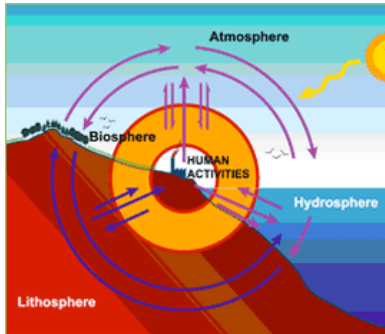


# Ecosystem Ecology EEB 404

Tu/Th 9:40-10:55 DA 488



## Instructor

**Jennifer Schweitzer, PhD**

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## Teaching Associate

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## Course Objectives

By the end of the course you will 1) know the major concepts, techniques and topics in ecosystem ecology, 2) be able to read and synthesize the scientific literature in ecosystem ecology, and 3) be able to apply these concepts to global change issues. Guest lectures, group discussions, readings from multiple textbooks and the primary literature (classics and modern papers) will augment lectures and the field trip.

## Assessment

To assess how well you meet these objectives you will have comprehensive take-home exams, in-class discussion of and quizzes on the primary literature, you will write a short report on a group field study and write a review paper or blog on a pre-approved topic in ecosystem ecology (see below).

Weekly quizzes/assignments/reading summaries & questions	120
Take home exam I	100
Take home exam II	100
Field report	50
Review paper or blog (including peer review)	150
Total points	520

Quizzes/assignments/reading summaries. Quizzes will be at the beginning of class and cannot be made up if missed. A quiz/in-class assignment or reading summary (more on this below) will occur every week so it is in your best interest to come to every class. Your top 12 grades in these assignments will be counted toward the 120 points.

Take home exams. Two take-home exams will focus on knowledge of the concepts, reasoning, problem solving, interpreting graphs and synthesis of issues. The format will include short-answer and essay questions. All exams are comprehensive.

Field report. A short field report will be generated based on the analysis of a field project (to be decided by the class). The report should be completed individually and presented in the format of the journal Science. More on this project in class.

Review paper or blog. A qualitative review paper will be written by groups of 2-3 on any topic in ecosystem ecology. The paper will be in the format of TREE (Trends in Ecology & Evolution) and should highlight the current status of the topic, pointing out major hypotheses and controversies and the state of knowledge by researchers working on

the topic. Topics for review papers must be pre-approved (note date below) – a first draft of the paper will be reviewed and graded by an assigned reviewer in class. You will be graded on the quality of the draft and your review of another's paper. Alternatively, an individual may establish a blog on a pre-approved topic in ecosystem ecology and post a minimum of 10 two page narrative posts about the subject. The posts are to include a synthetic summary of the literature for each topic, appropriate figs/photographs and at least 5 references per post. More details on both of these options will be provided in class.

Final grades will be based on the following percentage of total points:

A 93-100    B+ 87-89    B- 80-82    C 73-76    C- 70-72    D+ 67-69    D- 60-62    F 0-59

## **Weekly Readings**

There is no assigned textbook. I expect that you will have read and understand the provided readings before coming to class. Reading assignments will be made from the primary literature and selected chapters from multiple books (listed below). Prior to class you will summarize the paper(s) in your own words (single spaced, 1 page) and write 3 questions you have about the paper (conceptual issues, implications, etc.). This write-up is to be a critical assessment of the paper, including your evaluation and opinion of the main conceptual issue/problem that is being addressed, the hypotheses and rationale for the study, study approach/key result(s) and validity of the author's conclusions. These write-ups will be graded and will contribute to the weekly assignment points. All readings will be posted on Blackboard one week in advance.

Bardgett, R. D. and D.A. Wardle. 2010. Aboveground-belowground linkages: biotic interactions, ecosystem processes and global change.

Chapin III, F. S., P. A. Matson, and H. A. Mooney. 2002. Principles of terrestrial ecosystem ecology.

Paul, E.A. 2007. Soil microbiology, ecology and biochemistry.

Schlesinger, W. H. 1997. Biogeochemistry: an analysis of global change.

## **Classroom communication**

Check the Blackboard site ([Online@UT](mailto:Online@UT)) and your email frequently. All of the readings, handouts and out-of-class assignments will be available on the site, as well as answers to follow-up questions and unclear concepts.

## **Field trip**

We will take a class field trip to practice some of the concepts/techniques we have learned in class to hone your skills as an ecosystem ecologist. We will leave early Sat. morning and will return after dinner. We will collect data and a short lab report will summarize the analyses (see above). Time in the field will result in possible exposure to poison ivy, insects, and natural obstacles. Please dress appropriately – long pants, insect repellent, sunscreen, boots or high-top shoes, bring rain jacket, etc. Also bring lunch, water and any additional items you require.

\*\*Any student who feels s/he may need an accommodation based on the impact of a disability should contact instructors privately to discuss your specific needs.

## Tentative Schedule of Topics & Events

Date	Topic	Notes
Aug. 21	Pre-test	
Aug. 26 Aug. 28	The Ecosystem Concept Water & Energy	
Sept. 2 Sept. 4	Climate & Global Cycles	Paper discussion
Sept. 9 Sept. 11	Soils & Biogeochemistry	Paper discussion
Sept. 16 Sept. 18*	Soil Communities	*Review paper topic MUST be approved (10 refs due in class)
Sept. 23 Sept. 25	Roots & Rhizosphere	Paper discussion
Sept. 30 Oct. 2	Terrestrial Production	Paper discussion
Oct. 7 Oct. 9	Decomposition	Take-Home Exam I Due (6pm)
Oct. 14 Oct. 16	<b>No Class – Fall Break</b>	
Oct. 21 Oct. 23	Nutrient Cycling	Paper discussion
Oct. 28* Oct. 30 Nov. 1	Community Interactions	*Review papers due (6pm) Paper discussion <b>Sat. Field Trip</b>
Nov. 4 Nov. 6	Trophic Dynamics	Paper discussion
Nov. 11 Nov. 13	Feedbacks	Paper discussion
Nov. 18 Nov. 20	Global Change	Paper discussion
Nov. 25* Nov. 27	<b>No Class - Thanksgiving</b>	*Final review papers due
Dec. 2 Dec. 5	Summary/Synthesis	Take-Home Exam II due (6pm)

Topics may change at instructor's discretion; advance notice will always be given.

