

Forest and Soil Ecosystem Services
University of Florida/University of Georgia
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Fall 2015

Course topic: Ecosystem services are the conditions and processes through which forest ecosystems, including their component soils and species, sustain and fulfill human life. These services include carbon sequestration, biodiversity, stabilization of hydrologic cycles, removal of air pollutants, aesthetic beauty, moderation of weather extremes and mitigation of natural disasters. Academic interest in ecosystem services was first evident in the refereed literature in the early 1980s but has gained significant stature only in the past decade and a half. Likewise, policy makers have increasingly focused on ecosystem services, developing new incentive schemes for production and payment of these services. This course is particularly relevant in 2015 as this year begins the YEAR of SOIL and a new book on Soil Ecosystem Services will be published by the Soil Science Society of America. This course is team taught at the University of Florida and the University of Georgia-Athens and is available only as a web-based course. Because of the web-based nature, this course is offered in a rather unique environment where students from both universities are expected to participate with each other via a discussion board.

Course Goal: This course will provide a systematic overview and basic understanding of the concept of forest and soil ecosystems services from an interdisciplinary perspective. Instructors and students come from two universities. By the end of the course, students will be familiar with the categories of forest and soil ecosystem services and be aware of different disciplinary approaches and literature on ecosystem services. **Graduate students will develop an in-depth understanding of one forest or soil ecosystem service of their choice and discuss this service in a 10-minute video that will be posted for the class. All students will spend extensive discussion time on the course Discussion Board. Students will also learn to bring unique and current information from all sources into the discussion.**

Pre-requisites: Course is open to both graduate and undergraduates. A basic course in Soil Science is helpful but not required. If needed, we will provide readings for additional background.

On-line discussion session: UGA students will have several arranged on-line discussions using the "Chat" of E Learning Commons. A schedule of meetings will be made after the students are polled for the best night and time to meet.

Here are some lessons learned from previous years:

1. Consistent participation on the discussion board is required, or the grade suffers. This is because this is the main forum of interaction. The lectures are on the web and you should have attended the lectures on your own time in order to intelligently participate in the discussions.

2. Just logging in is not considered participation. The student must add significantly to the discussion via questions, answers, starting new threads of discussion, and bringing in new articles or websites that apply. In short, this is not like a lecture where you can attend and go home. You are always in class and meaningful participation is mandatory. Each post of the discussion is rated for quality and your final grade will be greatly influenced by metrics relating to your posts. Generally, we would expect each student to provide several posts that provide analysis and direct students to new information on each topic. For example, in past classes we have students who earned an A average on the exams but did not participate in the discussions and ended up with only a C grade.
3. All views are tolerated, but evidence is required. The topics get far-ranging and can be socially exciting when one considers the role government can play. People's political views do come out. All views are valid and all discussion is valid as long as it is done respectfully.
4. The question comes up...how many posts a week should I make? That is not a valid question because you should be checking the bulletin board daily and participating. The question is how well am I contributing to the discussion in both learning from others and adding to the experience?

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Schedule of Topics

Schedule of Topics – 2016

Topic 1 – Ecosystem Services (Aug. 24-30) – Comerford

- a. What are ESs?
- b. How are ESs used in concepts of sustainability and conservation
- c. What are the perceived economic values of ESs; how does one consider economic value of outside-the-market services
- d. What are the Forest and Soil ESs?

Topic 2 – Physically related Forest and Soil ESS (Aug. 31-Sep. 11) - Morris

- a. Water control and yield
- b. Precipitation
- c. Air Temperature
- d. Slope stability/erosion
- e. Soil conservation
- f. Reclamation

Exam 1 – Sep. 12-14 (Exams Due at Noon)

Topic 3 – Chemically related Forest and Soil ESs (Sep. 14-25) – Comerford

- a. Water quality (filtering, water treatment, biological filtering, plant remediation)
- b. Air quality
- c. Nutrient Cycling
- d. Carbon Sequestration

Topic 4 - Production Services (Sep. 26-Oct. 5) – Comerford/Morris

- a. Lumber and Pulp
- b. Bioenergy
- c. Chemical Extractives
- d. Charcoal
- e. Pine straw
- f. Miscellaneous

Topic 5 – Biological and Diversity-Related Forest and Soil ESs (Oct. 6-16) –Morris

- a. Biodiversity levels
- b. Measurement
- c. Importance
- d. Forest and Soil Functions
- e. Biodiversity loss and system function examples

Exam 2 – Oct. 17-19 (noon)

Topic 6- Cultural Services (Oct. 19-29) - Morris

- a. Religious and Sacred in Tradition
- b. Indigenous Peoples Concepts
- c. Contemporary Culture and Imagery

Topic 7 – Economic valuation of Forest and Soil Ecosystem Services (Oct. 30-Nov. 20) - Comerford

- a. Valuation of ecosystem services: theoretical assumptions
- b. The utilitarian approach of valuation
- c. The ecological approach to valuation
- d. A sociocultural approach to valuation
- e. A dynamic integrated approach

- f. A tool for modeling ecosystem (ecological) and the economic-ecological models. Applications, possibilities and limitations

Topic 8 - Putting it all together (Nov. 30-Dec.4) – Comerford

Exam 3 - Dec. 5-7 (5 pm Monday)

Course Details:

Operation of Class:

- a. Professors from the University of Florida and University of Georgia run the course. Students will interact with the faculty from both universities.
- b. Lecture, articles to read and class materials are available via the class website.
- c. Discussion will occur primarily via the discussion board where students from both universities will discuss class material and provide their input to questions posed by the professors and fellow students. **THE DISCUSSION BOARD IS MANDATORY AND VERY IMPORTANT. LACK OF PARTICIPATION ON THE DISCUSSION BOARD WILL DETRIMENTALLY AFFECT THE STUDENT'S GRADE.**
- d. For Graduate Students, a one-page proposal for a video on a service of their interest, including a list of 3 - 6 key references, will be due by September 15. The final video will be due November 13. Each exam will have additional questions for graduate students.
- e. Readings will be available through the course web site or the library; there is no assigned textbook.
- f. Students will find it necessary to find related materials from the web and library in order to participate in the discussion. Failure to participate and failure to bring in new information not provided by the course will adversely affect one's grade.

Methods of Assessment and Grading for graduate students:

Examinations:	45%
Bulletin Board Participation:	45%
Presentation:	10%

Methods of Assessment of Grading for undergraduate students:

Examinations:	60%
Bulletin Board Participation:	40%

No FINAL EXAM

UF Academic Honesty: The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty

and integrity. Your instructor fully expects you to adhere to the academic honesty guidelines you signed when you were admitted to UF. As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand 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." Furthermore, on work submitted for credit by UF students, 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 to be assumed all work will be completed independently unless the assignment is clearly defined as group project, either verbally or in writing by the professor. This policy will be vigorously upheld at all times in this course.

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.

UF Counseling Services: Students experiencing crisis or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. Both the Counseling Center and Student Mental Health provide confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal or lacking clear career and academic goals, which interfere with their academic performance. The Counseling Center is located at 301 Peabody Hall (next to Criser Hall). Student Mental Health is located on the second floor of the Student Health Services in the Infirmary.

1. University Counseling Center, 301 Peabody Hall, 392-1575; personal and career counseling: www.counsel.ufl.edu
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling: <http://www.shcc.ufl.edu/smhs/>
3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling
4. Career Resource Center, Reitz Union, 392-1601, career development

Services for Students with Disabilities: The Dean of Students Office coordinates the needed accommodations of students with disabilities. This includes the registration of disabilities, academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services, and mediating faculty-student disability related issues. Dean of Students Office, 202 Peabody Hall, 392-7066, www.dso.ufl.edu

UGA Academic Honesty Policy: All academic work must meet the standards described and contained in the University's academic honesty policy (see "A Culture of Honesty" www.uga.edu/ovpi). All students are responsible for informing themselves about these standards prior to competing any work.

The penalties for academic dishonesty are severe and ignorance and/or lack of understanding are not acceptable defenses (see “Sanctions for dishonesty” at www.uga.edu/ovpi) In this course it is expected that all students complete all work requested using their own initiative, resourcefulness and knowledge. All intellectual resources should be recognized