

Field Botany Laboratory

Renewable Natural Resources 230L

- Syllabus -

Instructors

Steve Smith (azalfalf@ag.arizona.edu), Biological Sciences East 211, 621 5325.

This course typically has a Graduate Teaching Assistant and undergraduate Preceptors.

Units: 1

Special course fee required: \$10.

Prerequisite: RNR 230R or Concurrent registration in RNR 230R.

Grading: Regular grades are awarded for this course: A B C D E.

Course description

This course covers the skills and information required to function as a botanist in the field. It involves the direct application of the botanical knowledge concurrently presented in 230R. The course includes laboratory, and group and individual field exercises and emphasizes practical plant identification and field botanical skills. RNR 230R is open to students in all majors and is a core course in the Natural Resources undergraduate curriculum in the School of Natural Resources. The course has two mandatory Saturday field trips.

Expected outcomes

Students completing RNR 230L will:

(Knowledge and Concepts)

1. Be able to apply the hierarchical nature of taxonomic systems and the principles used in applying scientific nomenclature.
2. Be familiar with the common vegetative and reproductive traits that are useful in the identification of plants.

3. Know the key trait combinations that are used to characterize plant families common in Arizona.

(Skills)

4. Be able to identify unknown plants using a dichotomous key.
5. Be able to sight identify representative plant families prominent in the vegetation of Arizona.
6. Be able to collect, describe and preserve plant material for identification.
7. Be able to create a plant species checklist that accurately describes plant diversity at a given site.

Student evaluation and grading

Quizzes	3 @ 10 points
Final quiz (last lab)	1 @ 30 points
Field trip exercises	2 @ 20 points
Plant collection	1 @ 100 points

$\Sigma = 200$ points

Final grades are not assigned based on any predetermined thresholds. However, they will roughly follow this scale: 90-100% = A; 80-89.9 = B; 70-79.9 = C; 60-69.9 = D; < 60 = E.

Texts (required)

1. **Plant Identification Terminology. An Illustrated Glossary.** 2nd Edition. James G. Harris and Melinda Woolf Harris. Spring Lake Publishing. [\$19.90 (new) from Amazon.com, June 2013]
2. All students will need to download the **RNR 230L Laboratory Manual** from the course D2L page (see below). This >100-page document contains all the exercises for the laboratories and field trips as well as information related to the plant collection.

Topics

1. Growth form terminology; plant collection and preservation
2. Non-flowering seed plants: Pinaceae, Cupressaceae, Ephedraceae
3. Basic botanizing (field trip in Santa Catalina Mountains)
4. Zygothylaceae; basic vegetative and reproductive morphology
5. Ranunculaceae, Polygonaceae; Herbarium tour
6. Salicaceae, Brassicaceae
7. Nyctaginaceae, Amaranthaceae, Cactaceae

8. Papaveraceae; Describing biodiversity; constructing a species list (field trip to Cienega Creek)
9. Juncaceae, Cyperaceae, Poaceae
10. Fabaceae, Asteraceae
11. Lamiaceae, Apiaceae, Fagaceae, Onagraceae
12. Malvaceae, Solanaceae, Rosaceae
13. Celtidaceae, Rhamnaceae, Bignoniaceae, Euphorbiaceae
14. Asparagaceae, Orchidaceae

“A good dog is so much a nobler beast than an indifferent man that one sometimes gladly exchanges the society of one for that of the other.”

~William Francis Butler



Reconnaissance party in camp, Apache National Forest, Arizona, 1910 (Aldo Leopold second from right).