SWS4550/5551: Soils, Water and Public Health

Spring 2026 **3 Credits**

Instructor	**Teaching Assistant**	**Teaching Assistant**
Masa Fujimoto, PhD mfujimoto@ufl.edu (352) 294-3131 G157 McCarty Hall A OH: By appointment	Alireza Ghaderi Bafti a.ghaderibafti@ufl.edu OH: By appointment	Anik Mahmud md.mahmud@ufl.edu (859) 317-3097 OH: By appointment

Course meeting time/locations:

On campus sections:

Time: Tuesday and Thursday | Period 6 – 7: 12:50 PM - 2:45 PM
Location: Room G001 McCarty Hall D
Tuesdays: Review of previous module, overview of current module, and short lectures
Thursdays: In-class activities
Attendance counts as participation points.

Online sections:

Fully online. Chat sessions will be held in each module on Thursday at 6:30 pm ET. These chat sessions are designed to provide interactions between students and serve as excellent opportunities to review the module materials. Chat sessions count as participation points.

Course Prerequisites:

- Undergraduate: CHEM 2045 and 2046 and BSC 2009 or 2010 – or consent of instructor
- Graduate: none

Course Description and Goal:

The course explores important instances where soil/water science and public health intersect; how pollutants are released to environments through anthropogenic activities, how pollutants are transferred in the environments, how humans are exposed to environmental contaminants, and how public health threats are addressed. The overarching goal of the course is for students to take an integrative approach to characterizing, evaluating, and managing current public health problems by applying basic concepts from the fields of soil/water science and public health.

Course Learning Objectives:

Upon successful completion of the course, the student will be able to:

- Describe basic soil characteristics and physical/chemical/biological processes that enable preliminary estimates of how various contaminants may move, react, and dissipate in dynamic soil and aquatic environments
- Describe various physical, chemical, biological contaminants including emerging pollutants
- Describe factors which influence exposure and health outcomes as they relate to water/soil properties, and water/soil management
- Describe processes of toxicology and risk assessment for cancer and other chronic diseases
- Explain how risk evaluations develop into standards (for example, drinking water standards)
- Understand social factors that could affect disproportionate exposure to environmental hazards
- Highlight important and/or innovative strategies and techniques from the field of soil and water science that serve to protect and promote public health

Course structure:
The course is organized by modules and each module will cover specific topic(s) related to the course theme(s). Modules will consist of four main components: Discussion Board, Assignment, Quiz and in-class activities (for on-campus section)/online chat sessions (for online section). Discussion Board and in-class activities (for on-campus section)/online chat sessions (for online section) will provide opportunities to learn topics through interactions with classmates, while assignments are designed to practice ideas and concepts each student has learned. Quizzes are designed to assess the understanding of the materials covered in each module. In addition to these module components, students will take two exams during the course, which will be used to evaluate comprehension of the themes covered during the course and to apply knowledge and skill to new problems. Students will also develop their own term project related to soil, water and public health themes.

Topics covered in the course modules:
Topics covered include: History of pollution science, soil properties and functions, substances/nutrient cycle through soil and water, type of pollutants, fate of pollutants/disease agents, route of exposure, acute and chronic exposure, toxicology and risk assessment, various case studies, superfund sites, brown fields, contaminants of emerging concern, waste management, environmental justice, ecological health and one health, regulation, and technological solutions

Course Website: Course website is managed through E-Learning Canvas: https://elearning.ufl.edu/

Textbook: Required

" Environmental and Pollution Science", 2006. 2nd Edition, Academic Press, by Pepper, Gerba, and Brusseau, is available online as an ebook via the UF Library. Students will have access to the online ebook through the UF library.

***Note: Additional lecture materials will be provided on the class web page in Canvas.

Grading Structure:

Exams (2 exams)	20%
Term Project	20%
Module Assignments	20%
Module Quizzes	20%
Module Discussion Board	10%
In class activities or online chat session participation	10%
TOTAL	**100%**

Final grades will be based on 2 exams, term project, assignments, quizzes, discussion board and in class activities / online chat session participation.

Exams:
Students will take two exams during the course. Each exam is designed for 60 min but students can spend 90 min to complete the exam, so answers should not be limited by time. Each exam consists of multiple-choice questions (just like quizzes) and essay questions. Make-up exams will be approved only due to extended illness or excused class activities. Make-up exams must be approved prior to the regularly scheduled exam, and must be made-up within 3 days. If you are unable to take the exam due to illness, please call the instructors prior to the exam to confirm your absence.

Participation: In class activity (on campus section) or online chat session (online sections)
In class activities (on campus section) or online chat sessions (online sections) participation accounts for 10%. For online sections, students can earn participation points by simply attending live online chat sessions or by watching the recorded chat sessions and submitting answers to the chat group discussion questions within 2 days following the chat sessions (with this way, online section students can make the online course completely asynchronous). Chat sessions are scheduled for **Thursday at 6:30 pm (EST)** through the Zoom link on the web page.

Discussion Board:
Topics for Discussion Board will be provided in modules. Students are required to submit a response to these topics/questions as well as respond to at least **3** other student responses for full credits.

Assignments:
Assignments are designed to practice ideas and concepts each student learned during the modules. Submission of assignments is expected on time. Late work will lose 10% of total points.

Quizzes:
Quizzes for modules are scheduled in the first week after the module ends (the first Monday following the previous module). Quizzes are used for you to evaluate whether you obtained knowledge and concepts that were covered in each module. They are meant as a study aid for exams as well. Correct answers will be available after each quiz closes.

Project:
The project will consist of a project presentation and a short project paper (2 pages long). More details about the term project will be given in class. Graduate students are expected to put more efforts on the project including the number of pages (5 pages long for project paper), number of cited literatures, and quality of writing.

Grading scale:
The following grading scale will be used:

A	**100-90.0 %**	**C**	**76.99-70.00**
B+	**89.99-87.00**	**D+**	**69.99-67.00**
B	**86.99-80.00**	**D**	**66.99-60.00**
C+	**79.99-77.00**	**E**	**<60**

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

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-conducthonor-code.

Academic Policies:
Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

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.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,* **https://counseling.ufl.edu/**
- Campus Health and Wellness Resources
  Visit **https://one.uf.edu/whole-gator/topics** for resources that are designed to help you thrive physically, mentally, and emotionally at UF.
- Please contact **UMatterWeCare** for additional and immediate support.
- *Career Resource Center,* First Floor JWRU, 392-1601, **www.crc.ufl.edu/**
- UF Computing Helpdesk: Technical Support: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week.
  https://helpdesk.ufl.edu/ | 352-392-4357

DUE DATES AND DEADLINES

ALL ASSIGNMENTS IN SWS 4550_5551 ARE DUE AT 11:59 PM (EST) ON THE DUE DATE

COURSE MATERIAL	ACTION	DUE DATE	TIME
Module 1 – Course introduction and overview (1 week)	**Begin**	**Monday, January 12, 2026**	9:00 AM
View/read Module 1 Materials:			
Course Overview / Go over syllabus			
Live chat session (Module 1)-(only for online section!)	*Live*	Thursday, January 15, 2026	6:30 PM
Discussion Board Module #1 - Your Response	*Due*	Thursday, January 15, 2026	11:59 PM
*Discussion Board Module #1 - Respond to **at least** 3 students*	*Due*	Saturday, January 17, 2026	11:59 PM
Module 2 – Soil & Water property, function, and cycle (2 weeks)	**Begin**	**Tuesday, January 20, 2026**	9:00 AM
View/read Module 2 Materials:			
Live chat session (Module 2)-(only for online section!)	*Live*	Thursday, January 29, 2026	6:30 PM
Discussion Board Module #2 - Your Response	*Due*	Wednesday, January 28, 2026	11:59 PM
*Discussion Board Module #2 - Respond to **at least** 3 students*	*Due*	Friday, January 30, 2026	11:59 PM
Assignment (Module 2)	*Due*	Friday, January 30, 2026	11:59 PM
Complete Quiz (Quiz Module 2)	*Due*	Monday, February 2, 2026	11:59 PM
Module 3 – Type of pollutants and exposure (1 week)	**Begin**	**Monday, February 2, 2026**	9:00 AM
View/Read Module 3 Materials:			
Live chat session (Module 3)-(only for online section!)	*Live*	Thursday, February 5, 2026	6:30 PM
Discussion Board Module #3 - Your Response	*Due*	Wednesday, February 4, 2026	11:59 PM
*Discussion Board Module #3 - Respond to **at least** 3 students*	*Due*	Friday, February 6, 2026	11:59 PM
Complete Quiz (Module 3)	*Due*	Monday, February 9, 2026	11:59 PM
Module 4 – Fate of pollutants and disease agents (1 week)	**Begin**	**Monday, February 9, 2026**	9:00 AM
View/Read Module 4 Materials:			
Live chat session (Module 4)-(only for online section!)	*Live*	Thursday, February 12, 2026	6:30 PM
Assignment (Module 4)	*Due*	Friday, February 13, 2026	11:59 PM
Complete Quiz (Module 4)	*Due*	Monday, February 16, 2026	11:59 PM
Module 5 – Toxicology and risk assessment (2 weeks)	**Begin**	**Monday, February 16, 2026**	**9:00 AM**
View/Read Module 5 Materials:			
Live chat session (Module 5)-(only for online section!)	*Live*	Thursday, February 26, 2026	6:30 PM
Assignment (Module 5)	*Due*	Friday, February 27, 2026	11:59 PM
Discussion Module #5 - Your Response	*Due*	Wednesday, February 25, 2026	11:59 PM
Discussion Module #5 - Respond to at least 3 other students	*Due*	Friday, February 27, 2026	11:59 PM
Complete Quiz (Module 5)	*Due*	Monday, March 2, 2026	11:59 PM

Module 6 – Man made pollution (case studies) (2 weeks)	**Begin**	**Monday March 2, 2026**	9:00 AM
View/Read Module 6 Materials:			
Live zoom session (Mid-term exam Q&A)*No participation point	*Live*	Thursday, March 5, 2026	6:30 PM
Live chat session (Module 6)-(only for online section!)	*Live*	Thursday, March 12, 2026	6:30 PM
Discussion Board Module #6 - Your Response	*Due*	Wednesday, March 11, 2026	11:59 pm
Discussion Board Module #6 - Respond to at least 3 students	*Dur*	Friday, March 13, 2026	11:59 pm
Complete Quiz (Module 6)	*Due*	**Monday, March23, 2026**	11:59 PM
Begin work on your Term Project		**Do not wait until last minute!**	
Exam 1		**Module 2 through Module 5**	
Exam 1	***Opens***	**Friday, March 6, 2026**	**Noon**
	Closes	**Tuesday, March 10, 2026**	**11:59 PM**
Spring Break		**March 16 – March 20, 2026**	**Enjoy!!!!!**
Module 7 – Contaminants of Emerging Concern (1 week)	**Begin**	**Monday, March 23, 2026**	9:00 AM
View/Read Module 7 Materials:			
Live chat session (Module 7)-(only for online section!)	*Live*	Thursday, March 26, 2026	11:59 pm
Discussion Module #7 - Your Response	*Due*	Wednesday, March 25, 2026	11:59 pm
Discussion Module #7 - Respond to at least 3 other students	*Dur*	Friday, March 27, 2026	11:59 pm
Complete ***Quiz (Module 7)***	*Due*	Monday, March 30, 2026	11:59 PM
Term Project Topic Due	*Due*	**Friday, March 27, 2026**	11:59 PM
Module 8 – Waste management (1 week)	**Begin**	**Monday, March 30, 2026**	9:00 AM
View/Read Module 8 Materials:			
Live chat session (Module 8)-(only for online section!)	*Live*	Thursday, April 2, 2026	*6:30 pm*
Assignment Module 8	Due	Friday, April 3, 2026	**11:59 pm**
Complete ***Quiz (Module 8)***	*Due*	Monday, April 6, 2026	11:59 PM
Module 9 – Ecological health and Environmental Justice (1 week)	**Begin**	**Monday, April 6, 2026**	9:00 AM
View/Read Module 9 Materials:			
Live chat session (Module 9)-(only for online section!)	*Live*	Thursday, April 9, 2026	*6:30 pm*
Discussion Board Module #9 - Your Response	*Due*	Wednesday, April 8, 2026	11:59 pm
Discussion Board Module #9 - Respond to at least 3 students	*Due*	Friday, April 10, 2026	11:59 pm
Complete ***Quiz (Module 9)***	*Due*	Monday, April 13, 2026	11:59 PM

Module 10 – Regulation & Technological solutions (1 week)	*Begin*	**Monday April 13, 2026**	*9:00 AM*
View/Read Module 10 Materials:			
Live chat session (Module 10)-(only for online section!)	*Live*	**Thursday, April 16, 2026**	11:59 pm
Discussion Board Module #10 - Your Response	*Due*	Wednesday, April 15, 2026	11:59 pm
Discussion Board Module #10 - Respond to at least 3 students	*Due*	Friday, April 17, 2026	11:59 pm
Complete ***Quiz (Module 10)***	*Due*	Monday, April 20, 2026	11:59 PM
Module - Term Project Week (1 week)	*Begin*	**Monday April 20, 2026**	**9:00 AM**
In class project presentation (on campus section)	***Live***	**Tuesday April 21, 2026**	***12:50 pm***
Online project presentation in VoiceThread (online section)		**Tuesday April 21, 2026**	***11:59 pm***
*Live zoom session (QA for final exam)*No participation point*	*Live*	Thursday April 23, 2026	*6:30 pm*
Discussion Board (Your response: Share project summary)	*Due*	Wednesday April 22, 2026	*11:59 PM*
Term Project paper	***Due***	**Friday April 24, 2026**	***11:59 pm***
Watch presentations & Provide comments/questions (Online Sec)	***Due***	**Friday April 24, 2026**	***11:59 pm***
Discussion Board (Respond to at least 3 classmates)	*Due*	Friday April 24, 2026	*11:59 PM*
Final Exam		**Module 6 through Module 10**	
Final exam	***Opens***	**Friday April 24, 2026**	***Noon***
	Due	**Tuesday April 28, 2026**	***11:59 pm***

Note: