

Syllabus

Time and Location: Monday, Wednesday and Friday 9:05-9:55, Weber SST III 1

Course Objectives: To 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.

Text: *Ecology*, M.L. Cain, W.D. Bowman, and S.D. Hacker, 2008, Sinauer Assoc., Sunderland, MA.

Course Format: The course will be presented in a lecture-discussion format. It is probably best to lightly skim the text book prior to lecture, and then read it more carefully after the lecture, since we often emphasize different aspects of this material. This will save you from concentrating on material in the book that is not relevant to the presentation in class. Since the text book and lectures occasionally disagree, what we say in class is correct in case of a conflict. Unless otherwise stated, students are responsible for all material covered in lectures and outlined in the syllabus. This course will attempt to 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 both exams and independent projects.

Grades: You will be evaluated on three activities. First, 60% of your grade will be determined by three exams (two mid-terms: 15% each; final exam: 30%) given over the semester. Second, 10% of your grade will be determined by quizzes given in lectures and after-class homework assignments. Both quizzes and homework will be given frequently on a random basis. The remaining 30% of your grade will be based on three independent projects (10% each). Each project will consist of a PowerPoint presentation on a topic of ecological importance, and you will be expected to use scientific literature (journals, technical reports) rather than textbooks. Details of the format will be described in class. You will work in groups of 5-6; the group will give a short oral presentation and the group will submit one report. Both the report and the presentation will provide an introduction to the problem, methods, summary of results in text (as well as tables and graphs where appropriate), and discussion of how the results relate to published work and their significance. Grades will be assigned according to the following scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, below 60 F. We may curve the exams if necessary, and reserve the right to change these standards based on class performance.

Honor code: Your conduct in this course is expected to conform to the GT Student Honor Code (<http://www.honor.gatech.edu/>). We urge you to consult this for a full definition of your rights and responsibilities.

Attendance: Attendance of all lectures is strongly encouraged since material not covered in the readings will be presented. Quizzes will be given only in lectures. Class attendance is mandatory for all days when there are presentations or exams. Should you miss a presentation or exam, you must convince us that the absence was excusable. 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 need to notify us beforehand. Unexcused absences from presentations or exams will result in a grade of 0.

Professors:

Dr. Lin Jiang

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Office Hours: LJ and MAD will hold office hours directly after class on Mondays and Wednesdays (from 10-11), or by appointment.

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Office hours: by appointment

Class Schedule (*subject to change*)

Holidays: Sept 1, Oct 12, Nov 28

DATE	TOPIC	READING*
Aug 18	Introduction, What is Ecology? (MAD)	Chapter 1
Aug 20, 22	Population growth, regulation and dynamics (MAD) Independent Project 1 assigned	Chpt 9, 10 (up to pg. 230)
Aug 25, 27, 29	Life Histories and Population Distributions (MAD)	Chapters 7, 8
Sept 3	Metapopulations (MAD)	pages 230-236
Sept 5, 8, 10	Competition (MAD)	Chapter 11
Sept 12, 15, 17	Predation (MAD)	Chapter 12
Sept 19	Mutualism (RH)	Chapter 14
Sept 22	Exam 1 (from introduction through mutualism)	
Sept 24, 26	Parasitism (MAD) <i>Mid-term progress report grades due Sept 26</i>	Chapter 13
Sept 29, Oct 1, 3	Independent Project 1 presentations	
Oct 6, 8	Ecology and Evolution, Coevolution (MAD) Independent Project 2 assigned	Chapter 6
Oct 10, 15	Community Structure I: Succession (LJ) <i>October 10: Last day to drop course with "W"</i>	Chapter 16
Oct 17, 20	Community Structure II: Biodiversity (LJ)	Chapter 18
Oct 22, 24	Community Structure III: Food webs (LJ)	pages 440-451
Oct 27, 29, 31	Independent Project 2 presentations	
Nov 3	Biological control, harvesting populations (LJ) Independent Project 3 assigned	pages 518-523

Nov 5	Biogeography (LJ)	Chapter 17
Nov 7	Exam 2 (from parasitism through biogeography)	
Nov 10	Conservation Biology (LJ)	Chapter 22
Nov 12, 14, 17	Ecosystems I: Production (LJ)	Chapter 19
Nov 19, 21	Ecosystems II: Energy flow (LJ)	pages 432-439
Nov 24, 26	Ecosystems III: Nutrient cycles (LJ)	Chapter 21
Dec 1, 3, 5	Independent Project 3 Presentations	

FINAL EXAM (cumulative): Wednesday, December 10, 2:50-5:40 pm

* in Cain, Bowman and Hacker 2008