

# Ecosystem Ecology EEB 404

## Instructor

**Stephanie N. Kivlin, PhD**

email: [skivlin@utk.edu](mailto:skivlin@utk.edu)

Class times: Tu/Th 11:10-12:25, Dabney 488

Office hours: Tu/Th 2-3:30 and by appt., Dabney 576

## Teaching Associate

**Ian Ware**

email: [iware@vols.utk.edu](mailto:iware@vols.utk.edu)

### 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, discuss and write about these concepts in the context of global change issues. Guest lectures, group discussions, readings from the textbook and the primary literature (classics and modern papers) will augment lectures and discussions.

### Assessment

To assess how well you meet these objectives we will have weekly quizzes/assignments, you will lead an in-class discussion of a paper from the primary literature, write a technical review paper on a pre-approved topic in ecosystem ecology, produce a lay summary of that paper in blog/podcast/movie format and there will be a final comprehensive take-home exam.

Weekly quizzes/assignments	240
Paper discussion	55
Technical review paper	175
<u>Take home exam</u>	<u>130</u>
Total points	600

Quizzes/assignments. Quizzes will be at the beginning of class and cannot be made up if missed.

A quiz/assignment will occur weekly and may cover previous material and the current lecture.

Paper Discussion. Two to three students will lead a class discussion on the weekly topic. Papers from the primary literature will be chosen by the instructor; group leaders can decide between a few options and choose methods for leading the discussion.

Technical Review paper. 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 assigned reviewers in class. You will be graded on the quality of the 1<sup>st</sup> and final drafts and your 1 pg review of another's paper. You will then translate the technical paper into

lay terms (for a general non-scientific audience) in the form of a magazine article, a podcast or a movie/video. More details on these options will be provided in class. Point breakdown is as follows: 100 technical review, 25 peer review, 50 lay summary/project.

Take home exam. The final take-home exam 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. You will be given 3-5 primary literature papers in advance that will be covered on the test. The take-home exam will be comprehensive.

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**

The textbook is 'Principles of Terrestrial Ecosystem Ecology' (2<sup>nd</sup> ed) by Chapin, Matson & Vitousek (CMV). I expect that you will have read and understand the major terms and concepts before coming to class. Reading assignments will also be made from the primary literature or selected chapters from other books. All readings (except for CMV book chapters) will be posted on Canvas one week in advance and two or three students will lead the discussion each week (sign-up for dates).

### **Classroom Communication**

Check the Canvas site 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.

## Tentative Schedule of Topics & Events

Date	Topic	Readings/Notes
Jan. 11	Introduction / The Ecosystem Concept	Pre-test
Jan. 16 Jan. 18	The Ecosystem Concept /Climate Climate	CMV Ch. 1 & CMV Ch. 2 Paper discussion
Jan. 23 Jan. 25	Energy & Water	CMV Ch. 4 Paper discussion
Jan. 30 <b>Feb. 1</b>	Soils & Biogeochemistry	CMV Ch. 3 Paper discussion <b>*Review paper topic due (10 refs due in class)</b>
Feb. 6 Feb. 8	Soil Communities	Assigned reading (on canvas) Paper discussion
Feb. 13 Feb. 15	Roots & Rhizosphere	CMV Ch. 8 Paper discussion
Feb. 20 Feb. 22	Carbon/ Terrestrial Production	CMV Ch. 5 CMV Ch. 6/Paper discussion
Feb. 27 Mar. 1	Decomposition	CMV Ch.7; <b>*1<sup>st</sup> draft of paper due</b> Paper discussion
Mar. 6 Mar. 8	Diversity Ecosystem Function	Assigned reading (on canvas) Paper discussion
Mar. 13 Mar. 15	<b>No Class – Spring Break</b> <b>No Class – Spring Break</b>	
Mar. 20 Mar. 22	Nutrient Cycling	CMV Ch. 9 Paper discussion; <b>*Peer review due</b>
Mar. 27 Mar. 29	Community Interactions	CMV Ch. 10 & 11 Paper discussion
Apr. 3 Apr. 5	Time & Space	CMV Ch.12 & 13 Paper discussion
Apr. 10 <b>Apr. 12</b>	Feedbacks	Assigned reading (on canvas) <b>*Final papers due (6 pm)</b> Paper discussion
Apr. 17 Apr. 19	Global Change	CMV Ch. 14 (Guest Lecturer, Dr. Jessica Moore) Paper discussion
Apr. 24 Apr. 26	Sustainability/Synthesis	CMV Ch. 15 Paper discussion
<b>May 1*</b> May 7		<b>*Lay summary/project due</b> <b>Take-Home Exam due (6 pm)</b>

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

## Expectations

I pledge to do my part. I will:

- Have a working knowledge of the latest ideas in this field.
- Teach you what I believe you need to know with enthusiasm.
- Invite your comments and questions and respond constructively.
- Make myself available to you outside of class (within reason).
- Evaluate your work carefully and return it promptly with feedback.
- Be as fair, respectful, and understanding as I can be.
- If you need help beyond the scope of this course, I will do my best to provide it or see that you get it.

In return, I expect you to:

- Show up for class each day or let me know (preferably in advance) if you have some good reason to be absent.
- Do your reading and other assignments outside of class and be prepared for each class meeting.
- Focus during class on the work we're doing and not on extraneous matters (like whoever or whatever is on your phone at the moment).
- Participate in class discussions.
- Be respectful of your fellow students and their points of view.
- In short, I expect you to devote as much effort to learning as I devote to teaching.

## University Policies

### Academic Integrity:

“An essential feature of the University of Tennessee, Knoxville is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the university, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.”

### University Civility Statement:

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Civility enhances academic freedom and integrity, and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other's well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus: <http://civility.utk.edu/>.

### Disability Services:

“Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Disability Services (ODS) at 865-974-6087 in 100 Dunford Hall to document their eligibility for services. ODS will work with students and faculty to coordinate reasonable accommodations for students with documented disabilities.”

**Your Role in Improving Teaching and Learning Through Course Assessment:**

At UT, it is our collective responsibility to improve the state of teaching and learning. During the semester, you may be requested to assess aspects of this course either during class or at the completion of the class. You are encouraged to respond to these various forms of assessment as a means of continuing to improve the quality of the UT learning experience.

**Key Campus Resources for Students:**

- [Undergraduate Catalog](#): (Listing of academic programs, courses, and policies)
- [Graduate Catalog](#)
- [Hilltopics](#): (Campus and academic policies, procedures and standards of conduct)
- [Course Timetable](#): (Schedule of classes)
- [Academic Planning](#): (Advising resources, course requirements, and major guides)
- [Student Success Center](#): (Academic support resources)
- [Library](#): (Access to library resources, databases, course reserves, and services)
- [Career Services](#): (Career counseling and resources; HIRE-A-VOL job search system)
- [Student Health Center](#) (visit the site for a list of services)
- OIT Help Desk: (865) 974-9900