

Syllabus

Time and Location: Monday, Wednesday and Friday 12:05-12:55, Howey (Physics) L2

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*, second edition, M.L. Cain, W.D. Bowman, and S.D. Hacker, 2011, 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 I 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 I say in class is correct in case of a conflict. Unless otherwise stated, students are responsible for all materials 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 6-8; 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. I 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/>). I 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.

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