.
3. Upload your presentation within Canvas.
4. Your instructor will assign presentations prepared and uploaded by your peers for you to watch, review, and evaluate. Using the rubric provided, provide critical feedback and assign a grade to presentations you were assigned to review.

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You will be graded on the following:

1. Communication style: how well did the presenter communicate the topic or information?
2. Comprehension: was the presenter clear and organized?
3. Inspiration and engagement: did the presentation inspire you?
4. Impact: did the presentation have a strong influence on your knowledge or perception?
5. Content: was the presentation content clear and well organized with information pertinent to the subject?

Nutritional project: Each student also will be responsible for an independent nutritional project (see project description and grading rubric under syllabus tab on class website). For the project, students need to identify a plant nutritional problem at their current location. Plant nutrition diagnostic kits that include a pH meter, soluble salt meter, light meter, and diagnosis forms (also downloadable from the class website) are located at Fort Lauderdale REC, Mid-Florida REC, Plant City, Milton and Gainesville (environmental horticulture department) and may be checked out for 48 hours. This project is worth 100 points. The grading rubric is available under the assignment tab on the class website.

Grades for all assignments will be posted seven days after the student turns them in. If the instructor cannot return the assignment within this time frame, the instructor will notify the student as to when the assignment will be graded. [\[Top\]](#)

Assessment

See [schedule](#) for dates. The week begins on Monday and ends on Sunday. All discussions or assignments need to be completed by the end of each week (Sunday 5 pm, Eastern time zone).

The accepted format for all assignments is MS Word files. If there is a malfunction with the class site or computer malfunctions occur, assignments may be emailed or sent via fax. It is the obligation of the student to inform me of such malfunctions immediately.

All grades are based on the number of points earned out of total number [of points](#).

[Module 1](#) – *Appraising the problem, essential elements, nutrient uptake mechanisms, and visual diagnosis (lectures 1, 2, 3, and 4)*

- Week 1 – Introduction/ Appraising the Problem
- Week 2 – Essential Elements
- Week 3 – Nutrient Uptake Mechanisms
- Week 4- Visual Diagnosis
- Week 5 – Practical 1

[Module 2](#) – *Meter calibration, substrate physical, substrate chemical, water analysis (lectures 5, 6, 7, and 8)*

- Week 6 – Meter Calibration

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- Week 7 – Substrate Physical Properties
- Week 8 – Substrate Chemical Properties
- Week 9 – Spring Break – no class
- Week 10 – Water Quality
- Week 11 – Practical 2

[Module 3](#) – Fertilizer, nutrient use efficiency, landscape issues, interactions (lectures 9, 10, 11 and 12)

- Week 12 – Fertilizer Analysis
- Week 13 – Nutrient Use Efficiency
- Week 14 – Landscape Issues
- Week 15 – Interactions
- Week 16 – Final practical

Learning Community Overview

1. Consider yourself a member of a community. A community is a group of individuals who work together to support a common goal or interest.
2. Treat all contributions made by other members with respect.
3. Keep an open mind.
4. Ask for help when you need it.
5. Assist others when possible. Share questions and ideas with the rest of the class.
6. Have patience with the technology.
7. Respect diverse opinions and viewpoints of each member in the community.
8. Contribute regularly.
9. All postings shared within this community should reflect acceptable content standards. You are expected to use discretion and if asked you will be expected to demonstrate how your content supports the focus of this community.
10. Student participation on a weekly basis is an essential aspect of the online course process. All students are expected to do the work assigned, notify the instructor when emergencies arise, and make up missing assignments no later than four days after they are due.
11. If at any time, you feel that any of these ground rules have been violated by a member of our community, you are encouraged to bring your concern directly and immediately to the instructor.

Modified 4-25-2010 from www.learningwithoutwalls.com

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Netiquette & Discussion Expectations

Netiquette (short for "network etiquette" or "Internet etiquette") is a set of social conventions that facilitate interaction over networks, ranging from Usenet and mailing lists to blogs and forums (as defined by Wikipedia).

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Adapted from Rules of Netiquette (<http://www.albion.com/netiquette/corerules.html>)

1. Remember the human. Never forget that the person reading your mail or posting is, indeed, a person, with feelings that can be hurt.
2. Adhere to the same standards of behavior online that you follow in real life.
3. Know where you are in cyberspace.
4. Respect other people's time and bandwidth
5. Make yourself look good online. Check grammar and spelling before you post. Know what you're talking about and make sense. Do not post flame-bait.
6. Share expert knowledge.
7. Help keep flame wars under control. Flame is a personal attack. It is possible to disagree without attacking the person. Use emoticons and acronyms to convey emotion to avoid misunderstanding.
8. Respect other people's privacy.
9. Don't abuse your power.
10. Be forgiving of other people's mistakes.

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TOTAL POSSIBLE POINTS & GRADES = 500 pts

For information on current UF policies for assigning grade points, see

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

A	(470-500 points)
A-	(450-469 points)
B+	(430-449 points)
B	(415-429 points)
B-	(400-414 points)
C+	(380-399 points)
C	(370-379 points)
C-	(350-369 points)
D+	(330-349 points)
D	(315-329 points)
D-	(300-314points)
E	(0-299 points)

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Absences and Make-Up Work

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

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

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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/honorcodes/honorcode.php>.

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.

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

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- *Career Resource Center*, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Services for Students with Disabilities

Students requesting classroom accommodation must first register with the Dean of Student Office. The Dean of Students Office will provide documentation to the student who must provide this documentation to the instructor when requesting accommodation.

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

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Student Complaints

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.

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Tentative Schedule –

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Module 1		
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Jan 8	<i>Introduction/Appraising the Problem</i>	
	Reading – Chapters 1 & 5	
	Lecture 1 – narrated Power Point	
	Self Introduction	Jan 14
Jan 15	<i>Essential Elements</i>	
	Reading – Chapter 3	
	Lecture 2 – narrated Power Point	
	Discussion 1	Jan 21
	Scholar’s Ignite Topic	Jan 21
Jan 22	<i>Nutrient Uptake Mechanisms</i>	
	Reading – Chapter 4	
	Lecture 3 – narrated Power Point	
	Challenge - Pansy	Jan 28
Jan 29	<i>Visual Diagnosis/Tissue Analysis – pros and cons</i>	
	Reading – Chapter 17	
	Lecture 4 – narrated Power Point	
	Discussion 2	Feb 4
<u>Feb 5</u>	<u>Challenge - Banana</u>	Feb 11

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Module 2 [Top]		
Feb 12	Meter calibration - Why is this important?	
	Reading – Chapter 16	
	Lecture 5 – narrated Power Point	
	Discussion 3	Feb 18
	Scholar’s Ignite Presentations	
Feb 19	Substrate – Physical properties	
	Reading – Chapter 7	
	Lecture 6 – narrated Power Point	
	Challenge - Petunia	Feb 25
	Scholar’s Ignite Presentations	
Feb 26	Substrate-Chemical properties – Soil report interpretation	
	Reading – Chapter 8	
	Lecture 7 – narrated Power Point	
	Challenge - Xanadu	March 4
	Scholar’s Ignite Presentations	
Mar 5	Spring Break – NO CLASS	
March 12	Water quality - Water report interpretation	
	Reading – Chapter 22	

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
	Lecture 8 – narrated Power Point	
	Discussion 4	March 18
	Scholar’s Ignite Presentations	
<u>March 19</u>	<u>Challenge Site Visit</u>	March 25
	Scholar’s Ignite Presentations	
Module 3		
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March 26	Fertilizer analysis	
	Reading – Chapter 19 & 20	
	Lecture 9 – narrated Power Point	
	Challenge – Chenille	April 1
	Scholar’s Ignite Presentations	
April 2	Nutrient Use Efficiency	
	Read – Chapter 27	
	Lecture 10 – narrated Power Pont	
	Challenge - Duranta	April 8
	Scholar’s Ignite Presentations	
April 9	Mismanagement Issues	
	Read – Chapter 26	
	Lecture 11 – narrated Power Point	
	Challenge – Pygmy date palm	April 15
	Scholar’s Ignite Presentations	

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
<i>April 16</i>	<i>No Lecture – Catch Up</i>	
	Challenge - loquat	April 22
	<i>Nutrition Project due</i> <i>Scholars Ignite due</i>	April 22
<u>April 23</u>	<u>Challenge – Soil report Nassau</u>	April 29