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Nutritional Management of Nursery Crops ORH4256

Instructor Contact Info

Dr. Kimberly Moore
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Office hours:
Book time to meet with me
Join Zoom Meeting
https://ufl.zoom.us/j/4945104654

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 course presenting techniques for determining, interpreting, and managing the nutritional status of ornamental crops in the greenhouse, nursery, or landscape. Topics that will be covered: water quality, substrate physical and chemical parameters, and irrigation/fertilization practices, meter selection and calibration, water analysis, substrate/soil analysis, report interpretation and writing, diagnosis, and recommendations.
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Text (optional)

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 (optional)

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.

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 (pre-requisite knowledge will be reviewed week 2)

Junior standing or permission from the 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 watch the narrated lectures and complete the assignments (see course goals and assignments & assessment).

Each week also offers OPTIONAL MATERIALS – reading assignments, instructor created videos, and YouTube videos to help understand the topic of the week.

All course materials will be available via the Canvas course website.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies.

https://catalog.ufl.edu/UGRD/previous-catalogs/2021-2022/UGRD/academic-regulations/attendance-policies/#:~:text=The%20university%20recognizes%20the%20right%20of%20the%20instructor,subsequently%20assign%20a%20failing%20grade%20for%20excessive%20absences.

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/.

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Course Goals and Assignments

The objective of this course is for students to use a systematic approach for diagnosing plant problems related to soil/substrate, nutrition, fertilization, and water management.

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

Define and explain common terms related to plant nutrition and nutrient uptake/movement
Compare and contrast the impact of environmental conditions on nutritional issues
Interpret visual clues to diagnosis nutritional problems
Interpret soil and water analysis reports
Diagnose nutritional issues and recommend solutions to correct the problem

This course is divided into three modules (see schedule). Each week, students will be responsible for watching the narrated presentation, and completing a discussion post (see late assignment policy). Some weeks will have additional assignments to be completed.

LIFE HAPPENS - There is a 4-day grace period for all discussion posts and assignments. The discussion and assignment will be locked 4 days after the due date. HOWEVER, I will accept discussions and assignments the last week of class for HALF the points.

Discussion posts: Discussion posts must be completed by **Wednesday** at 5 pm ET. Discussion posts should be well written and address the issue or question being discussed. All posts should be made within the week assigned. Discussions will be graded on the quality and timeliness of the response (see discussion grading rubric below). Each student is expected to comment on **two 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.

Points	
10	Addressed and responded to the original question and increased understanding of the topic; responding to 3 posts; advanced the conversation
9	Addressed and responded to the original question and increased understanding but only commented on 1 post
8	Addressed and responded to the original question and increased understanding but did not respond to any additional posts.

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Module quiz: The quiz will cover material discussed in the lectures in that module. It is open notes/book. It is timed. Each quiz is worth 25 points. The quizzes will cover terminology and general concepts related to plant nutrition.

Challenge assignments: *S*tudents will be given 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. Students need to **reference the literature** they find related to the problem and solution in their write-up.

The following information must be in the write-up.

1. Name
2. Title
3. Introduction of the problem – is this a common problem? What literature or information was available about this problem?
4. Plant name and symptoms- short paragraph with the scientific name of the plant and the symptoms
5. Description of plant setting- Where is the plant located? What are the specifics about how the crop has been treated or grown?
6. Data - Any data that has been collected like soil analysis, tissue analysis, etc.
7. Solution - what do you think is wrong with the plant and how would you fix the problem?
8. Next steps - What other questions came up in your research? What data was missing that would have helped to solve the problem? What are the next steps?
9. Remember to site the literature and information you use to answer the problem.

Criteria	
Introduction of the problem	Complete, concise, and detailed; student clearly demonstrates an understanding of the problem
Symptoms, setting, and data	Data is complete, and presented in logical order
Solution	Solutions are plausible and complete; references are sited to support statements and conclusions
Next steps	The student was insightful with **new questions** and ideas generated from the major findings
Quality of Presentation	Strong evidence of preparation and, organization. Writing is focused, concise, and has a clear fluent progression of ideas. Journal names, article titles and authors are sited correctly.

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Challenge me
Find a plant problem to challenge me. Take pictures and collect data. Feel free to use the diagnostic data sheet. The report needs to include description of the location; plant identification, symptoms, and care; and data collected (substrate, water, and environmental). Please use the same challenge write up for this assignment.

1. Your Name
2. Title
3. Introduction of the problem – is this a common problem? What literature or information was available about this problem?
4. Plant name and symptoms- short paragraph with the scientific name of the plant and the symptoms
5. Description of plant setting- Where is the plant located? What are the specifics about how the crop has been treated or grown?
6. Data - Any data that has been collected like soil analysis, tissue analysis, etc. Observational data is appropriate.
7. Solution - What do you think is wrong with the plant and how to fix the problem.
8. Next steps - What other questions came up in your research? What data was missing that would have helped to solve the problem? What would you recommend doing next?
9. Remember to site the literature and information you use to answer the problem.

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 (due Wednesday), quizzes, or assignments (due Sunday) need to be completed by the end of each week.

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. For resolving technical issues, please visit the helpdesk website (https://helpdesk.ufl.edu/) or call 352-392-4357.

All grades are based on the number of points earned out of total number of points * 100 to calculate a percentage.

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TOTAL POSSIBLE POINTS & GRADES

Points earned/total pts*100 to calculate a percent (250 points total)

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

		250 pts
A	(95-100%)	237-250
A-	(90-94%)	225-236
B+	(88-89%)	220-224
B	(85-87%)	213-219
B-	(80-84%)	200-212
C+	(78-79%)	195-199
C	(75-77%)	188-194
C-	(70-74%)	175-187
D+	(68-69%)	170-174
D	(65-67%0	163-169
D-	(60-64%)	150-162
E	(0-59%)	0-149

Assignment	Points	Number	Total points	ORH4256
Discussion posts	10	10	100	100 (40%)
Quizzes	25	2	50	50 (20%)
Challenge	25	4	100	100 (40%)
TOTAL				250

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Absences and Make-Up Work

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies.
https://catalog.ufl.edu/UGRD/previous-catalogs/2021-2022/UGRD/academic-regulations/attendance-policies/#:~:text=The%20university%20recognizes%20the%20right%20of%20the%20instructor,subsequently%20assign%20a%20failing%20grade%20for%20excessive%20absences.

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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

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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 specifies several behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor in this class.

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://sccr.dso.ufl.edu/process/studnet-conduct-code/.

In-Class Recording (This is an online course with pre-recorded lectures. However, here is the UF policy on recording class lectures)

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without the permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student

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Software Use

All faculty, staff and students at 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 Resources

Health and Wellness

- *U Matter, We Care*: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress. https://umatter.ufl.edu/
- *Counseling and Wellness Center*: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services. https://counseling.ufl.edu/
- *Student Health Care Center*: Call 352-392-1161 for 24/7 information to help you find the care you need or visit the Student Health Care Center website. https://shcc.ufl.edu/
- *University Police Department*: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies). https://police.ufl.edu/contact/
- *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; Visit the UF Health Emergency Room and Trauma Center website. https://ufhealth.org/uf-health-shands-emergency-room-trauma-center

Academic Resources

- *E-learning technical support*: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- *Career Connections Center*: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- *Library Support*: Various ways to receive assistance with respect to using the libraries or finding resources.
- *Teaching Center*: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
- *Writing Studio:* 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- *Student Complaints On-Campus*: https://sccr.dso.ufl.edu/process/student-conduct-code/
- *On-Line Students Complaints*: https://distance.ufl.edu/state-authorization-status/

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Services 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 (https://disability.ufl.edu/) 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
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Tentative Schedule –

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Module 1 [Top]		
Jan 13	***Introduction/Appraising the Problem***	
	Reading – Chapters 1 & 5	
	Lecture 1 – narrated Power Point	
	Ponder the Scenario	Jan 19
Jan 20	***Essential Elements***	
	Reading – Chapter 3	
	Lecture 2 – narrated Power Point	
	Phosphorus and algae (10 pts)	Jan 22
Jan 27	***Nutrient Uptake Mechanisms***	
	Reading – Chapter 4	
	Lecture 3 – narrated Power Point	
	Arsenic (10 pts)	Jan 29
Feb 3	***Visual Diagnosis/Tissue Analysis – pros and cons***	
	Reading – Chapter 17	
	Lecture 4 – narrated Power Point	
	I just fertilized . . . (10 pts)	Feb 5
	Module 1 Quiz (25 pts)	Feb 9
Feb 10	***Challenge - Banana (25 pts)***	Feb 16

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Module 2 [Top]		
Feb 17	***Meter calibration - Why is this important?***	
	Reading – Chapter 16	
	Lecture 5 – narrated Power Point	
	Training employees (10 pts)	Feb 19
Feb 24	***Substrate – Physical properties***	
	Reading – Chapter 7	
	Lecture 6 – narrated Power Point	
	Melon turning yellow (10 pts)	Feb 26
Mar 3	***Substrate-Chemical properties – Soil report interpretation***	
	Reading – Chapter 8	
	Lecture 7 – narrated Power Point	
	Same deficiencies (10 pts)	Mar 5
Mar 10	***Water quality – Water report interpretation***	
	Reading – Chapter 22	
	Lecture 8 – narrated Power Point	
	Hard water (10 pts)	Mar 12
	Module 2 Quiz (25 pts)	Mar 16
Mar 17	***Spring Break***	

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Mar 24	***Challenge Site Visit (25 pts)***	Mar 30
Module 3 [Top]		
Mar 31	***Fertilizer analysis***	
	Reading – Chapter 19 & 20	
	Lecture 9 – narrated Power Point	
	Poinsettia (10 pts)	Apr 2
Apr 7	***Nutrient Use Efficiency***	
	Read – Chapter 27	
	Lecture 10 – narrated Power Pont	
	Respect the soil (10 pts)	Apr 9
Apr 14	***Mismanagement Issues***	
	Read – Chapter 26	
	Lecture 11 – narrated Power Point	
	Growing plants without water (10 pts)	Apr 16
Apr 21	***Challenge me (25 pts)***	Apr 27
	Challenge Nassau (25 pts)	Apr 27
Apr 28	***Catch up***	Apr 30