

Course Syllabus-Graduate Students

SWS 4207/5208, Fall 2015

Sustainable Agricultural and Urban Land Management

3 Credits, Distance Education

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Please view the Course Introduction video on Canvas under the course Home Page.

Course Overview: Protecting the state's water from nutrient contamination depends on adopting best management practices (BMPs) for land and nutrient management in the urban and agricultural settings. BMPs must be based on science and be practical and economical to adopt, while meeting society's needs. This course will cover the agricultural and urban water quality issues in Florida, their bases, land and nutrient management strategies, and the science and policy behind the BMPs. We will focus on plant and crop systems but will touch on animal systems. The first part of the course will focus on agricultural systems and the latter part of the course will focus on urban systems. Students will learn to evaluate BMP research and analyze its role in determining practices and policies that protect water quality. We will see how the "triple bottom line (environment, society, and economics) interact in our decision-making process about BMPs.

Course goals:

During this course students will learn to:

- Recognize the complexity of environmental problems and their solutions
- Examine the types of environmental issues associated with agriculture and urban areas in the world, the US, and Florida
- Explain the background of environmental regulation and the current regulations pertaining to water quality in the US
- Compare and contrast the relationships among economic, societal, and environmental components to decision-making for agriculture and urban environmental policy
- Evaluate agricultural and urban best management practices for water and nutrients that are protective of the environment

Following this course, students are expected to be conversant in the major environmental issues of the time. They should be able to discuss issues from three perspectives: environmental, economic, and society. Students are expected to be able to read and analyze research literature dealing with sustainability of agriculture and urban land management.

Why this course is important for you: Some of you are already in a related profession or would like to work in the environmental management area. This course will help you prepare for the following professions: Public and private positions in managing natural resources, consulting with farmers and land managers about soil, nutrient, and water management, county extension positions in natural and agricultural resources, governmental advisors for soil and nutrient management, storm water engineering and urban planning, environmental protection agency scientist, international development, producer of food, fiber, and nursery crops, and positions in public and private education and research, including the pursuit of an advanced degree.

Class format: All course materials are found in Canvas, our course management system (<https://lss.at.ufl.edu/>). The course is comprised of 15 topic/content modules. Each module is comprised of several lecture segments; segments vary from approximately 15 to 25 minutes in length with a “Pause” slide at the end of each segment. This arrangement will allow you to take breaks at relatively short intervals and be able to easily find where you left off. Each module will also include important readings and often a video that will supplement the lecture presentations. These materials should be reviewed prior to the first lecture in the module.

The first 14 modules will conclude with a quiz on the content that has been delivered. The quiz will be taken through Canvas on the class day immediately following the final lecture for that particular module. Quiz opening and closing times will be visible in the quiz tab and calendar in Canvas. Module 15 will serve to summarize the big-picture topics we studied during the semester and point to the future.

Students will be allowed to drop two quiz scores. Quizzes are strictly “closed-book” assessments. There will be no use of reference materials, class notes, power points, or any other assistance. Students will forfeit the grade for any quizzes in question.

There will be no exams, and no final exam, during the semester.

We will have six (6) discussion topics for everyone to delve into the subject matter. These discussions will be for all students to participate in and will be posted on the Canvas site. The discussion topics will be related to the current module(s). Everyone will be expected to participate in the discussions. Course instructor will monitor discussions.

We will have five (5) Homework question/problem sets associated with relevant modules where students will answer situational questions from the lectures or readings or videos and solve math problems dealing with real-world environmental and agricultural situations.

Class participation/engagement: Students will be expected to be active in participating in the course. Participation points are accumulated by: posting general questions and comments from your own experience (outside of the Discussions), suggesting recent topics or media articles and scientific papers for class benefit, commenting on graduate student Voice Threads, and other evidence of engagement that benefits the class and students.

Graduate student project: Graduate students will complete a project covering a sustainability topic of their choice (would rather the project not be your graduate research project). The topic should be covered in format similar to an Extension fact sheet (see <http://edis.ifas.ufl.edu> for examples). The information will be written in fact sheet style in no more than 7 type-written, double-spaced pages, including appropriate tables, figures, or other illustrations, and a short list

of references. The information also will be presented to the class via Voice Thread <http://voicethread.com/>.

Enrollment: Up to 25 to 30 students (undergrads + graduates)

Prerequisites: Introduction to Soils (SOS 3022 or equivalent) is desirable or approval of instructor. Other prerequisites include:

- Interest in learning how to solve environmental problems using science
- Open mind to look at sustainability issues from various viewpoints
- Interest in engaging in discussion about sustainability

Textbook: None required. Readings will be assigned for each module of the course.

Special Software: None required

Course management system. We will use Canvas for managing the course including posting lectures, readings, homework, and other important items using the module system. Please view the Canvas tutorial (on our home page) prior to coming to the first class.

Student Assessment:

Quizzes - 14 (can drop lowest 2 scores) @ 25 points each	300
Homework - 5 @ 50 points each	250
Discussions - 6 discussions @ 50 points each	300
Presentation Project (graduate students only)	250
General class participation/engagement	150
TOTAL	1250 points

Students will be required to abide by the following statement that will accompany each quiz, homework, or project:

“I hereby acknowledge that the work represented in this assignment is entirely my own; I have neither given nor received help from anyone, other than the course instructor, regarding any questions or problems in this assignment.”

Grading:

We will use the following grading for the course:

- A 90 – 100%
- B 80 – 89%
- C 70 – 79%
- D 60 – 69%
- E < 60%

Outline of Course:

Module 1: “Big-picture” environmental and food production issues, and the “triple bottom line.” We will look at some major water quality problems in Florida, the U.S., and the world. We will outline the major agricultural enterprises in Florida and how they impact the state’s economy.

Module 2: Environmental regulations – federal, state, and local, and how they impact agriculture and urban areas. We will study the history of environmental regulations in the U.S. and learn the difference between point and non-point sources of water pollution.

Module 3: Nutrient inputs, cycling, and outputs. We will study the carbon, nitrogen, and phosphorus cycles. Knowledge about the nutrient cycles will help formulate best management practices to reduce pollution.

Module 4: Nutrient mass budgets and nutrient use efficiency concepts. We will learn about nutrient mass budgets and their use in developing and revising best management practices so that we focus on the important sources of pollution.

Module 5: Best management practices (BMPs) for soil management and conservation. Soil is the most important asset a farmer has and is basic to life, so that its management is critical to the sustainability of agriculture. We will learn about the history and current use of soil conservation practices.

Module 6: Best management practices for nutrient management especially nitrogen and phosphorus. We will learn about specific practices that farmers can use to keep nutrients in the root zone for plant utilization and not for pollution. We will focus on N and P since these two nutrients are needed in significant amounts for crop production and are most often associated with water pollution.

Module 7: Water and its use in Florida. We will study the hydrologic cycle and learn about water use in Florida for agriculture. We will learn the source of water that agriculture uses and how it is used.

Module 8: Agricultural irrigation management. Water is critical for successful crop production but its management is tied to nutrient losses from farms. Excessive irrigation can lead to leaching or runoff of nutrients. We will learn how to determine how much water plants need and how to efficiently apply water.

Module 9: There are many ways crops and food can be produced. We will learn about some of the alternative crop productions systems, including organic, urban, hydroponics.

Module 10: Animal agriculture is a large part of the agricultural economy in this country and Florida. We will take a look at food livestock production systems, management of wastes, and sustainability issues.

Module 11: Urban soils and management impacts on the environment. Urban areas are prone to nutrient losses, so we will study urban areas, the urban soils and their management. They can be

different from agricultural soils but their management is important to preventing loss of soil and nutrients to the environment.

Module 12: Urban water quality, storm water, “Low-Impact Development,” and “Florida-Friendly Landscaping.” In this section we will study various approaches to managing urban plants and landscapes to make efficient use of water and nutrients.

Module 13: Urban water and nutrient BMPs. In this section we will study water and nutrient management BMPs for the urban landscape.

Module 14: Reclaimed water use in urban areas; what is it? Where does it come from? And how is it used in urban landscapes? and The Florida Friendly Landscaping Program at UF; what is the FFL program and who can use it?

Module 15: Toward sustainability – where are we headed? This section will teach us how far we have come in achieving sustainability. What more do we have yet to accomplish?

Student Responsibilities and Expectations:

Students will be responsible for all material covered in lectures and all additional reading assignments and supplementary materials, such as videos and websites.

Students are expected to be engaged in each class module by posing questions to the class through the discussion boards, answering questions, and providing input for discussions. Sharing our thoughts and observations about course topics and discussions helps everyone’s learning experience.

Discussions: Students are responsible for being actively engaged and timely in the discussions. Comments are expected to be substantive contributions; not simply “I agree” or “I don’t agree.” Students should not wait until the end of the discussion to make their first contribution. Your first post must be made by the midpoint of the weekly period for the discussion topic. Students responsible for making the first posts for a particular discussion must start the discussion off within the first two days of the discussion topic opening.

Here are the “starters” for this semester:

- Discussion #1: Students with last names beginning with A through E
- Discussion #2: Students with last names beginning with F through I
- Discussion #3: Students with last names beginning with J through M
- Discussion #4: Students with last names beginning with N through R
- Discussion #5: Students with last names beginning with S through V
- Discussion #6: Students with last names beginning with W through Z

Anybody can be a “Starter” but at a minimum the official starters must make the first post within two days. More information will be provided in class or Canvas.

There will be homework question and problem sets. Students will be expected to turn in homework on time and in their own words.

Readings and videos will be assigned that will supplement class lecture and discussion material. Students are expected to review the materials. Discussions and some quiz questions will come from the supplementary material.

All students are expected to engage and comment on the Graduate Student project presentation via Voice Thread. Details will be provided.

Quizzes are NOT “open-book.” Quizzes will be completed by the student without assistance from any source, including class notes, internet, colleagues, or any other source.

Important Dates:

Quizzes will be given via Canvas for each module on the first class period following completion of a module.

The quizzes will open at 6:00 AM and close at 11:59 PM.

A total of 45 minutes will be allotted for each quiz.

Homework and discussion boards will alternate each week. They will be opened at 6:00 AM on Monday and be closed at 11:59 the following Monday.

Absences 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>.

There will be **no quiz make-up** without a prior written, valid, documented excuse.

Make-up assignments and assessments will be approved only due to illness or extreme family needs, or important excused activities required by another class. Make-ups must be approved prior to the regularly scheduled assessment, and must be made-up within two class periods. If you are unable to complete the make-up due to illness, contact the instructor prior to the exam to confirm your absence.

Holidays:

Labor Day, September 7

Homecoming, November 6

Veterans Day, November 11

Thanksgiving, November 25-27

Students are responsible for **all** material covered in **class** and the **supplemental materials**. Supplemental materials, such as new publications or other new information may be added to the module during the semester to update or add to presented information.

Make-up of class work and Homework Assignments: The student must have a legitimate excuse which could include official University business (i.e., field trips, field sampling trips for thesis/dissertation research, etc.) or sickness.

Accommodations for Students with Disabilities: Students requesting classroom or laboratory 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/

Academic Honesty: As a result of completing the registration form at the University of Florida, every student has signed the following statement: “I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty, and understand that my failure to comply with this commitment may result in disciplinary action, up to and including expulsion from the University”. *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*

UF Counseling Services: Resources are available on campus for students having personal problems or lacking clear career and academic goals, which interfere with their academic performance. These resources include: 1) **University Counseling Center**, 301 Peabody Hall, 392-1575, personal and career counseling; 2) **Student Mental Health**, student Health Care Center, 392-1171, personal counseling; 3) **Sexual Assault Recovery Services (SARS)**, Student Health Care Center, 392-1161, sexual assault counseling; and 4) **Career Resource Center**, Reitz Union, 392-1601, career assistance and counseling.

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.

Distance Course issues: Should you have any complaints with your experience in this course please visit <http://www.distance.ufl.edu/student-complaints> to submit a complaint.”

Topics and estimated dates for Fall, 2015:

Class period	Module	Day	Date	Topic
1	1	M	8/24/2015	Introduction to agricultural challenges, societal issues, environmental issues, economic challenges
2	1	W	8/26	Introduction to agricultural challenges, societal issues, environmental issues, economic challenges
3	1	F	8/28	The importance of agriculture worldwide

4	1,2	M	8/31	Scope of agr in US and in FL; Envir. regulations
5	2	W	9/2	History of environmental regulations, The Clean Water act, federal, state, local.
6	2,3	F	9/4	Environ. regs., The Clean Water act, federal, state, local. Begin nutrient cycling
		M	9/7	Holiday, Labor Day
7	3	W	9/9	Nutrient cycling in agricultural systems
8	3	F	9/11	Nutrient cycling in agricultural systems for N and P
9	3	M	9/14	Nutrient cycling in agricultural systems for N and P; Begin nutrient mass balance
10	4	W	9/16	Nutrient budgets in agricultural systems
11	4	F	9/18	Nutrient mass balance in agricultural systems
12	5	M	9/21	Best mgt. practices for soil mgt and conservation
13	5	W	9/23	Best mgt. practices for soil mgt and conservation
14	5	F	9/25	Best mgt. practices for soil mgt and conservation
15	6	M	9/28	Best mgt practices for nutrients in agricultural systems, soil testing– crops
16	6	W	9/30	Best mgt practices for nutrients in agricultural systems, fertilizer recommendations - crops
17	6	F	10/2	Best mgt practices for nutrients in agricultural systems, fertilizer management - crops
18	6	M	10/5	Best mgt practices for nutrients in agricultural systems, fertilizer management - crops
19	6	W	10/7	Best mgt practices for nutrients in agricultural systems, fertilizer management - crops
20	7	F	10/9	Water and water use in the USA
21	7	M	10/12	Water use in agriculture
22	8	W	10/14	Agricultural irrigation management
23	8	F	10/16	Agricultural irrigation management

24	8	M	10/19	Agricultural irrigation management
25	9	W	10/21	Alternative crop production systems, organic
26	9	F	10/23	Alt crop production systems, hydroponics
27	9	M	10/26	Alt crop production systems, urban farming
28	10	W	10/28	Livestock systems
29	10	F	10/30	Livestock systems
30	10	M	11/2	Livestock systems
31	11	W	11/4	Urban soils
		F	11/6	Holiday - Homecoming
32	11	M	11/9	Urban soils
		W	11/11	Holiday – Veterans Day
33	12	F	11/13	Urban water quality, low-impact development
34	12	M	11/16	Urban water quality issues, LID, regulations
35	13	W	11/18	Urban nutrient and water management
36	13	F	11/20	Urban nutrient and water management
37	13	M	11/23	Urban nutrient and water management
		W-F	11/25 – 11/27	Holiday - Thanksgiving
38	14	M	11/30	Reclaimed water
39	14	W	12/2	Florida Friendly Landscaping
40	15	F	12/4	Towards sustainability
41	15	M	12/7	Towards sustainability
42	15	W	12/9	Towards sustainability

