




SWS 4116
Environmental Nutrient Management
3 credits
Fall 2016

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TEACHING ASSISTANTS:			
<p>Andres Rodriguez PhD student/Research and Teaching Assistant UF Soil and Water Science Department afrodriguez@ufl.edu</p>		<p>Yaslin Gonzalez MS student/ Research and Teaching Assistant UF Soil and Water Science Department yaslinngonzalez@ufl.edu</p>	

LECTURE:

All lecture materials are posted on class website.

We will be meeting for chat time every Tuesday (unless otherwise indicated) from **6-7:30 pm ET** using Adobe Connect. The chat will be used to go over calculations and answer any questions you may have on HW, quizzes and class materials. Chat time is HIGHLY RECOMMENDED!

TEXTBOOK:

The following textbook is required: Soil Fertility / Edition 2 by Boyd Ellis and Henry Foth. 1996; ISBN 1566702437, Taylor & Francis publishers.

PREREQUISITES: SWS 3022**COURSE DESCRIPTION:**

The course will cover the basic principles of plant nutrition, fertilizer use, and environmental management of nutrients. Essential plant nutrients will be examined in relation to their function and deficiency symptoms in plants and their chemistry in the soil. The course will cover the properties and use of fertilizers for supplying plant nutrients, chemical reaction of fertilizers in soils and agronomic and economic criteria for determining fertilization. The class will cover environmental issues with the over use of fertilizers, best management practices to reduce impact of conventional agriculture on environment, soil and plant tissue testing, sustainable agriculture and organic farming.

COURSE GOALS

- a. To understand the chemistry of essential elements in the soil in relation to their functions in plant nutrition
- b. To learn about the different types of fertilizers, when and how to use appropriately.
- c. To recognize the impact of conventional agriculture including use of fertilizer and amendments on water and air quality.
- d. To identify best management practices (BMPs) and practices used in sustainable agriculture and organic farming

COURSE OBJECTIVES

1. Identify the essential elements, their functions in the plant and deficiency symptoms.
2. Classify and categorize the different sources of fertilizer materials and their suitability of use in various soils and cropping systems.
3. Solve for fertilizer application rates and fertilizer formulation
4. Discuss the environmental impacts of agriculture, use of fertilizers and amendments
5. Compare practices used in organic farming and sustainable agriculture

INTERNET ACCESS:

Lectures of the class (power point presentations and pdf files), assignments and handouts are posted on the class website on Canvas. Go to <http://elearning.ufl.edu/> log on using your Gatorlink. You need to have a gatorlink account <http://www.gatorlink.ufl.edu/> to be able to log on to the class. Please note that E-learning needs Java to work properly. You can download Java from the same website.

CHAT ROOM:

The chat will be online using Adobe Connect Tuesdays 6-7:30 pm ET unless otherwise indicated on lecture schedule. The URL for all chat meetings: <http://mbreeze.ifas.ufl.edu/r458ct2uq8u/> Adobe has a guide for participants that includes a link to their Connect Test page that will check your computer for required plug-ins and connection speed. The guide is at: [http://www.adobe.com/content/dam/Adobe/en/products/adobeconnect/pdfs/VQS_Guide for Participants.pdf](http://www.adobe.com/content/dam/Adobe/en/products/adobeconnect/pdfs/VQS_Guide_for_Participants.pdf) (Links to an external site.)

HW, Class Discussions, Quizzes and Exams:

This class has required HW, discussion posts, quizzes and exams listed in Table below. HW is submitted under **Assignments** tab. Please do not email or fax HW.

GRADING:

	Points
10 HW Assignments	125
7 Discussions	70
5 Quizzes	135
Exam 1	85
Exam 2	85
Total	500

In addition, there will opportunities to earn 30 bonus points on HW and Discussions (3 bonus discussions) for a total of 530 possible points.

Grade Scale:

A ≥ 450 points;	C+ ≥ 380 points
A- ≥ 440 points	C ≥ 360 points
B+ ≥ 425points	C- ≥ 335 points
B ≥ 405 points	D+ ≥ 315 points
B- ≥ 395 points	D ≥ 300 points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Attendance 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>.

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 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 <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. 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/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.

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

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.

1. *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
2. U Matter We Care, www.umatter.ufl.edu/
3. *Career Resource Center, First Floor JWRU, 392-1601,* www.crc.ufl.edu/

Distance Classes:

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.

Module and Lecture Schedule
Chats every Tuesday 6-7:30 pm ET
HW Assignments and Discussions are due on Fridays @ 11:55 pm ET
Quizzes and exams are available Sat 6 am through Monday @ 11:55 pm ET
 Exceptions are noted below

<i>Week</i>	Module #	SUBJECT	CHAPTER textbook	Assessment	DUE DATE
		<i>Please Introduce yourself under Discussions</i>		<i>5 bonus points</i>	<i>First week of class</i>
1	Review	Chemistry and Calculations Review <i>First Chat Tuesday August 30, 2016</i>	-	Review module HW # 1	9/2
8/22	1	History of soil fertility	1	Module 1 Discussion	8/26
2	2	Introduction to soil fertility and plant nutrition a. Essential elements, Macronutrients, Micronutrients b. Nutrient movement and uptake by roots	1	<i>Quiz #1</i> <i>Module 2</i>	<i>9/2-6</i> <i>(Mon 9/5 labor day Holiday)</i>
3	3	Nitrogen Chemistry and Environmental Issues a. Function in plant; Deficiency symptoms b. Chemistry & biochemistry in soil c. Environmental issues with N	6	Module 3 HW #2 Module 3 Discussion	Saturday 9/10 9/10
4	4	Nitrogen Fertilizers	11.1	<i>Quiz # 2</i> <i>Module 3 & 4</i>	<i>9/ 17-19</i>
9/12	5	Nutrient Content in fertilizers The Florida Fertilizer Label	Activity exercise handout	Module 5 HW # 3	9/23
5	6	Phosphorus Chemistry and Environmental Issues a. Function in plant; Deficiency symptoms b. Chemistry & biochemistry in soil	7	Module 6 HW #4	9/30
6	7	Environmental issues with P Phosphorus fertilizers	11.2, 11.3, 11.4	<i>Quiz # 3</i> <i>Module 6 & 7</i> Module 7 Discussion	<i>10/1-3</i> 10/7
		<i>Exam 1 (Modules 3-7); chat for exam review/questions Tuesday Oct. 4@ 6pm ET</i>			<i>10/8-10</i>
7	8	Potassium: a. Function in plant; Deficiency symptoms b. Chemistry & biochemistry in soil c. K fertilizers	8	Module 8 HW #5	10/16 <i>(10/14 Homecoming)</i>

<i>Week</i>	Module #	SUBJECT	CHAPTER textbook	Assessment	DUE DATE
8 10/10	9	Soil fertility evaluation	13	Module 9 Activity /Discussion	10/21
9 10/17	10	Fertilizer application rates calculation		Module 10 HW # 6	10/28
10 10/24	11	Calcium, Magnesium, Sulfur: a. Function in plant; Deficiency symptoms b. Chemistry & biochemistry in soil c. Fertilizer sources: Lime, Sulfur	9	Module 11 HW # 7 Quiz # 4 Modules 8 & 11	11/4 11/5-7
11 10/31	12	Micronutrients a. Function in plant; Deficiency symptoms b. Chemistry & biochemistry in soil c. Micronutrient fertilizers	10	Module 12 HW# 8 Quiz # 5 Module 12	11/11 11/12-14
12 11/7	13	Nutrition of Florida crops: Turfgrass (Guest speaker- Dr. Snyder) <i>No chat Tues. Nov. 8 due to Travel</i>		Module 13 Bonus Discussion	12/4
		Exam 2 (Modules 8-12); Chat for exam review/questions Tuesday Nov 15			11/19-22
13 11/14	14	Environmental issues Trace elements Climate change greenhouse gases		Module 14 2 Discussion topics (one for bonus points)	11/28
14 11/21	15	Fertilizer formulations calculations: Rules of working fertilizer problems Mixed fertilizers Fertilizer application methods <i>No chat Tuesday Nov. 22</i> <i>Thanksgiving Holiday Nov. 23-25</i>	14	Module 15 HW # 9	12/2
15 11/28	16	Sustainable Agriculture & Organic Farming		Module 16 Discussion Topic	12/5
16 12/5	17	Nutrition of Florida Crops: Palm trees (Guest speaker Dr. Broschat)		Module 17 Discussion Topic	12/7
		Last chat Tuesday Dec.6 (questions for Quiz 6) Classes end Dec 7; Reading Days Dec 8-9		Quiz # 6 (Modules 14- 16)	12/10 -11