BIOL 332 Systematic Botany

Spring 2018
Lab Syllabus

Instructor: Wade Roberts

Email: _____

Office: _____

Office Hours: By appointment

Section 1: LOCATION, TIME
Section 2: LOCATION, TIME

Lab Objectives:

1. Practical use and application of keys for the identification of native plants.
2. Practical use of basic morphological terms to describe plants.
3. Learn to recognize plant families using vegetative and reproductive characters.
4. Gain appreciation for the diversity of plants.

Lab Text: *Flora of the Pacific Northwest*
Plant Systematics: A Phylogenetic Approach

Apps (Recommended): Washington Wildflower Search (Free version, I use this one) OR
Washington Wildflowers ($9.99, includes more species) OR
Idaho Wildflowers Search (Free)

Required Materials:

- Bound notebook to keep keying traces (for plant collections)
- Old newspapers (for plant collections; Daily Evergreen is the perfect size for our presses)

Schedule and attendance: Lab will meet weekly unless noted on the schedule. You should attend ALL lab sessions. There will be no make-up labs provided. If you are sick or have an approved absence, please email me so that arrangements for missing work can be made. For labs that will be outside, we will modify our schedule if the weather is poor.

Lab Evaluation:

Midterm Lab Exam		30 pts
Final Lab Exam		50 pts
Plant collection		75 pts
Keying exercises	[6 @ 10 pts]	60 pts
TOTAL		215 pts total

Lab exams will cover features used in keying as well as family names. It will involve lab stations and questions during a walk around campus and/or the greenhouse. I will provide more information about each exam in the weeks before the exam.

Plant collection will be 12 different specimens of native or naturalized plants in the Palouse region. Specimens will be pressed, dried, and correctly identified to species. The specimens are graded on

the basis of correct identification and specimen quality (usefulness). Specimens should be accompanied by a keying trace kept in a notebook. Details will be discussed later in the semester.

Keying exercises involve using a dichotomous key to locate information about particular specimens provided by the lab instructor. These will provide you with practice using botanical keys to identify an unknown specimen. While I hope that you will all determine the correct genus or species, partial credit will be awarded. To earn either full or partial credit on a keying exercise you must write out the number of each couplet you choose in the key. Students should make a record of each step chosen. I will ask you to identify the plant down to various taxonomic levels. We will start at the Family level and move down to Genus and Species. The first exercise will be a practice exercise. The breakdown of the exercises will be as follows:

1 to Family
2 to Genus
3 to Species

LAB SCHEDULE*

DATE	LAB TOPICS / EXERCISES	ASSIGNMENTS
1/10	***NO LAB***	
1/16	Syllabus; greenhouse tour; intro to dichotomous keys	
1/23	Herbarium tour; practice using dichotomous keys	
1/30	Vegetative morphology; Keying	
2/6	Flowers; dissecting flowers; Keying	Keying exercise (practice)
2/13	Fruits; Keying	Keying exercise – family
2/20	Gymnosperms; Keying	Keying exercise – genus
2/27	Monocots; Keying	Keying exercise – genus
3/6	**Midterm Lab Exam**	
3/13	***SPRING BREAK***	
3/20	Eudicots I; Keying	Keying exercise – species
3/27	Eudicots II; Keying	Keying exercise – species
4/3	Collecting at the Prairie Strip	
4/10	Collecting at the Prairie Strip	
4/17	Work on collection IDs	Keying exercise – species
4/24	**Final Lab Exam**	Plant collections DUE

*Changes will be announced in lab or through email

Some of the most common plant families you will encounter in Eastern Washington:

Gymnosperms:

- Cupressaceae (Cypress, juniper, redwood)
- Pinaceae (Pine, cedar, spruce, fir)
- Taxaceae (Yew)

Monocots:

- Cyperaceae (Sedges)
- Iridaceae (Irises)
- Juncaceae (Rushes)
- Liliaceae (Lilies, tulips)
- Orchidaceae (Orchids)
- Poaceae (Grasses, wheat, rice, bamboo)

Eudicots:

- Amaranthaceae (Amaranth, spinach, beets)
- Apiaceae (Carrots, parsley, caraway)
- Asteraceae (Asters, sunflowers, dandelions)
- Boraginaceae (Borage, bluebells, forget-me-not)

Eudicots, cont'd:

- Brassicaceae (Mustards, cabbage, *Arabidopsis*)
- Campanulaceae (Bellflowers)
- Caryophyllaceae (Carnations)
- Ericaceae (Heather, blueberries, rhododendron)
- Fabaceae (Beans, peas, alfalfa, peanuts)
- Geraniaceae (Geraniums)
- Lamiaceae (Mint, oregano, rosemary, salvia)
- Malvaceae (Mallow, cotton, cacao)
- Onagraceae (Evening primrose, fuchsia)
- Orobanchaceae (Indian paintbrush)
- Papaveraceae (Poppies)
- Plantaginaceae (Snapdragons, toadflax)
- Polemoniaceae (Phlox)
- Polygonaceae (Buckwheat, rhubarb, sorrel)
- Primulaceae (Primroses, cyclamen)
- Ranunculaceae (Buttercups, larkspur, clematis)
- Rosaceae (Roses, apples, raspberries)
- Saxifragaceae (Saxifrages)