

FIELD BOTANY (BIOLOGY 2355)--2015

GENERAL INFORMATION

PERSONNEL

Instructor: Lynn Bohs, 228 & 203N South Biology, phone: 801-585-0380, e-mail: bohs@biology.utah.edu

Teaching assistant: David Love, 233 South Biology, phone: 801-585-0381 (lab), e-mail: david.m.love@utah.edu

TIME AND PLACE

W F, 12:55-5:00 pm. Lectures start at 12:55 pm, and are in 230 James Talmage Building (JTB). Field trips depart either after lecture, or if there is no lecture for the day, field trips depart from behind the Skaggs Biology building (between Skaggs and the bookstore).

PURPOSE OF COURSE

The objective is to learn about plant biology by studying the local flora. You will develop skills in using technical botanical floras and the herbarium for identifying plants. Lectures provide the biological context of the habitats visited and plants observed.

TEXT

Flora of the Central Wasatch Front, Utah by Lois Arnow, B. Albee & A. Wycoff. 1980.

Copies are available for \$50.00 (includes 6.8% sales tax) for purchase from the University of Utah Biology Department (checks payable to "U of U Biology Dept."). For those students who do not want to purchase the book, we have copies available for rent at \$20 plus a \$30 deposit refundable on return of the book in satisfactory condition at the end of the course (Cash, or checks payable to "U of U Biology Dept.").

LAB ROOM RESOURCES

We encourage you to use the lab room on your own time for identifying homework plants and the plants in your independent collection. For this purpose you will have ID card access to the lab room Monday through Friday. Extra copies of your textbooks will be available here as well as several CD programs installed on the computers to help with plant identification.

There will be some dissecting scopes available in the classroom for use in keying out plants. You will find these extremely useful for plant identification.

Plant Identification Terminology; an Illustrated Glossary by J.G. Harris and M.W. Harris 1997. Spring Lake Publications. A copy of this useful text will be in the classroom. If you are floundering in an ocean of terminology, this book will help.

SUPPLEMENTARY REFERENCES

For those of you wanting to explore plant identification further, here are some recommended books.

1. "A Utah Flora" by S.L. Welsh, N.D. Atwood, L.C. Higgins, and S. Goodrich. Brigham Young University Press. 2008, 2003, 1993, or 1987 editions; all are adequate.

Your text only covers plants from Salt Lake and Davis Counties. If you want to identify plants from other areas in Utah, you will need to use the Utah Flora. The serious botanists among you will want to purchase this book. It covers ALL the plants in Utah, with keys, descriptions, and a glossary. Copies are available for classroom use.

2. "Intermountain Flora" by A. Cronquist, A.H. Holmgren, J.L. Holmgren, and J.L. Reveal. New York Botanical Garden. Multi-volume set.

This work-in-progress covers the entire Great Basin region including Utah, Nevada, southern Idaho, and southeastern Oregon. It has keys, species descriptions, and best of all: **illustrations of every species!** However, the price for the set is over \$600. A set is available for use at the herbarium, or by request you can use them in the Bohs lab area (232 South Biology).

3. "Wasatch wildflowers; a field guide" by Steve Hegji. CFI, Springville, UT. 2010.

Pluses: photographs of local wildflowers make an approximate identification easier. Minuses: only a portion of plants are covered and it cannot be used for precise identification. Available at REI.

4. "Weeds of the West" by T.D. Whitson et al. University of Wyoming Press. 1993.

Excellent reference for weedy species, ca. \$22.

5. "The Sagebrush Ocean" by S. Trimble. 1989. University of Nevada Press.

An excellent overview of the natural history of the Great Basin. Beautiful photographs. \$10-20. One copy is available for classroom use.

REQUIRED ITEMS

A **field notebook** is necessary for writing down the plants we see, and information about their morphology and habitat. You will also need paper and a writing

implement for taking quizzes in the field. A pocket-sized loose-leaf type is recommended. These are available at the University Bookstore.

A **clipboard** is useful for holding your species lists and taking notes.

It is essential that you buy a **10X hand lens**. These are available at the bookstore (ca. \$7). You will need this to examine the often minute features of plants that are used to identify species.

Three sources of higher quality lenses are listed below:

BioQuip

www.bioquip.com

Phone: (310) 667-8800

Fax: (310) 667-8808

Recommended item:	10X Coddington Magnifier	1128B	\$29.75
	10X Hastings triplet magnifier	1128E	\$47.55

Amateur Geologist

www.amateurgeologist.com

Phone: (760) 876-5427

Fax: (760) 876-5429

Recommended items:	10X Coddington Magnifier	\$29.70
	14X Coddington Magnifier	\$32.49

Geo-tools

www.geo-tools.com

Phone: (435) 225-6423

Recommended items:	10X Belomo triplet magnifier	\$35.99
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FIELD TRIPS

There are 8 scheduled field trips during the Wednesday and Friday “lab” sessions. Wednesday trips will be shorter and usually will follow a lecture. Most Fridays there will be no lecture—just a field trip. All trips will take at least until 5 pm. On the last two trips we may be a little later in returning (approximately 5:30 PM). Transport will be provided (university vans). On bad weather days we will key out plants in the laboratory.

Come prepared with the following:

- ***hand lens**, notebook and pencil
- ***handouts and species lists**, clipboard
- *sturdy boots or shoes for off-trail walking and snake protection
- *sun hat
- *sunscreen, lip balm
- *pocket knife is useful

- *raingear or shell if it's threatening
- *water
- *insect repellent (essential for the west desert trip)
- *daypack

Please be aware that these field trips come with the usual risks of travel and outdoor activities. These include sunburn, snake and insect bites, including bee and wasp stings, poison ivy (although rarely encountered), twisted ankles, dehydration, etc. We will be as prepared as possible against these risks, but can offer no guarantee that they will not happen.

The University requires that each student sign a waiver form indicating that you understand these risks.

INDEPENDENT PLANT COLLECTION

You will also compile an independent plant collection from one or more field trips taken on your own time. Visit areas that we have not seen in class trips and collect a total of 15 species of plants that are in flower and/or fruit. You will identify the plants and prepare an herbarium label for each one. The collection is due before the last field trip. More details will be forthcoming on this exercise.

GARRETT HERBARIUM

An "herbarium" is a library of pressed and identified plants. The Garrett Herbarium is located in the University of Utah Natural History Museum. You will take an orientation tour of this herbarium, and can use it at any time during the course. You will find it especially useful if you can't identify a plant or if you want to confirm your identification. It is also useful if you are searching for a particular species and want to see what it looks like first. Mitch Power is the Director of the Herbarium and Elizabeth Johnson is the Collections Manager. Call 801-587-5745 for an appointment.

HANDOUTS

Handouts will be given during lecture and lab. The T.A. will have a set of extra handouts if you lose yours. The syllabus, handouts, homework, and other course-related items will be posted on the Canvas site assigned to this course and can be downloaded from there. Lecture notes will not be posted, so make sure you attend class.

TEST, QUIZZES, AND HOMEWORK

Each field trip will include a quiz. For most of these we will simply ask you to identify plants we have already learned.

Weekly homework will consist of unknown plants that you attempt to key out with your text. You can use classroom resources to help.

There will be a final “half open-book” exam covering material learned during the class. The exam will consist of two parts: 1) a “practicum” asking you to identify various plants or answer questions about them; 2) a section covering the biology of these plants as discussed in lecture and on field trips.

GRADING

Point assignments: Quizzes + Homeworks (8 field trips + 4 homeworks = 120 points). The lowest 2 quiz or homework scores will be dropped = 100 points total. Final Exam, 100 points. Independent collection, 75 points. Grades will be assigned using the 10-point scale as a guideline: 90-100% A, 80-90% B, etc. This scale may be lowered, but it will not be raised.

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SCHEDULE 2015

Date	Activities
Wed., May 20	Lecture: plant classification, vegetative morphology Lab: Campus walk on vegetative morphology, use of dichotomous keys. Tour of Garrett Herbarium, UMNH.
Fri., May 22	Lecture: floral morphology, characteristics of prominent plant families. Lab: Floral and fruit morphology and use of keys.
Wed., May 27	Lecture: Great Basin habitats Field trip: Red Butte Canyon—woody plants of riparian and foothill zones.
Fri., May 29	Field trip: Skull Valley and Big Spring: Plants of the Great Basin Desert.
Wed., June 3	Lecture: Halophytes and salt stress. Adaptations of plants to control temperature. Field trip: Foothills—forbs of the foothills.
Fri., June 5	Field trip: Mill Creek Canyon (Terraces area)—midmontane forests and flowers.
Wed., June 10	Lecture: Montane vegetation zones. Field trip: Pinecrest, Emigration Canyon.
Fri., June 12	Field trip: Cardiff Fork, Big Cottonwood Canyon—upper montane zone.
Wed., June 17	Lecture: Impact of humans on vegetation change in the Great Basin Field trip: Silver Lake, Big Cottonwood Canyon—sub-alpine zone, or Hidden Falls trail at S-curve—midmontane/upper montane transition. Possible late return ca. 5:30 PM.
Fri., June 19	Field trip: Uinta Mountains. Possible late return ca. 5:30 PM. PLANT COLLECTIONS DUE BEFORE FIELD TRIP
Wed., June 24	Final exam (regular time in classroom)

NOTES: Lectures begin at 12:55 pm in the classroom (230 JTB). Field trips depart from behind the Skaggs Biology building (under the big ash tree). On days with no lecture, meet behind the Skaggs building at 12:55 instead of the classroom. Don't be late! You may drive yourself if you wish, but we reserve the right to change destinations at the last minute depending on local weather patterns (only a problem for "iffy" weather days). When the weather is bad we will meet in the classroom and practice keying out plants inside.