

General Ecology Syllabus
BIO260 – Fall 2017
CRN 48260

Instructor

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Graduate Teaching Assistant

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Office hours: Tu 11:00-12:30 & W 9:00-10:30 (or by appointment)

Course Meeting Times

23-August to 05-December 2017
TTh 12:40-13:30 Dabney-Buehler Hall 415

Course Summary

Ecology is the scientific study of the interactions between organisms and their environment. This course will introduce you to fundamental concepts and models in the field of ecology. There will be a strong emphasis on understanding the process of science through reading and critical evaluation of the primary literature. By the end of this course, you will understand the major ecological patterns in nature and the factors that cause them. Your writing skills and analytical and quantitative abilities, will be reinforced and improved. You will leave this course as a more ecologically aware citizen, with a deeper curiosity about how the world works, and the foundation necessary for becoming a practicing ecologist.

Course Philosophy

With a continually increasing rate of new information and discoveries in the field of ecology, no one can master all of the factual and theoretical information currently available. Scientists must instead organize and synthesize information in ways that help them solve problems. This course focuses on developing skills to help you evaluate and integrate information. The emphasis is on critical thinking and understanding the process of scientific inquiry. You will learn some new vocabulary and facts along the way, but the intention is to improve your ability to synthesize information during the process of problem-solving rather than engaging in rote memorization. You will be expected to read the textbook and other assigned readings before class, so class time can be used for lecture, case studies, and activities that reinforce the concepts from the readings and provide practice in critical thinking and scientific inquiry.

Learning Objectives

Students successfully completing this course will be able to:

- (1) recognize the major ecological patterns in nature and what causes them
- (2) apply the scientific process to ecological problems
- (3) engage in critical thinking and discussion of primary scientific literature in ecology
- (4) make informed predictions on how organisms respond to environmental conditions and biotic interactions

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.

If you have a general question about the course, it should be posted to the course discussion board on Canvas. This way questions can be answered once and read by everyone.

For questions that are personal or specific to an individual, please contact the instructor via email. Please allow up to 2 working days for responses to emails. Email may not be answered after the workday is over or on the weekends, so please be patient outside of normal work hours.

Biology Study Rooms:

Hesler 417 is a quiet study room for majors in Biology; it can also be reserved for group study. Strong Hall 102 has a student resource center for printing, etc.

Textbook/Readings

We're using *Ecology* by Cain, Bowman, & Hacker (CBH). **The lectures will make more sense if you do the reading before coming to class.** Additional readings from the ecological literature will be made available on Canvas, and are required reading.

Book website: <http://www.sinauer.com/ecology/>

Assessment

Assessment is an important part of the learning process. To assess what you understand and what you do not, and to see if you meet the course objectives, you will have in-class assignments, quizzes, homework, 3 comprehensive exams and a comprehensive final exam.

Exams

Exams will focus on reasoning, problem solving, interpreting and creating graphs, and demonstrating an understanding of concepts. The format of exams will include multiple choice, simple math problems, and short answer. Bring a calculator to every exam. The exams will also include material from the book that I might not have focused on in class, so read the textbook.

Only under very special circumstances will make-up exams be available and only if I am notified in advance of the scheduled exam date. They will be essay format only and must be taken within 5 days of the scheduled exam date.

Quizzes/Homework/In-class assignments

In-class assignments will happen during class and cannot be made up. Homework assignments are due BEFORE CLASS on the day they are due. For quizzes, homework, and in-class

assignments, you can get a maximum of 135 points (9 assignments * 15 pts per assignment) even though 150 points (10 assignments * 15 pts per assignment) will be assigned. This means your lowest quiz/homework grade will be dropped, allowing you to miss a class for something like the flu without it affecting your grade.

The Seminar Series (a.k.a., bonus points)

Most Fridays at 3:30p, the Department of Ecology & Evolutionary Biology has a seminar in SERF 307. This is an excellent opportunity for you to learn about different topics in ecology and to see how scientists convey their findings.

Once you've attended one of these seminars, write a one-page summary of it and email it to Maggie Mamantov (mmamanto@utk.edu) - these write-ups are due one week after the seminar. You may get up to 2 bonus points for each one. You can get points for attending 5 seminars. If you can't make the seminars, you may read a paper by that speaker and submit a one-page summary. We will let you know which Fridays have speakers talking about ecological topics.

Grade disputes

If you disagree with how an exam or homework question was graded, you must come to me within one week of the day the exam or homework was returned (whether you picked it up or not that day). You must make an argument in writing for why you think the answer should receive more points. If your dispute is about an arithmetic mistake when points were being added together, you do not have to submit a written justification.

	Points possible
Mid-term exams (1-50 pt exam, 2-100 pt exams)	250
Final Exam	100
Quizzes, Homework, In-class assignments	135
Bonus points possible from seminar series	(10)
Total	485

Your grades will be based on the following scale. There is a chance the class will be curved. Any curve will not hurt your grade.

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	0-59

Lecture Schedule

Date	Lecture	Readings
24-Aug	The science of ecology	Syllabus
29-Aug	Doing ecology	1
31-Aug	The physical environment	2, 3
5-Sep	Coping with the environment I	4
7-Sep	Coping with the environment II	5
12-Sep	Evolutionary ecology I	6
14-Sep	Evolutionary ecology II	6
19-Sep	Exam I	
21-Sep	Life history	7
26-Sep	Populations	9
28-Sep	Population growth & dynamics	10
3-Oct	The Community I	16
5-Oct	NO CLASS – FALL BREAK	
10-Oct	The Community II	17
12-Oct	Species diversity	19
17-Oct	Exam II	
19-Oct	Competition	12
24-Oct	Commensalism/Mutualism	15
26-Oct	Predation & Herbivory	13
31-Oct	Parasitism/Disease ecology	14
2-Nov	Indirect interactions	R5
7-Nov	Biogeography	18
9-Nov	Biological invasions	TBA
14-Nov	Exam III	
16-Nov	Production	20
21-Nov	Energy flow & food webs	21
23-Nov	NO CLASS - THANKSGIVING	22
28-Nov	Landscape ecology	24
30-Nov	Global change ecology	25
5-Dec	Conservation biology & Summary	23
12-Dec	Final Exam: Tuesday, Dec. 12, 10:15-12:15p	

****This schedule is tentative and subject to change!****

Sept 1 - Last day to drop without a “W”; Nov. 14 - Last Day to Drop with a “W” (WP/WF);
Dec. 5 - Last Day for a University Withdrawal

Disability Services

If you need course adaptations or accommodations because of a documented disability, or if you have questions or concerns about disabilities or emergency information to share, please contact the Student Disability Services: 100 Dunford Hall; 865-974-6087 or 865-622-6566 for video phone; Website: <http://sds.utk.edu/>.

Accessible Information, Materials, & Technology -- <http://accessibility.utk.edu/>

Counseling Center and Wellness

College is a stressful time. If you are feeling significant levels of stress or anxiety that have led to mood changes, depression, loss of appetite, problems sleeping, or you have experienced a problem with relationships, family worries, loss, or a personal struggle, please seek help from the counseling center. Getting help is a smart and courageous thing to do for yourself and for those who care about you. The *Student Counseling Center* is the university's primary facility for personal counseling, psychotherapy, and psychological outreach and consultation services.

Phone: **865 974-2196**

Email: counselingcenter@utk.edu

Website: <http://counselingcenter.utk.edu/>

Address: 1800 Volunteer Boulevard

The *Center for Health Education and Wellness* is dedicated to a community model that is embodied in the "VOLS HELP VOLS" commitment: *We are all Volunteers. We look out for each other.* The Center manages **974-HELP**, the **distressed student protocol**, **case management**, the **Sexual Assault Response Team**, and the **Threat Assessment Task Force**.

Website: <http://wellness.utk.edu/>

Emergency Alert System -- <http://safety.utk.edu/>

The University of Tennessee is committed to providing a safe environment to learn and work. When you are alerted to an emergency, please take appropriate action. Learn more about what to do in an emergency and sign up for [UT Alerts](#). Check the emergency posters near exits and elevators for building specific information. In the event of an emergency, the course schedule and assignments may be subject to change. If changes to graded activities are required, reasonable adjustments will be made, and you will be responsible for meeting revised deadlines.

Academic Assistance

Tutoring: The Division of Biology does not offer tutoring services. Contact the Student Success Center or the Academic Support Unit of the Office of Multicultural Student Life for information about tutoring opportunities.

Student Success Center: The comprehensive source for information, services, and resources to assist your success at UT:

Phone **865 974-6641**

Email: studentsuccess@utk.edu

Website: <http://studentsuccess.utk.edu>

Address: 812 Volunteer Boulevard, Greve Hall, room 324

Office of Multicultural Student Life:

Website: <http://multicultural.utk.edu/services/tutoring/>

University Civility Statement -- <http://civility.utk.edu/>

“Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, gracious-ness, cordiality, affability, amiability and courteous-ness. 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.”

Academic integrity

Academic dishonesty of any sort will not be tolerated. Plagiarism includes the copying of phrases, portions of sentences or the main ideas from anyone or any work submitted for a grade (exams, papers, quizzes, etc).

(http://catalog.utk.edu/content.php?catoid=1&navoid=156#hono_stat).

The official Honor Statement of students attending UTK is:

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.

Biology Degree Learning Objectives

Students seeking a degree in Biological Sciences (whether the concentration is in Biochemistry, Cellular, and Molecular Biology, Ecology and Evolutionary Biology, or Microbiology) are expected to be able to do the following* by the time they graduate:

You should be able to explain the **five big ideas (FBIs)** in biology, and relate and link these ideas to biological phenomena.

1. **Evolution:** Populations of organisms and their cellular components have changed over time through both selective and non-selective evolutionary processes.
2. **Structure and Function:** All living systems (organisms, ecosystems, etc.) are made of structural components whose arrangement determines the function of the systems.
3. **Information Flow and Storage:** Information (DNA, for example) and signals are used and exchanged within and among organisms to direct their functioning.
4. **Transformations of Energy and Matter:** All living things acquire, use, and release and cycle matter and energy for cellular / organismal functioning.
5. **Systems:** Living systems are interconnected, and they interact and influence each other on multiple levels.

These biological concepts are more fully explained in the AAAS / NSF report “Vision and Change in Undergraduate Biology Education” (visionandchange.org)

You should also be proficient in the following **scientific practices**:

1. Developing hypotheses and predictions (ask scientific questions) based on models or data

2. Interpreting scientific representations, such as graphs, phylogenies, or molecular structures, or data, and come to a conclusion (with evidence)
3. Summarizing and/or synthesizing scientific information verbally or in writing to an audience

*** Student ability to achieve these learning objectives will be tested periodically as part of their departmental requirements.**

Syllabus

This syllabus is subject to change throughout the course - see Canvas for the most up-to-date version.