

Plant Biology 313 (“Special Topics”)
Plant Biology 693 (“Topics in Botany”)
Vascular Flora of Southeast Ohio
Spring 2008

Learning Objectives: 1) You will key out and learn to recognize the common (and some uncommon) spring-blooming species of angiosperms that are native or naturalized in southeastern Ohio. 2) In the process, you will gain additional experience with the use of identification keys and greater familiarity with plant taxonomy and the descriptive terminology used in plant keys (some previous experience with keys, terms, and taxonomy is assumed). 3) You will learn how to recognize many species of herbaceous vascular plants that can only be seen in vegetative condition during spring quarter. 4) You will learn the standard practices and expectations for the collection and preparation of plant specimens of herbarium quality.

Credits: 3

Class meetings: Tuesdays and Thursdays 2:10 – 5:00 p.m. There will also be one or two full-day field trips on weekends (most likely on Saturdays—dates to be determined).

Instructor: Philip Cantino, 411 Porter Hall (593-1128), cantino@ohio.edu

Required Texts and Supplies:

1. Gleason, H. A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada, 2nd edition. New York Botanical Garden.
2. Hand lens, 10x, available at local book stores
3. Plant press (may be borrowed for the duration of the course if you do not have one available in your lab)

Expectations on Outings: The majority of class meetings will be held outdoors. In my scheduling of class activities, I will make an effort to avoid rain when possible, but we will probably encounter bad weather on some of the field trips. I will not always be able to tell you very far in advance whether the class will be indoors or out, and it is your responsibility to come to every class meeting with clothes and footwear appropriate for the weather. Because we will often be off trail and climbing or descending steep slopes, hiking boots or other footwear with a good tread will be needed.

Basis for Grade:

First Exam (<u>tentatively</u> , Thursday, May 1, 2:10 p.m.)	25%
Final Exam (Wednesday, June 11, 12:20 p.m.)	30%

Quizzes	20%
Project (due Thursday, June 5)	25%

Exams and Quizzes: There will be two exams and at least four quizzes. On quizzes and exams, you will be expected to identify plant specimens to species (using the scientific name) by memory, without the aid of any books or notes. On exams, you may also be asked to identify plants you have never seen before using the key in your manual (Gleason & Cronquist). You will be given a series of lists of the required species after they are introduced, so there should never be any question about which ones are "fair game" on tests. The exams will be in the lab, but the quizzes may be either in the lab or the field. The quizzes will not necessarily be announced in advance.

Service Learning: There will be optional opportunities to participate in forest stewardship activities on several weekend days. These outings will involve removal of invasive plants from local natural areas. In the process of helping to protect our native flora, you will have the opportunity to review the plant taxonomy you have learned in class. Participation in one forest stewardship work session of at least three hours will substitute a score of 100% for your lowest quiz grade. Your involvement in additional stewardship activities is encouraged, but substitute quiz credit will be given only once per student.

Project: Each student is required to do a collection project, which must be turned in on or before the last day of class (Thursday, June 5). See pp. 3-6 for details. Please start thinking about this right away, and consult with me about your idea as soon as possible. *You must turn in a one-page project proposal by next Tuesday (April 8), including a map or a detailed description of the location and size of your proposed study site.*

Attendance: Because there are only 20 class meetings in the quarter, attendance is mandatory. Any unexcused absence will lower your course grade by one notch (e.g., from an A- to a B+ for one unexcused absence; from an A- to a B for two absences, etc.).

Legitimate reasons for missing class include illness, death in the immediate family, religious observance, and involvement in university-sponsored academic activities. Other reasons will be considered on an individual basis. Any absence other than for illness or death in the family must be cleared advance.

A missed quiz or exam cannot be made up, regardless whether the absence is excused. However, a missed quiz or exam will not be counted against your grade if you were absent for a legitimate reason, as described above.

Academic Dishonesty: The penalty for cheating on an exam or quiz is failure of the course.

Project: Each student is required to do a collection project, which must be turned in on or before the last day of class (Thursday, June 5). The project objective is to document the spring-blooming flora of a public or privately owned natural area. You will be expected to turn in a collection of labeled, correctly identified specimens, of high enough quality to deposit in Ohio University's Bartley Herbarium, and a short report. Please turn in both a hard copy and an electronic copy of the report.

The Collection. Each plant should be enclosed in a separate sheet of newspaper. A printed label (see pg. 5 for an example of the expected information) should be included with each plant. Every label must have a different collection number, and the number should be written on the newspaper in case the label falls out. Specimens should not be mounted (it is much easier to check your identifications if the specimens are not yet glued down). If you have done collection projects before, do not use the same set of collection numbers twice (e.g., if you already have collected specimens numbered 1-100 for some other class or research project, and those specimens may end up in a public herbarium, start this project with #101.)

The Report. The report need not be long but should include: 1) a brief introduction describing the study area, including its ownership, exact location, topography, and dominant vegetation types; 2) a methods section, including (as a minimum) a list of the dates on which you visited the site, observation strategy (i.e., random vs systematic walking routes), the books and other resources you used to identify the plants; 3) a results section, including a summary of the number of species, genera, and families found; 4) a list of species arranged by family, and alphabetically within families; and 5) discussion (open-ended). If your knowledge of the flora is reasonably good at the outset, it would be preferable to annotate the species list with regard to abundance, habitat, or both. If you note abundance, please use the scale developed by Palmer et al. (attached as pg. 6). Include a map of the study area, on which you show the exact location of any rarities you find.

Basis for Project Grade. Collection (80%). This portion of the grade will be based on accuracy of identification and the quality of the specimens. Report (20%)

Collecting and Pressing. Collect in large plastic garbage bags. Put a few drops of water in the bag and keep them closed and as cool as possible until you press the specimens. Wilted specimens are hard to identify (and ugly!). It is generally easier to identify specimens before pressing them.

You may want to use masking tape to number each plant temporarily (until pressing), and keep correspondingly numbered notes on where you found the plant.

If roots or rhizomes are collected, wash the dirt off them before pressing the specimens. Underground parts are generally needed to identify grasses and sedges, and sometimes for other

plants. In general, underground parts should be collected unless the plant is rare at the site, in which case conservation concerns should take precedence. However, if the plant is only moderately common or is at risk from overcollecting (e.g., *Hydrastis*, *Trillium*) and you are sure that the underground parts are not needed for identification, do not collect them.

If you find a plant that is rare at your study site, collect only a small piece of it until you find out whether it is regionally rare. Note its location as carefully as you can so that you can relocate it. I suggest you mark it on your map and take notes about distance and direction from large trees or other landmarks (or use a GPS unit if you have one). It might be worthwhile to bring flagging with you.

If you think you have found something rare, please see me about it soon rather than waiting until you turn in your collection.

A good specimen should ideally fill two thirds of a herbarium sheet, the rest of the space being needed for the label, fragment packet, herbarium stamp and accession number, and room for future annotations. If the plants are small and abundant, collect enough to make one full herbarium specimen. If the specimen is too large to fit on a herbarium sheet, cut it into pieces before drying it. When mounted, these can be labeled as "part 1 of 3", "part 2 of 3", etc. This approach is often needed for tall herbaceous plants on which leaf shape varies from the base to the top. However, for woody plants, where this is not an issue, try to collect a specimen of the right size for a single herbarium sheet.

When you place the specimen in the plant press, make sure that some leaves are facing up and some down. That way, when the specimen is mounted, both leaf surfaces will be visible to users.

There is a drier in the teaching herbarium (Porter 409). Place plant presses on their side so that the warm air blows up through the channels in the corrugates. Do not let the temperature in the drier exceed 100 F. Most specimens will dry in two or three days in this drier.

Identification Resources.

Some of you have microscopes and books in your labs for plant identification. Those who do not are welcome to use the dissecting microscopes and books in my lab. These include:

Holmgren, N. H. 1998. Illustrated companion to Gleason and Cronquist's manual. This is extremely useful. Two copies are available on a short-term basis, one of which must remain in Porter 411.

The Flora of Ohio (three of the four volumes are complete).

Cusick, A. W. and G. M. Silberhorn. 1977. The vascular plants of unglaciated Ohio. Bull. Ohio Biol. Survey, vol. 5, no. 4. This annotated list does not include keys or descriptions but is very useful if you want to find out quickly whether a species you think you have found is known to occur in this area. I routinely check it when I identify a species for the first time; it is a good way to catch errors.

If you think you have found something unusual, you may want to compare it to specimens in the Bartley Herbarium. If you don't have a key to the herbarium, you can get one from Connie Pollard.

Sample Label (must include scientific name [italicized], author of name, state, county, township, section number, other locality information, ecological information (optional), flower color (if available), date, collector, collection number):

THE BARTLEY HERBARIUM OF OHIO UNIVERSITY

Scutellaria serrata Andr.

Ohio: Athens County, Waterloo Twp., sec. 1, under
an oak canopy along path on Sside of Fox Lake,
ca. 0.5 mile NE of parking lot at the SW end of the lake.
Flowers bluish purple.

May 31, 2001
Philip Cantino 1331

IMPORTANT: The labels must be printed on archival quality paper such as is used for theses and dissertations.

Dr. Ballard has software to print labels if the required data are provided in an Excel document.
There will be more information about this later in the quarter.