

Course Syllabus
SWS 4550/5551 Sp'16
Soils, Water, and Public Health

Instructor

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Meeting Times

M/W/F 2nd period

Meeting Room

3194 McCarty Hall A

Course Description

We highlight important instances where soil and water science and public health considerations overlap, including how humans are exposed to environmental contaminants and how environmental health threats are addressed. Prerequisites: CHEM 2045 & 2046 and BSC 2010 for SWS 4550 enrollees, and graduate status (or consent of instructor) for SWS 5551 enrollees.

Course Objectives

- Describe chemical, physical and microbiological characteristics of soil and water systems
- Describe how those characteristics impact contaminant behavior and the assessment of risk to environmental and public health
- Consider how people think about and make decisions to reduce health risks from soil and water pollution
- Provide case studies of risk assessment, management and mitigation

References (Additional, optional readings will be provided on-line at course website.)

Pepper, Gerba, and Brusseau. 2006. Environmental and Pollution Science 2nd Ed. Academic Press. [e-book, on reserve, available through ARES] – highly recommended

National Research Council, Committee on Research Priorities for Earth Science and Public Health. “Earth Materials and Health.” 2007. National Academy Press, Washington, DC. (link on website, excellent document)

Course Format and Credit

Classes consist of three 50-minute lectures each week. 3 credits

Class Structure

The course is arranged into four units:

In Unit 1, we provide an overview of the many ways soil and water uses relate to public health issues. Once the connections are made, we address basic soil and water properties (physical, chemical, and biological) and processes pertinent to public health issues

In Unit 2, we identify contaminant types, sources, and effects on human and environmental health and how various contaminants behave in the environment.

Unit 3 focuses on assessing the risks posed by contaminants and how the assessments are quantified and influenced by political/value judgments.

Unit 4 focuses on protecting environmental and human health and specific examples of hazard mitigation, including rule development.

Throughout the course, guest speakers and web-based materials will supplement live and videoed lectures. Periodic homework assignments are designed to help you make connections between the material and real-life applications. Lectures, readings and class activities will inform a semester-long case study of waste and waste constituent fate, transport, and impacts on/risks to public health and their mitigation.

Student Responsibilities

- *Attendance and reading:* Students are expected to attend all classes and to participate in class discussions and exercises.
- *Handing in assignments:* Unless otherwise stated, all assignments are due at the beginning of class on the due date - hard copies. Assignments will be marked down 20% for each day late, unless prior arrangements have been made.
- *Common courtesy:* Cell phones and other electronic devices must be turned off during class unless they are used to view PowerPoints on the course Sakai site.

Student Evaluation

- Three 1-hour exams, each worth 100 points (undergraduates), or 125 points (graduates). Make up exams are rarely authorized must be medically justified and authenticated.
- Periodic homework assignments and unannounced in-class activities (100 points total value).
- A term project, optional for undergraduates, is required for graduate students (100 points). Students develop packaged information or write a paper on a topic relevant to the course material. The term project subject matter will be selected by the student in consultation with the instructor and **agreed to ≤ March 16, 2016, when the (graded - 5%) final outline is due.**
- Course grades are determined by summing all scores, dividing by the maximum score possible and multiplying by 100: 100-92% = A, 91-90% = A-, 89-87% = B+, 86-82% = B, 81-79% = B-, 78-75% = C+, 74-70% = C, 69-65% = D+, 64-60% = D, <59% = E. See also UF policies at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.
- Instructor reserves the right to **add 0-5 points** to the final percentage score based on class participation, dedication, and overall student effort.

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. The 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/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. 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 wellbeing are encouraged to utilize the university’s counseling resources. The Counseling and 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 and Wellness Center*, 3190 Radio Road, 392-1575,
www.counseling.ufl.edu
 - *Counseling Services*
 - *Groups and Workshops*
 - *Outreach and Consultation*
 - *Self-Help Library*
 - *Wellness Coaching*
- *Career Resource Center*, CR-100 JWRU, 392-1601, www.crc.ufl.edu/

TOPIC OUTLINE

SWS 4550/5551 Sp'2016

SOILS, WATER AND PUBLIC HEALTH

<u>Topic</u>	<u>Approximate # Periods</u>
I. Course introduction	1
-----UNIT 1-----	
II. Overview: Soils, Water and Public Health Interactions 4 lectures + Guest speaker	5
Martin Luther King Day – Jan 18 - No class	
III. Fundamentals	11
A. Soils (3) – 2 lectures + Dust Bowl viewing	
B. Water (2) – 2 lectures + RLO	
C. Biological (1) – 1 lecture	
D. Public/Environmental Health (2) – Video + 2 RLOs	
E. Risk Assessment (1)	
F. Semester Case Study (1) – 1 lecture	
G. Review session or Guest lecture (1)	
<u>Test # 1 (~Feb 15)</u>	1
-----UNIT 2-----	
IV. Contaminant Types, Sources, and Effects	5
A. Physical (1)	
B. Chemical (1)	
a. Inorganic	
b. Organic	
C. Biological (2)	
D. Case Study-Part 2 (1)	
Spring Break (Feb 27 – Mar 5) - No class	

V. Contaminant Fate and Transport	5
A. Physical Influences (1)	
B. Chemical Influences (2)	
C. Biological Influences (2)	

Term Paper/Project Outline due Mar 16

<u>Test # 2 (~Mar 18)</u>	1
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-----UNIT 3-----

VI. Assessing Human and Environmental Risk	6
A. Risk Assessment (2)	
B. Risk Management (2)	
C. Risk Communication (2)	

-----UNIT 4-----

VII. Protecting Environmental and Human Health	7
A. Rule Development	
B. Hazard Mitigation	
C. Case Studies	
D. Guest Presentations	

Term Paper/Project due April 18

Last Day of Classes April 20

Test # 3 April 20

Potential, Optional, Comprehensive Final April 29