

# Biology 474, Spring 2015

## Plant Ecology

**Text:** Gurevitch, J., S. Scheiner, and G. Fox. 2006. *The Ecology of Plants*. 2<sup>nd</sup> Edition. Sinauer, Sunderland, MA, 574 pp. Note: This is the required text for the course. Although much of the lecture material will be covered by the text, the emphasis may differ substantially from the lecture material. In all cases, lecture material takes precedence.

A number of other useful books covering various topics presented in the course can be found in the library. These include the books listed below.

Crawley, M. J. (Ed.) 1997. *Plant Ecology*. Second Edition. Blackwell Scientific. Oxford. 496 pp.

Barbour, Burk, and Pitts. 1999. *Terrestrial Plant Ecology*. **3rd Edition**. Benjamin Cummings, Inc. Menlo Park, CA.

Silvertown, J. W. and Deborah Charlesworth. 2001. *Introduction to plant population biology*. 4<sup>th</sup> Edition. Blackwell Scientific Publications, Oxford. 347 pp.

### **Webpage:** [Blackboard](#)

The Blackboard page consists of an electronic copy of the syllabus. It will also be used to post information pertaining to the class during the course of the semester.

<b>Critical dates:</b> Midterm #1 .....	February 19
Spring Break .....	March 16-20
Midterm #2 .....	April 2
Final Exam .....	TBA

### **Course Grade:**

First Midterm Test .....	33%
Second Midterm Test .....	33%
Final Examination .....	33%
 TOTAL .....	 100%

**Goals:** The overall goal of the course is to develop a general understanding of the principles of ecology as they apply to plants. This includes a consideration of observational, experimental and theoretical approaches. Special emphasis will be placed on population and community ecology within the context of evolutionary processes. We will also discuss topics of recent interest in plant ecology: for example, landscape ecology and the ecology of invasive species. Emphasis will be placed on developing conceptual understanding, the core of ecological thinking, rather than on learning isolated facts.

**Readings:** Most of the assigned reading material will come from the textbook *The Ecology of Plants*. In some instances a reading may be assigned and posted on Blackboard. This may be updated during the course of the semester as the instructor reserves the right to alter the lecture schedule according to necessity and whim. The instructor will announce in class any changes in the readings as soon as they have been determined throughout the course of the semester.

**Lectures:** The instructor's experience has been that lecture attendance is critical for success in the course. Test questions are based on lecture material. Much of the information presented in lecture will also be found in the textbook, however, not always. In many cases, the lecture material will go beyond

the material presented in the readings. If for some reason you cannot attend a lecture, you should obtain lecture notes from one your classmates or contact the instructor to find out what was covered in class. In some cases, the lecture material will be posted to the course web page, when the material is not adequately covered by the textbook. However, the amount of material posted in this way will depend upon time available to the instructor (i.e., no guarantees!).

**Schedule of topics:** Introduction to Plant Ecology (Chapter 1), Photosynthesis and the light environment (Chapter 2), Water Relations (Chapter 3), Soils, Mineral Nutrition and Belowground Interactions (Chapter 4), Populations (Chapter 5), Evolutionary Processes (Chapter 6), Growth and Reproduction of Individuals (Chapter 7), Plant Life Histories (Chapter 8), Community Ecology (Chapter 9), Competition (Chapter 10), Herbivory (Chapter 11), Disturbance (Chapter 12), Diversity and Rarity (Chapter 13), Ecosystem Processes (Chapter 14), Landscape Ecology (Chapter 15), Climate Change, Humans and Plants (Chapters 17-21)

**Students with Disabilities:** Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. All students requesting accommodations are required to meet with staff in Student Disability Resources (SDR) to establish eligibility. A Student Academic Accommodation Request (SAAR) form will be provided to eligible students. The provision of reasonable accommodations in this course will be arranged after timely delivery of the SAAR form to the instructor. Students are encouraged to deliver completed SAAR forms as early in the semester as possible. SDR, a unit in the Dean of Students Office, is located in room 1076, Student Services Building or online at [www.dso.iastate.edu/dr/](http://www.dso.iastate.edu/dr/). Contact SDR by e-mail at [disabilityresources@iastate.edu](mailto:disabilityresources@iastate.edu) or by phone at 515-294-7220 for additional information.