



EEB 419: Global Change Ecology

University of Tennessee, Knoxville
Fall 2022

Meeting times: T/TH 9:45-11:00am in Dabney-Buehler Room 575

Instructor: Dr. Maggie Mamantov 245 Strong Hall mmamanto@vols.utk.edu

Office hours: Mondays 11:30am-1:00pm, Thursdays 11:30am-12:30pm, Fridays 8:30-10:00am or by appointment. To schedule an appointment, please contact me via email with a few day/times that you can meet. I highly encourage students to make appointments or stop by during office hours, individually or in small groups.

Graduate Teaching Assistant: Nate Duerr Hesler 318 nduerr@vols.utk.edu
Office hours: Wednesdays 3:30-4:30pm

Course Description:

This is an Applied Oral Communication Course (<https://ugcouncil.utk.edu/general-education-curriculum/>).

In Global Change Ecology, you will gain an in-depth understanding of current, global-scale environmental changes and the consequences of these changes for species, biodiversity, ecological communities, and humankind. Topics will include climate change, habitat fragmentation, invasion biology, and large-scale pollution in the Anthropocene with a focus on human-dimensions to these global challenges. Because this course is an Applied Oral Communication General Education course, there will be a strong emphasis on understanding the process of science through critical discussion, evaluation, and oral communication of the primary literature. By the end of this course, you will understand the major global changes and the factors that cause them. Your oral communication and writing skills, creativity, and analytical and quantitative abilities will be reinforced and improved. My hope is that you leave this course as a more ecologically aware citizen with a deeper curiosity about how the world works and with the ability to actively communicate and engage in discussions of these topics with peers and the general public.

With a continually increasing rate of global ecological changes, scientists must rapidly organize, synthesize, and communicate information in ways that help them solve problems. This course focuses on developing skills to help you evaluate scientific literature, integrate information into a broader context, and successfully communicate your findings. You will be expected to read primary literature articles before class so that you can fully participate in course discussions in a critical and constructive way.

Course Goals:

Students successfully completing this course will be able to:

1. Describe and make informed predictions of the ways in which plants, animals, and ecological communities respond to global change
2. Communicate scientifically
3. Engage in critical thinking and discussion of primary literature in global change ecology
4. Demonstrate the ability to locate and use relevant, credible evidence to support your ideas
5. Use sound scientific principles to discuss the merits of contemporary debates in global change ecology
6. Demonstrate the ability to speak clearly and effectively
7. Demonstrate the ability to present oral information effectively to different audiences, shaping message, organization, language choices, and delivery techniques to correspond with purpose and rhetorical context
8. Demonstrate the ability to write clearly and effectively
9. Demonstrate the ability to design original research related to a global change phenomenon

Course Communications:

Course Website (Canvas): <http://utk.instructure.com/>

Make sure to check our class Canvas and your utk email frequently. All of the readings, handouts, and out-of-class assignments will be available on the site.

I am happy to answer your email questions or set up appointments via email. When emailing me about this course, please include “EEB 419” in the subject line. Failure to do so will result in delays in response or I may miss your email. Please email me at mmamanto@vols.utk.edu not through the Canvas site. Please allow up to 24 hours for a response to your email. Once I leave the office, I may not check my email until the following workday or the first day back after a weekend.

Required Texts:

There is no textbook for this course. All readings will be available on Canvas and are required reading. The readings will consist of both peer reviewed primary literature, reviews, and scientific book chapters. Make sure to do the reading prior to class.

How Your Learning Will Be Assessed:

Learning assessment is important for two reasons. First, you have to receive a grade for the class and the grade you earn will be determined by how well you perform on assessments. Second (and more importantly), assessment helps you integrate knowledge. Studies have shown that the more often students are assessed and the more different ways they are assessed, the more likely they are to understand the material. Assessments will be done using a variety of methods including in-class clicker questions, quizzes, exams, in-class group assignments, and homework.

Participation (100 points):

This course is based on effective oral communication of science. Your participation is critical for the success and quality of the course and for your grade. To communicate and participate, you need to show up for lectures having completed the readings, prepared for discussion, mentally engaged,

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energetic, and curious. The course will be more enjoyable, and you will come away with great appreciation for the challenges surrounding global change ecology if you are ready to communicate your thoughts and ideas with your peers. Because your success in this course relies on your regular participation, **more than three unexcused absences throughout the semester will result in 10% (100 points) grade deduction.**

Reading Quizzes (100 points):

To help prepare for class as well as providing practice with identifying key ideas within primary literature, there will be short online quizzes on Canvas for each reading assignment. Each quiz will be worth 5 points and your lowest two scores will be dropped. You are welcome to use your notes and the reading to answer the questions, but your submissions should be your own work. Quizzes will be due at the start of class (9:45am) and late submissions will not be accepted. In special circumstances, you may be allowed to make up a quiz. You must schedule a make-up by emailing mmamanto@vols.utk.edu.

In-class exercises (100 points):

There will be in-class exercises throughout the semester. The format and submission requirements will vary, but these assignments will be completed fully during the assigned class time and cannot be made up except for excused absences (illness, family emergency, University sponsored events, etc.).

Exams (300 points):

You will have a mid-term (100 points) and a final exam (200 points) that will focus on reasoning, problem solving, interpreting and creating graphs, and demonstrating an understanding of concepts. Exams will be made up of multiple choice, short answer, and essay questions. The final exam for this class is on Monday, December 12 from 3:30-6:00pm in our regular classroom (Dabney 575).

Exams can only be made up in the case of excused absences with documentation (illness, family emergency, University sponsored events, etc.) and must be made up within one week of the exam date. To schedule a make-up exam, you must email me (mmamanto@vols.utk.edu) prior to the start of the assessment. Make up exams may be entirely different and adjusted to account for extra study time.

Oral Communication Exercises (150 points):

Throughout the semester, you will complete a number of oral communication exercises to practice critical discussion and evaluation of the primary literature. For each assignment, you will receive detailed instructions and grading expectations.

NSF GRFP Research Proposal & Oral Presentation (250 points):

The National Science Foundation Graduate Research Fellowship Program is a federal program that provides financial support for graduate students in the sciences (<https://www.nsfgrfp.org/>). You can apply for the program as a senior undergraduate student as well as when in graduate school.

The GRFP application requires two short written statements: a research proposal and a personal statement. Even if you are not interested in applying for graduate funding, the GRFP research proposal offers an excellent format to practice communicating an original research idea.

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In this class, you will write a proposal following GRFP requirements describing an original research project related to any aspect of global change. You will receive detailed instructions, examples, and guidance throughout the semester on formulating a research question, designing a study, and writing an effective proposal. There will be multiple graded steps to completing your research proposal including submitting a topic, preparing an annotated bibliography, completing a first draft, participating in a peer review, and finally revising your final proposal.

You will also present your research proposal to the class as a lightning talk, a common presentation format at national science conferences. You will receive a detailed rubric and instructions to help you prepare this talk.

Extra credit:

Throughout the semester, you have the option to complete a “Global Change in the News” assignment. If you read a news article about a topic covered in this course, you may complete a brief write-up about how this course helped you to better understand the news article / topic. You will submit your write-up to Canvas for a chance to earn up to 10 extra points toward your overall grade. Your report must be submitted prior to the final class of the semester (9:45am on December 6)

Point Breakdown:

Assessment	Points
Participation	100 Points
In-class Exercises	100 points
Reading Quizzes	100 points
Exams	300 points
Oral Communication Exercises	150 points
NSF GRFP Project	250 points
Course Total	1000

I will use the standard UT grading scale by percentage of 1000 points:

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

Grade Disputes:

If you disagree with how an assignment or exam question was graded, you must come to me within one week of the day the assignment was returned (whether you picked it up or not that day). You must make an argument in writing for why you think you 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

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Class Schedule:

Date	Topic	Important Deadlines / Assessments
Th Aug 25	Introduction to the course & NSF GRFP Project	
T Aug 30	What is climate change? How is climate determined?	
Th Sep 1	Climate reconstructions	Oral communication 1 (past CC indicator)
T Sep 6	History of contemporary climate change	
Th Sep 8	Addressing misconceptions about climate change	Oral communication 2 (CC misconceptions)
T Sep 13	Impacts of climate change on species: range shifts	GRFP research question due
Th Sep 15	Impacts of climate change on species: phenology	In-class assignment 1 (shifting phenology) – 10 pts
T Sep 20	Impacts of climate change on species: evolution	In-class assignment 2 (CCVI scores) – 10 pts
Th Sep 22	Climate change and disease	In-class assignment 3 (CC & disease) – 10 pts
T Sep 27	Climate change and agriculture / marine impacts	
Th Sep 29	Presentations of species case studies	Oral communication 3 (case studies)
T Oct 4	Midterm Exam	Midterm Exam
Th Oct 6	No class – fall break!	
T Oct 11	Community ecology & species diversity measures	In-class assignment 4 (biodiversity) – 20 pts
Th Oct 13	Biogeographical patterns of species diversity	
T Oct 18	Ecosystem services	GRFP annotated bibliography due
Th Oct 20	Invasion biology	
T Oct 25	Invasion biology	
Th Oct 27	Invasion biology	
T Nov 1	Invasion biology & overexploitation	In-class assignment 5 (invasive species) – 10 pts
Th Nov 3	GRFP peer review	GRFP draft 1 due
T Nov 8	Habitat fragmentation	
Th Nov 10	Habitat fragmentation	In-class assignment 6 (habitat change) – 10 pts
T Nov 15	Pollution	In-class assignment 7 (plastic pollution) – 10 pts
Th Nov 17	Extinctions & community change	Oral communication 4 (community comparison)
T Nov 22	Conservation biology	In-class assignment 8 (linking it together) – 20 pts
Th Nov 24	No class – Thanksgiving break!	
T Nov 29	GRFP Presentations	Final draft due & presentation slides due on 11/28
Th Dec 1	GRFP Presentations	Presentation slides due on 11/30
T Dec 6	GRFP Presentations & Course Wrap-Up	Presentation slides due on 12/5
M Dec 12	Final Exam 3:30-6:00pm in Dabney 575	Final exam

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

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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 (including a classmate) on ANY work submitted for a grade (exams, assignments, quizzes, etc). Academic dishonesty also includes assisting other students on quizzes, exams, or assignments.

All work should be done independently (unless group work is permitted, and then you may ONLY work within your group on the assignment); plagiarism software will be used to check some of the written assignments for copying from classmates or other sources.

You are expected to abide by The University of Tennessee honor statement in Biology and in all of your university activities as pledged in the honor code:

“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.” (Undergraduate Catalog)

Depending on the offence, penalties for academic dishonesty range from a minimum of a zero for the assignment, to an F for the course, to the filing of formal academic dishonesty charges seeking dismissal from The University of Tennessee. Penalties are at the discretion of the instructor, and can occur in either the lecture or the BioLit portion of the class.

You should be familiar with the requisites of academic honesty and what constitutes academic dishonesty as outlined in the UT Undergraduate Catalog (<http://catalog.utk.edu/>), BUT if you are uncertain about what you can work together on and cannot work together on, please ask!

Other course information

Academic assistance

The Student Success Center (<http://studentsuccess.tennessee.edu/studentsuccesscenter/>) and the Academic Support Unit of the Office of Minority Student Affairs (<http://omsa.utk.edu/services/>) are both great resources for supporting your academic success.

The Student Success Center has a Vol Study Center with refreshments and free printing as well as quiet space for studying in Greve Hall (rooms 302, 304, and 311).

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

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its members adhere to the principles of civility and community adopted by the campus:
<http://civility.utk.edu/>.

Improving the course through 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, and through the TNVoice course evaluation. Please take the few moments needed to respond to these requests as they are used by instructors, department heads, deans and others to improve the quality of your UT learning experience.

Students with disabilities – <http://sds.utk.edu>

The University of Tennessee, Knoxville, is committed to providing an inclusive learning environment for all students. If you anticipate or experience a barrier in this course due to a chronic health condition, a learning, hearing, neurological, mental health, vision, physical, or other kind of disability, or a temporary injury, you are encouraged to contact Student Disability Services (SDS) at 865-974-6087 or sds@utk.edu. An SDS Coordinator will meet with you to develop a plan to ensure you have equitable access to this course. If you are already registered with SDS, please contact your instructor to discuss implementing accommodations included in your course access letter.

Accessibility Policy & training – <http://accessibility.utk.edu>

The University of Tennessee, Knoxville, provides reasonable accommodations for individual students with disabilities through its office of Student Disability Services. The university is also committed to making information and materials accessible, when possible. Resources and assistance to support these efforts can be found at <http://accessibility.utk.edu/>.

Wellness – <http://wellness.utk.edu/> and <http://counselingcenter.utk.edu/>

The Center for Health Education and Wellness empowers all Volunteers to thrive by cultivating personal and community well-being. The Center can answer questions about general wellness, substance use, sexual health, healthy relationships, and sexual assault prevention. The Student Counseling Center is the university's primary facility for personal counseling, psychotherapy, and psychological outreach and consultation services.

Any student who has difficulty affording hygiene products, groceries, or accessing sufficient food to eat every day is urged to contact the Big Orange Pantry for support. The Big Orange Pantry, located in Greve Hall, is a free resource for all students, faculty, and staff, no matter how great or small their need is. Students who need emergency financial assistance can also request funding from the Student Emergency Fund.

Students who are experiencing non-academic difficulty or distress and need assistance should call 974-HELP or submit an online referral. The 974-HELP team specializes in aligning resources and support to students experiencing mental health distress.

Emergency alert system – <http://safety.utk.edu/>

The University of Tennessee, Knoxville, is committed to providing a safe environment for learning and working. 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, course schedules and

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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.

COVID-19 Guidelines (updated August 8, 2022)

[CDC guidance](#) recognizes the changing dynamics of living in a world with COVID-19. It rates COVID-19 community levels as low, medium, and high, with recommendations at each level about the use of masks and other precautions. At all levels of community spread, staying up to date with vaccination is the best way to protect yourself from serious illness and to limit the spread of COVID-19. Wearing a mask is always an option for any individual who chooses to do so, and the CDC recommends that those with high risk of severe illness talk with their health care providers. If you are sick, please stay in, avoid being around others as much as possible, and contact your health care provider for any symptoms that are worsening, moderate to severe, or concerning to you. For more information about vaccination or to self-report an illness and receive support, visit <http://studenthealth.utk.edu/CommunityHealth>. For more information about COVID-19, visit <http://studenthealth.utk.edu/covid-19>.

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