General Ecology (BIOL 2335)
Fall 2014

Syllabus (last revised August 25, 2014)

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

Professors:

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Lecture Teaching Assistant: David Gibbs (dgibbs7@gatech.edu). Office hours W 3–5 pm in Cherry Emerson 211.

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 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 campus and the urban Atlanta area.
2) Be able to connect urban ecology to the broader biosphere.
3) Create an ecology-focused project with a campus or community organization.
4) Make connections between your hands-on project/volunteerism and the basic 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. Additional readings will be posted to t2 and announced during 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 account at https://learningcatalytics.com/student_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.

Exams: The exams will be a combination of short answer/essay and multiple choice. One half of the final exam will be material covered from the 2nd midterm until the end of the course, while the other half will be cumulative.

Grades: You will be evaluated on these activities:

- **Midterm Exams: 30%** of your grade will be determined by two midterm exams with multiple choice and short answer questions.
- **Final Exam: 25%** One-third of the final will cover the material presented since the 2nd midterm whereas the other 2/3rd will be cumulative.
- **Activities: 15%** of your grade will be determined by in-class activities, including learning catalytics questions, worksheets, and quizzes. Please come prepared to class.
- **Homework: 10%** of your grade will be determined by out-of-class homework assignments on learning catalytics.
- **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 presentation 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, you must notify us beforehand. Unexcused absences from presentations 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 reprinting the words of others without both the 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. 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) – most recent update: 25 August 2014*

Date	Lecture	Who	Lecture Topics	Cain et al.
18-Aug	1	CS	Intro to Urban Ecology	Ch 1
20-Aug	2	CS	Evolution and Ecology	Ch 6
22-Aug	3	CS	Populations – Life Histories	Ch 7
25-Aug	4	CS	Populations – Distribution and Abundance	Ch 9
27-Aug	5	CS	Populations – Distribution and Abundance	
29-Aug	6	CS	Populations – Growth and Regulation – Life Tables	Ch 10
1-Sep		–	HOLIDAY	
3-Sep	7	CS	Populations – Growth and Regulation – Life Tables	
5-Sep	8	CS	Populations – Dynamics	Ch 11
8-Sep	9	CS	Populations – Dynamics	
10-Sep	10	CS	Interactions – Competition	Ch 12
12-Sep	11	CS	Interactions – Competition	
15-Sep	12	CS	Interactions – Competition	
17-Sep	13	CS	Interactions – Predation	Ch 13
19-Sep	14	CS	EXAM 1 (Covers "Intro to Urban Ecology" through "Interactions – Competition")	
22-Sep	15	–	PROJECT INTRODUCTION / WORKDAY – Attendance graded	
24-Sep	16	CS	Interactions – Predation	
26-Sep	17	CS	Interactions – Predation	
29-Sep	18	CS	Interactions – Parasitism	Ch 14
1-Oct	19	CS	Interactions – Mutualism	Ch 15
3-Oct	20	CS	Interactions – Synthesis	
6-Oct	21	CS	Communities – Succession	Ch 17
8-Oct	22	CS	Communities – Succession	
10-Oct	23	–	PROJECT WORKDAY – Attendance graded	
13-Oct		–	FALL BREAK	

Date	Lecture	Who	Lecture Topics	Cain et al.
15-Oct	24	LJ	Communities – Biodiversity	Ch 19
17-Oct	25	LJ	Communities – Biodiversity	
20-Oct	26	LJ	Communities – Biogeography	Ch 18
22-Oct	27	LJ	Communities – Biogeography	
24-Oct	28	LJ	Biological Control – Harvesting Populations	
27-Oct	29	LJ	Biological Control – Harvesting Populations	
29-Oct	30	CS	EXAM 2 (Interactions – Predation through Communities – Biogeography)	
31-Oct	31	–	PROJECT WORKDAY – Attendance graded	
3-Nov	32	LJ	Ecosystems – Production	Ch 20
5-Nov	33	LJ	Ecosystems – Production	
7-Nov	34	LJ	Ecosystems – Energy Flow & Food Webs	Ch 21
10-Nov	35	LJ	Ecosystems – Energy Flow & Food Webs	
12-Nov	36	LJ	Ecosystems – Energy Flow & Food Webs	
14-Nov	37	LJ	Ecosystems – Nutrient Cycles	Ch 22
17-Nov	38	LJ	Ecosystems – Nutrient Cycles	
19-Nov	39	–	PROJECT WORKDAY – Attendance graded	
21-Nov	40	–	PROJECT WORKDAY – Attendance graded	
24-Nov	41	CS	Applied Ecology – Conservation Biology	Ch 23
26-Nov	42	CS	Applied Ecology – Landscapes & Ecosystem Management	Ch 24
28-Nov		–	THANKSGIVING BREAK	
1-Dec	43	–	Project Presentations	
3-Dec	44	–	Project Presentations	
5-Dec	45	–	Project Presentations	
10-Dec			FINAL EXAM – Wed 11:30am - 2:20pm	