SWS 5050
Soils for Environmental Professionals

Instructor: Dr. Samira Daroub, Professor

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Office hours: Always open. Please call or email me. You can reach me in the Ft. Lauderdale campus on Wednesdays and in Belle Glade the rest of the week.

Course Prerequisites: Good knowledge of chemistry. Graduate Student status or instructor approval

Credit Hours: 3 credits
Times: Class is offered Spring semester every year.
Enrollment Cap: 25
Delivery Method: Web
Out-of-state students should consult the UF Soil and Water Sciences Department Web site for current tuition information http://soils.ifas.ufl.edu/academics/degree-environscience.shtml

Online meetings /Chat sessions: Mondays from 6-7:30 pm ET using Adobe Connect. Chat dates and topics are listed on lecture schedule (in this syllabus). Chat topics and questions are listed under the "Chat" tab on main banner on class website. We will use the same URL for all chats. No need for password, but please log in as a Guest using your full name. You may participate by typing or using a microphone/webcam. You can test your audio and video connections in the test meeting room. Go to http://mbreeze.ifas.ufl.edu/test and enter as a guest. There is also a PDF with details that you can download from the Files pod in the meeting room. More detailed information is posted on class website. Please not all chats are recorded and posted the following day again under the" Chat" tab on main banner.

First chat for spring 2017 is on Monday Jan. 9 @ 6 pm ET

URL for all chat sessions for spring semester 2017 is:
http://mbreeze.ifas.ufl.edu/r9l95i5yo91/

Course Requirements: Students must have a UF e-mail account, high speed Internet access, access to a computer that meets the University of Florida computer standards, and purchase the textbook.

Textbook
The Nature and Properties of Soils by Ray R. Weil and Nyle C. Brady ,2017 **15th edition**. ISBN13: 978-0133254488. The 14th Edition, published by Prentice-Hall, Inc. in 2007 (ISBN-13: 9780132279383) is okay to use. You may order the book from UF bookstore OR on line at https://www.pearsonhighered.com/. Additional reading materials will be posted on class website.

Course Web Site: http://elearning.ufl.edu/ Login **to Canvas** using your Gatorlink username and password. If you are registered for the course, you should see the class listed. Class will be available on Jan 4, 2017 at 7 am. Students must login to class website within the first week of class.

** This course is approved for the Employee Education Program **

Course Overview:
The course is an introductory class in soil science intended for graduate students and professionals in the environmental science area with little or no background in soil science. The course will describe soil physical, chemical and biological properties and processes that determine the fundamental role soils play in the environment.

COURSE GOALS

a. To gain an overall understanding of the soil physical, chemical and biological properties that impact plant growth and the environment
b. To recognize the different soil processes that occur in soils whether is related to water retention, cation exchange capacity or adsorption.
c. To gain a general understanding of nutrient cycles

COURSE OBJECTIVES
After finishing this class, students are able to:

1. Discuss the importance of soil physical properties (soil texture, structure, bulk density and aggregation) on the function of soils
2. Classify and categorize the different soil orders according to their horizons and physical and chemical properties and their suitability of use in various cropping systems.

3. Debate differences in water holding capacity in various soils and solve for water content.
4. Discuss the differences in cation exchange capacity (CEC) and adsorption in various soils and solve for CEC problems.
5. Identify the essential elements (N& P), their functions in the plant and deficiency symptoms
6. Discuss the environmental impacts and Best Management Practices for N & P
7. Debate the management practices of acid, salt-affected and anaerobic soils and solve for liming problems

Students Responsibilities

Students are expected to study the assigned text chapters and lectures prior to lecture coverage during chat time. Students are expected to actively participate in class chat discussions. Chat questions are posted for every week under the "Chat" tab. Please come prepared to discuss the posted questions, but also bring in your questions. In addition, we have a number of graded discussion that are posted on class website.

Exams / HW/ Discussions

There will be three lecture exams, 6 HW and 6 discussions. Exams are administered online. Please note due dates for HW and discussions and submit on-time using the Assignment or the Discussions tab. *Both HW and discussions remain open for 48 hours after due date for a 10% penalty in grade*. Your final grade will be based on the cumulative score for the three lecture exams, homework assignments and participation in chat sessions and discussions. Please do not email HW or discussions- these will not be accepted.

GRADES AND GRADE POINTS

3 exams = 300 points
Homework assignments= 120 points
Discussions = 80 points
In addition, there is an opportunity to earn 15 bonus points on an extra discussion at end of semester for a total of 515 points.

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

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.

Download FREE Flash Player, Adobe Acrobat Reader, and PowerPoint Viewer

- ***Chat sessions are on Mondays from 6-7:30 pm ET***
- ***All HW due on Fridays @ 11:59 pm ET unless otherwise indicated***
- ***All Discussions are due on Sundays @11:59 pm ET unless otherwise indicated***
- ***Both HW and discussions remain open for 48 hours after due date for a 10% penalty in grade.***
- ***Exams are open Saturday @ 6 am thru Monday @ 11:59pm unless otherwise indicated***

Tentative Class Schedule for Spring 2017

Week	**Introduction to Soils**	**Chat dates** Mondays 6-7:30 pm	**Assessment**	**Due Date**
Week 1 1/4	**Module 1: An Introduction to Soils** • Read in the textbook Chapter 1; Soils around us • Review of chemical Principles Handout		Discussion 1 HW 1 Chem Review	Jan. 15 Jan.20
Week 1& 2 1/4 1/9	**Module 2: Soil Physical Properties** • Read Chapter 4; Soil Physical Properties	Chat 1: Jan. 9 Chapter 4	HW # 2 Bulk Density	Jan. 27
Week 3 1/16 *No chat Jan 16 MLK holiday*	**Module 3: Soil Formation** • Read Chapter 2; Formation of Soils from Parent Materials	Chat 2: Jan. 23 Chapter 2		
Week 4 & 5 1/23 1/30	**Module 4: Soil Classification** • Read Chapter 3; Soil Classification	Chat 3: Jan 30 Chapter 3	HW # 3 Soil Classification	Feb. 3
	Exam 1: Modules 1-4 **Feb 4-6, 2017**	*No chat Feb 6*		
Week 6 2/6	**Module 5: Soil Water** • Read Chapter 5; Soil Water • Watch **video** Windows Media Player on How water moves through soil	Chat 4: Feb 13 Chapter 5	HW# 4 Soil water	Feb. 17
Weeks 7 & 8 2/13 2/20	**Module 6: Soil Colloids and Ion Exchange** • Read Chapter 8; Soil Colloids • Study Guides on cation exchange capacity (CEC): Download Practice Problems and Tutorial on CEC	Chat 5: Feb 20 Chapter 8: Chat 6: Feb 27; Chapter 8:	HW # 5 Soil Colloids and CEC	March 3

Week 9 2/27	**Module 7: Soil Organic Matter** • Read: Chapter 12; Soil organic Matter	Chat 7: March 13 Chapter 12	Discussion 2	March 12
Week 10	**Spring Break** **March 4-11, 2017**			
	Nutrient Cycles			
Week 11 3/13	**Module 8: Nitrogen** • Read: Chapter 13; Soil Nitrogen. pgs 542-57	Chat 8: March 20 Chapter 13	Discussion 3	March 19
	Exam II: Modules 5-8 **March 25-27, 2017**	*No chat* *March 27*		
Week 12 3/20	**Module 9: Phosphorus** • Read **Chapter 14; Soil Phosphorus.** pgs 594-622.	Chat 9: April 3 Chapter 14	Discussion 4	April 2
	Environmental Soil Management			
Week 13 3/27	**Module 10: Acid Soils** • Read Chapter 9; Soil Acidity • Download liming calculations example handout • Download practice problems on pH, CEC, and liming handout	Chat 10: April 10 Chapter 9	HW # 6 Acid soils and liming calculations	April 7
Week 14 4/3	**Module 11: Alkaline and Salt Affected Soils** • Chapter 10; Soils of Dry Regions	Chat 11: April 17 Chapter 10	Discussion 5 salt affected soils	April 16
Week 15 4/10	**Module 12: Soil Aeration and Anaerobic Soils** • Read Chapter 7; Soil Aeration pgs. 266-288	Chat 11 April 17 Chapter 7	Discussion 6 Soil Aeration	Wed April 19
Week 16 4/17	Classes end Wed. April 19 Reading days (no classes) Thursday-Friday April 20-21		Bonus Discussion (15 pts)	Wed April 19
	Exam III: Modules 9-12 **April 22-24, 2017**			