

## **Bio 345 Field Botany**

Professor Mark Davis

(Office: Rice 104; 696-6102)

Office Hours - M: 1:30-3:00 p.m.

Wed: 1:30-3:00 p.m.

Fall 2013

Macalester College

### GENERAL INFORMATION

Biology 345-01 (02): (Field Botany) is a course in plant taxonomy, plant geography, and plant ecology. Students will learn the principles of plant classification and, through first hand experience, the techniques of plant identification, collection, and preservation. Students also will be introduced to the fields of plant geography and plant ecology. Particular attention will be given to the taxonomy, geography, and ecology of plants growing in the North Central United States. Weekly field trips to nearby habitats will enable students to become familiar with many local species. This is a course for anyone who enjoys plants and wants to learn to identify them and learn more about them, as well as for students with a scientific interest in plant taxonomy and ecology. Note: this syllabus and other course materials can also be found on Moodle.

**READINGS:** Readings from Barbour and Billings (2000), *North American Terrestrial Vegetation*, Cambridge U Press (in Bio Student Lounge); Judd et al. (2008), *Plant Systematics: A Phylogenetic Approach*, Sinauer Associates (in Bio Student Lounge); & readings to be assigned.

**LECTURES:** MWF 10:50 - 11:50 a.m. in OR284. Please come to class on time!!!!

**LABORATORY/FIELD TRIPS/DISCUSSIONS:** Thurs: 8:00 - 11:10 a.m. During September, and October we will usually take field trips during the weekly laboratory time. These will be local botanizing trips and will provide students with the opportunity to develop and practice their identification skills in the field. Later in the term, when the weather becomes colder and most plants have gone dormant for the year, labs will consist principally of indoor activities and will include trips to such places as the herbarium and Bell Museum at the University of Minnesota. A portion of some labs will be used to discuss assigned readings.

**WRITING, EXAMINATIONS, AND GRADING:** In addition to a comprehensive final, there will be 3 exams during the course. The exams during the course will cover lecture and reading material for 3-5 week periods and will be worth 100 points. The final will be worth 200 points. In addition, there will be one quiz on botanical vocabulary worth 50 points. All students will be required to make a botanical collection of at least 30 species and this will be worth 100 points (Due Nov. 27). Students will write several memos to one another on issues raised in the course. In addition, students will write a final paper (7-10 pages, double spaced) describing the ecology and research of a particular plant species which they have researched in the botanical literature. Students also will present their paper orally to the class. Students will be evaluated on their performance on exams (65%), the quality of their written and oral presentations (15%), the completeness and quality of their botanical collections (15%), and their participation in class discussions and memo writing (5%). Attendance at lab/field trips is required, and any missed labs/field trips will result in a 20 point deduction (per lab/field trip missed) from the semester total of points. Regular attendance at lectures is expected. The final exam is scheduled for Friday, December 13 at 8:00 a.m. Students must arrange their end of the semester travel plans so that they can take the exam when it is scheduled. Note: if you have need for special test-taking, note-taking, or other accommodation, please discuss this with Professor Davis.

## LECTURE SCHEDULE

Readings: Judd et al. (J)  
Barbour & Billings (B)

September 4 Introduction

1-11 (J), 119-132 (J; for students  
who have not taken Ecology)

### THE PRAIRIE

6 Ecology and Geography

323-335 (excl. soils), 336-342, 345-  
351(B)

9 Prairie Grasses

11 (No Class)

13 Prairie Forbs

16 Forbs continued

18 Quiz (Botanical Vocabulary)

Handout

### THE DECIDUOUS FOREST

20 Ecology and Geography

357-365, 374-376, 378-389 (B)

23 Trees

25 Trees

27 Trees and Herbs

30 Herbs

October 2 EXAM #1

### THE URBAN FLORA

4 Trees

7 Trees

9 Shrubs and Herbs

### AQUATIC AND WETLAND PLANTS

11 Ecology and Geography

449-466, 491-492 (B)

14 Bog Plants

16 Plants of Freshwater Marshes

18 Plants of Freshwater Marshes

21 Field Trip (Mississippi Flood Plain)

23 EXAM #2

**Fall Break**

### THE CONIFEROUS FOREST

28 Ecology and Geography

375-376 (B)

30 Trees

November 1 Trees

- 4 Herbs
- 6 Herbs
- 8 Ferns, Club Mosses and Horsetails

### PLANTS OF DISTURBANCE AREAS

- 11 Ecology of Disturbance and Succession
- 13 Plants of Old Fields and Roadsides
- 15 Plants of Old Fields and Roadsides
- 18 Plants of Old Fields and Roadsides

### ECONOMIC PLANTS

- 20 Plants of food and other economic value
- 22 EXAM #3

### A LOOK BACKWARD

- 25 Evolution of Vascular Plants 162-181 (J)
- 27 History of Plant Classification 39-51 (J) optional

### **Thanksgiving Break**

### PLANT ECOLOGY

- December 2 Pollination Ecology/Dispersal Ecology
- 4 Herbivory and Seed Predation
- 6 Local Factors Influencing Plant Distribution
- 9 Biological 'Invasions', Climate Change, and the Redistribution of the World's Vegetation
  
- 13 FINAL EXAM (8:00-10:00)

## LABORATORY/FIELD TRIP SCHEDULE

| <u>Date</u> | <u>Site</u>                   | <u>Objective/Focus</u>   |
|-------------|-------------------------------|--|
| 9/5         | OlinRice                      | Introduction to principles of plant systematics, botanical keys, and plant collection techniques       |
| 9/12        | Crow-Hassan Park              | Prairie Flora  |
| 9/19        | Allison Savanna & Cedar Creek | Savanna and Prairie Flora  |
| 9/26*       | Wolsfield Woods               | Deciduous Forest (Maple-Basswood)  |
| 10/3        | Ordway                        | Deciduous Forest (Oak) & Collecting  |
| 10/10*      | OlinRice/Campus               | Introduction to Mounting of Botanical Specimens/DISCUSSION (Readings TBA)<br>Urban Flora (campus walk) |
| 10/17       | Cedar Creek                   | Bog Flora  |
| 10/22*      | Olin Rice/Como Park           | DISCUSSION (Readings TBA)/Visit Como Park and Conservatory   |
| 10/31*      | OlinRice/U of Minnestoa       | DISCUSSION/Herbarium Visit   |
| 11/7        | OlinRice                      | Winter Twig Lab  |
| 11/14       | Olin Rice                     | Work on Collections  |
| 11/21*      | OlinRice/Bell Museum          | DISCUSSION (Readings TBA) / Review of all species  |
| 11/28       | THANKSGIVING                  |  |
| 12/5        | OlinRice                      | Student Oral Presentations of Final Project  |

\* MEMOS DUE