General Ecology (BIOL 2335)
Spring 2016

Syllabus

Time and Location: College of Computing 017, MWF 12:05–12:55 pm

Professors:
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Course Objectives: This course will introduce you to basic ecological concepts, patterns, and processes. Emphasis will be placed on patterns and processes within and among populations, communities, and ecosystems. Theoretical, observational and experimental approaches to ecological problems will be examined and mathematical models will be important. We will examine factors that affect single-species population dynamics and interactions among species (competition, predation, herbivory, mutualism, and parasitism). We will investigate factors that regulate community and ecosystem properties (disturbance, succession, biodiversity, biogeography, nutrient cycling, and energy flux). We will also apply basic ecological theories and principles to tackle problems in applied ecology, such as conservation issues and biological control. We want this course to allow you to train and practice the knowledge, skills, and abilities you will need in your professional or graduate school, in your career, and as an informed citizen.

Our responsibility to you is to facilitate your learning of the knowledge-base (Populations, Communities, Ecosystems, and their interactions) and scientific processes of Ecology, as well as to help you develop your social and professional values surrounding the environment and our connections with and stewardship of it. Our goals for this course are that you will understand basic ecological concepts and theory through the lens of an urban setting, the Midtown area of city of Atlanta, as well as regions far outside those you have visited or experienced. As you design and complete your course project, we hope that you will develop a value for volunteerism as a way to learn about and contribute to your ecological and social community, as well as appreciate that hands-on experience helps you learn and remember course concepts.

By the end of this course, students will be able to

1) Summarize and classify basic ecological concepts and theory using examples from human and urban impacts to rural and distant locations in the biosphere.
2) Be able to connect urban and human ecology to the broader biosphere.
3) Partner to design and participate in an ecology-focused project with a campus or community organization.
4) Make connections between your ecology project and the fundamental ecological concepts we'll learn in this course, developing self-awareness of how you interact with other organisms (the biotic world).
5) Deconstruct and reflect upon green spaces and wildlife in the city and how this course has modified your thinking about the relevance of ecology to the city and human health.

Text: *Ecology*, 3rd edition. Cain, Bowman, and Hacker. 2014. Sinauer. Any additional readings will be announced on t2 and in class. Students are expected to do the textbook readings prior to attending lecture.

Learning Catalytics: A learning catalytics account is required and will be used for quizzes and interactive lecture sessions, which will contribute to the "participation" portion of your course grade. While you are welcome to use your laptop or cell phone to access learning catalytics during class, when we are not using the platform we ask that you close your laptops and put your cell phones away.

To access a Learning Catalytics course, a student must create a student account and join a session. Students can create an account at https://learningcatalytics.com/users/sign_up. Student account pricing: $12 for 6 months of access. With a student account, you can:

- Participate in class on-line sessions using your laptop, smartphone, or tablet
- Complete homework and review content after class
- Use Learning Catalytics in an unlimited number of classes

Please create a login name that your instructors can recognize—that is, use your GT username, your GT email, your actual name, or a nickname you have made known to your instructor. We prefer that you use your @gatech.edu email address. After you have created your account, you can use it in any number of courses during the subscription period (semester, quarter, or year). Help is available at help.pearsoncmg.com/learning_catalytics/student/en/index.htm

Lectures: Students are expected to do the textbook readings prior to attending lecture. Unless otherwise stated, students are responsible for all material covered in lectures and assigned readings. Some of our goals for this course are to help you improve your ability to think critically, problem solve, synthesize science concepts, and communicate them effectively. Your ability to demonstrate these skills will be assessed using exams, in-class activities and exercises, and an independent project.

Note-taking Portfolio: This course will feature a range of teaching strategies in lecture, from traditional lecture to in-class activities to team-based learning to a field project. All of these methods have the same aim, to help you make connections between ecological theory and how it applies to real world examples. To help you learn to focus on the salient details, you'll keep a hand-written notes portfolio of the lecture notes you take in class or create immediately following an in-class activity. After class, we encourage you to incorporate examples, clarifications, and expansion of each concept from your course readings. Revising your portfolio is a strong study strategy to prepare for quizzes and exams in this course. Your portfolio will be taken up for review 3-4 times during the semester and handed in at the final exam.

Exams: The exams will be a combination of short answer/essay and multiple choice. One third of the final exam will be material covered from the 3rd midterm until the end of the course, while the other two-thirds will be cumulative.

Grades: You will be evaluated on these activities:

- **Midterm Exams: 30%** of your grade will be determined by three midterm exams with multiple choice and short answer questions.
- **Final Exam**: **25%** One-third of the final will cover the material presented since the 3rd midterm whereas the other 2/3rd will be cumulative.
- **Activities: 10%** of your grade will be determined by in-class activities, including learning catalytics questions, worksheets, and quizzes. Please come prepared to class.
- **Homework and Note-taking Portfolio: 15%** of your grade will be determined by out-of-class homework assignments on learning catalytics and your course notes portfolio, taken up 3–4 times during the term for comment and due at the end of the term for a grade.
- **Independent Project: 20%** The remaining 20% of your grade will be based on a single, team-based project. For your project, your team will delve into an ecology-related topic of local, urban importance, applying the scientific method and supported with literature from scientific literature (journals, technical reports) rather than textbooks. Details will be distributed in class.

Each element of your grade will be posted to T-square so that you can calculate where you stand in the course. Grades will be assigned according to the following scale: 90.0-100 A, 80.0-89 B, 70.0-79 C, 60.0-69 D, below 60 F.

Attendance and policy on missing assignments. Lecture attendance is strongly correlated with performance in this course. In-class activities will be given only in lectures, and will not be announced ahead of time. Class attendance is mandatory for all days when there is group work or exams. Should you miss a workday or exam, you must convince us that the absence was excusable, and we reserve the right to ask for documentation (e.g. evidence of a doctor's visit, etc.). Examples of excusable absences include documented illness, death in family, or accident. If you know that you are going to be absent from a required class, please notify us beforehand. Unexcused absences from workdays or exams will result in a grade of zero for that assignment.

Academic Integrity: Academic dishonesty will not be tolerated. This includes cheating, lying about course matters, plagiarism, stealing classroom materials, or helping others commit a violation of the Honor Code. Students are reminded of the obligations and expectations associated with the Georgia Tech Academic Honor Code and Student Code of Conduct, available online at www.honor.gatech.edu. While students will collaborate in and out of class to learn the course content and generate an independent project. **Plagiarism** includes using the ideas or words of others without use of quotation marks and citation. As direct quotes are seldom used in scientific writing, you are expected to rephrase the words of others and provide the citation. Use of your own words is required for all work in this course, including learning catalytics, worksheets, project work, homework, and exams. If this is unclear, please ask instructors for help as you work on an assignment.

Learning Accommodations: If needed, we will make classroom accommodations for students with disabilities. These accommodations must be arranged in advance and in accordance with the Office of Disability Services (http://www.adapts.gatech.edu).

Class Schedule *(subject to change)*

Date	Lecture	Who	Topic	Reading
11-Jan	1	LJ	Introduction	Chapter 1
13-Jan	2	LJ	Population distributions	Chapter 9
15-Jan	3	LJ	Population parameters and life tables	Chapter 10
18-Jan	–	–	HOLIDAY	
20-Jan	4	LJ	Population parameters and life tables	
22-Jan	5	LJ	Population growth, regulation and dynamics	Chapter 10
25-Jan	6	LJ	Population growth, regulation and dynamics	Chapter 11
27-Jan	7	LJ	Life Histories	Chapter 7
29-Jan	8	LJ	Competition	Chapter 12
1-Feb	9	LJ	Competition	
3-Feb	10	LJ	Competition	
5-Feb	11	LJ	**EXAM 1 (Covers Introduction through Competition)**	
8-Feb	12	LJ	Predation	Chapter 13
10-Feb	13	LJ	Predation	
12-Feb	14	LJ	Predation	
15-Feb	15	LJ	Mutualism	Chapter 15
17-Feb	16	LJ	Parasitism	Chapter 14
19-Feb	17	LJ	Ecology and Evolution, coevolution	Chapter 6
22-Feb	18	LJ	Biological control, harvesting populations	
24-Feb	19	LJ	Biological control, harvesting populations	
26-Feb	20	LJ	**EXAM 2 (Covers Predation through Biological Control)**	
29-Feb	21	CS	Project Introduction	
2-Mar	22	CS	Communities – Succession	Chapter 17
4-Mar	23	CS	Communities – Succession	
7-Mar	24	CS	Communities – Biogeography	Chapter 18
9-Mar	25	CS	Communities – Biogeography	Chapter 18
11-Mar	26	CS	Project Workday	
14-Mar	27	CS	Communities – Biodiversity	Chapter 19
16-Mar	28	CS	Communities – Biodiversity	Chapter 19
18-Mar	29	CS	Project Workday	
21-Mar	–	–	SPRING BREAK	
23-Mar	–	–	SPRING BREAK	
25-Mar	–	–	SPRING BREAK	
28-Mar	30	CS	Ecosystems – Production	Chapter 20
30-Mar	31	CS	Ecosystems – Production	
1-Apr	32	CS	**Exam 3 (Covers Succession through Biogeography)**	
4-Apr	33	CS	Ecosystems – Food Webs	Ch 21 p.485-491
6-Apr	34	CS	Ecosystems – Food Webs	
8-Apr	35	CS	Ecosystems – Energy Flow	Ch 21 p.473-484
11-Apr	36	CS	Project Workday	
13-Apr	37	CS	Ecosystems – Nutrient Cycles	Chapter 22
15-Apr	38	CS	Ecosystems – Nutrient Cycles	
18-Apr	39	CS	Project Workday	
20-Apr	40	CS	Project Workday	
22-Apr	41	CS	Poster Session	
25-Apr	42	CS	Course Review Case Study – Conservation Biology	Ch 23 p.521-539
29-Apr			**FINAL EXAM - Friday 4/29 8:00–10:50 am Cumulative Final Exam**	