

Soil, Water, and Land Use
SWS 4231 (Undergraduate) | SWS 5234 (Graduate)

COURSE SYLLABUS
Fall 2020

Instructor

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Office hours by appointment

Class Motto

“That which can be learned sitting down is not worth learning.” –paraphrased from an Apache saying

Meeting Times

“On Campus” Sections – Tuesday 1:55-2:45pm (period 7) | Thursday 1:55-4:55pm (periods 7-9)

Distance Education Sections – We will hold a roughly 2.5 hour long bi-weekly (every other week) meeting. The specific dates and times for these meeting will be determined collectively.

Meeting Places

All meetings will be conducted electronically via Microsoft Teams. An internet connection, video camera, microphone, and speakers are thus required.

Required Reading

“Big World Small Planet: Abundance within Planetary Boundaries” by Johan Rockstrom and Mattias Klum (2014, Bokforlaget Max Strom)

Course Overview and Objectives

Humans are the primary drivers of change on Earth’s surface. Our decisions regarding land use are omnipresent mechanisms by which we enact these changes, and their consequences transcend terrestrial, atmospheric, aquatic, and marine boundaries. Sometimes our land use decisions work for our benefit, sometimes they do not, and sometimes a sound idea in the short-term turns out to have unforeseen and negative long-term results.

The objectives of this class are four-fold:

- (1) to establish fundamental knowledge associated with the drivers, management, and environmental implications of common land uses,
- (2) to develop the ability to compare and contrast how various land uses impact Earth Surface processes and thus human well-being,
- (3) to gain direct exposure to environmental considerations and management of prominent land uses in Florida, and
- (4) to enhance quantitative abilities as well as the student’s written and spoken voice.

To accomplish these goals this course will operate at the ecosystem scale with explicit consideration of how Earth’s terrestrial, atmospheric, aquatic, marine, and human systems are connected. The class will approximately be divided into three sections: forests, urban, and agricultural... but we’ll always keep an eye on relationships among these particular land uses. Tuesday meetings (50 minutes) will be dedicated to in class lectures. Thursday meetings (up to but rarely 3 hours) will be dedicated to a combination of “virtual” field trips and discussions with experts to evaluate a specific land use and/or management scenario.

Assignments (Undergraduate and Graduate Level)

Special Topic Argument: Students will write a one-page (single spaced) document, including one figure or table, arguing for the inclusion of a “special topic” lecture. This document should (1) sufficiently outline an environmental problem or process, (2) discuss its relationship to land use, and (3) construct a well-reasoned argument as to why this particular “special topic” should be included in our Tuesday lectures.

Op-Ed: Student will write an Op-Ed (or Letter to the Editor) on a topic of their choosing. The topic however must be related to soil, water, and/or land use. This document should be written in such a way that layperson can understand it, and perhaps even learn something from it. To receive credit for this assignment the document must be submitted for publication in an appropriate outlet. Depending on the outlet, Op-Eds are usually less than 750 words.

Finger Exercises: To develop/enhance quantitative abilities a total of 5 finger exercises (25 point each) will be assigned throughout the semester. These exercises will predominately be mathematical in nature, they are relatively simple, and are not designed to occupy inordinate amounts of your time. Rather, like the pianist who exercises fingers and develops muscle memory by playing the same song over and over, these exercises are aim to develop students “muscle memory” related to basic yet monumentally important quantification of soil and water properties and processes. As long as particular exercise is turned in on time, right or wrong, you will never receive less than 15 points.

Quiz: There will be one quiz (ie. a final exam). Anything covered in class or during field trips is fair game, it will be almost entirely short answer questions with some definitions and multiple choice.

Reading Discussions: Our required text is written for the masses, not a textbook. We will have two in-class discussions (see below) about the contents of this book. You will be graded on your participation and collegiality during this discussion. (FYI- these discussions are structured in such a way to make it very obvious who’s read, and who hasn’t)

Participation: Because an appreciable portion of our time will be discussing and interacting amongst ourselves and with environmental professionals, your participation and engagement during these activities are central to enrich these opportunities. Subsequently points are available to encourage your attendance and participation (easy money!).

Assignments (Graduate Level Only)

“On Campus” Sections – Special Topics Presentation: Based on the Special Topic Arguments (above), Special Topics will be selected. Graduate students will be placed into pairs, and each pair will be tasked with developing a Special Topics Lecture. Over the course of the semester each group will work together to research, compile, and ultimately deliver a 30 minute educational lecture to the class. Because each group will have more than half semester to construct their Special Topics Lectures, regardless of the topic, these lectures are expected to be of remarkably high quality. Students will be graded as a team.

Distance Education Sections – Soil Water and Land Use Presentation: Each of you, as distance education students, can add tremendously to our collective education because you are located and working in a variety of geographic and disciplinary areas. Subsequently you will be assigned to deliver an roughly 30 minute presentation that outlines a particular soil, water, or land use/management issue in your area. Ideally the topic of your presentation comes from your own work. Examples of exceptionally good presentations will be provided to you.

Late / Missing Assignments

Late or missing assignments will not be accepted unless arrangements have been made with the instructor or medical justification has been authenticated. Similarly, make-up quizzes will not be authorized unless prior arrangements have been made with the instructor or medical justification has been authenticated.

Grading

<u>Undergraduate</u>	(points)	<u>Graduate</u>	(points)
Special Topic Argument	75	Special Topic Argument	75
Op-Ed	75	Op-Ed	75
Finger Exercises (5 in total)	125	Finger Exercises (5 in total)	125
Quiz	100	Quiz	100
Reading Discussion #1	50	Reading Discussion #1	50
Reading Discussion #2	50	Reading Discussion #2	50
Participation	75	Field Participation	75
		Presentation	100
TOTAL	550	TOTAL	650

Final letter grades will be determined by summing all points accumulated by each student, dividing by the total number of points possible, and multiplying by 100%. Letter grades will be assigned as follows on a final percentage (%) basis:

100-94=A	93-90=A-	
89-87=B+	87-84=B	83-80=B-
79-77=C+	77-74=C	73-70=C-
69-60=D		
<59=E		

Academic Honesty

We have committed to uphold the University of Florida Honor Code. It can be found here, <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Approximate Topical Timeline

Sept 1	Familiarize ourselves with MS Teams
Sept 8	Class Introduction Syllabus Overview
Sept 15	Things we hold to be self-evident: primer for soils, water, and land use change
Sept 22	Global trajectories, drivers, and implications of land use change
Sept 29	Regional trajectories, drivers, and implications of land use change
Oct 6	Soil and Water in the Forest Ecosystem I
Oct 13	Soil and Water in the Forest Ecosystem II
Oct 20	Soil and Water in the Urban Ecosystem I
Oct 27	Soil and Water in the Urban Ecosystem II
Nov 3	Soil and Water in the Agricultural Ecosystem I
Nov 10	Soil and Water in the Agricultural Ecosystem II
Nov 17	Soil Survey and Digital Soil Information
Nov 24	Special Topics Lectures
Dec 1	Special Topics Lectures
Dec 8	Quiz Review

Other Important Temporal Considerations

Mid Oct	Book Discussion #1
Mid Nov	Book Discussion #2
Dec 8	Quiz available (take home / open book)
Dec 17	Quiz due by midnight (submit through MS Teams)