Bi 442 Systematic Botany

Syllabus
Spring 2014

Tobias Policha (Instructor) tpolicha@uoregon.edu
   Office hour: Friday 1-2pm 129 Huestis or by appointment.
Dan Thomas (GTF) danchurchthomas@gmail.com
   Office hour: Monday 10-11am 129 Huestis
Marti Maynard (Lab Assistant) mmaynard@uoregon.edu
   Office hour: Thursday 12-1 pm 129 Huestis

Lectures: Huestis 129, MWF 12:00-12:50
   (Wednesday lecture will usually be a plant walk; see schedule for details)
Laboratories: Huestis 129, MW 2:00-4:50

Course Objectives

Required Books
Required lab/field supplies
Optional books
Field Trips
Important dates
Grading
Schedule
Course Policies
Accessible Education Center

Course Objectives:
Plant systematics is the study of plant diversity. We will focus on flowering plants.
   Through lectures, laboratories, field trips, and scholarship you will learn:
   1. How to describe and classify plant diversity.
   2. The major features and evolutionary origins of flowering plants.

Adapted from Bitty Roy 2013
3. What causes variation in plant characteristics
4. A vocabulary of plant description.
5. Identification of plants using dichotomous keys.
6. Recognition of important angiosperm families
7. Recognition of local flora
8. Knowledge of food plants
9. Plant ecology
10. Plant biogeography

Required books:

Required lab/field supplies:
10X hand lens, probe and/or forceps, razor blade, metric ruler, drawing paper and pencils/pens, ziploc bags (1qt.&1gal.) for keeping things dry and collecting samples, a Rite-in-the-Rain notebook and pencils (pen is not water resistant!).

Optional but recommended books (in order of relevance):

Required Field Trips:
Wednesday April 9 (Mt. Pisgah) from 2:00-6:00pm.
Saturday April 19 (Coast) from 8:00am-6:00pm.
Monday April 28 (Amazon Park*) from 2:00-6:00pm.
Saturday May 10 (Cascade Transect) from 8:00am-6:00pm.
Monday June 2 (Horse Rock Ridge) from 2:00-6:00pm.

Meet in parking lot at Onyx Bridge and Franklin Blvd (behind the Science Library).

Be prompt. We will leave EXACTLY on time.
*April 28 meet in parking lot at corner of Amazon Parkway and E. 24th ave.
(see Course Packet for details)
**Field trip packing list:**
- snacks (and lunch for the two Saturday trips)
- Water
- Field notebook (& pencil)
- Flora of the PNW, (hand-lens, ruler etc.)
- Field guides (optional)
- Wear long pants.
- Hiking boots, rubber boots, or tennis shoes (NO SANDALS).
- Bring a hat and sunscreen, as well as **rain gear**.
- Dress in layers, the day may start out cool and then warm up, or vice versa.

**Important dates:**
- **Wednesday April 9** Mt. Pisgah from 2:00-6:00pm.
- **Monday April 14** Guest Lecture by David Wagner (attendance required)
- **Saturday April 19** Coast Field Trip from 8:00am-6:00pm.
- **Monday April 28** Mid-Term Exam
- **Monday April 28** Amazon Park* from 2:00-6:00pm. (attendance required)
- **Saturday May 10** Cascade Transect from 8:00am-6:00pm.
- **Saturday May 17** Wildflower festival set up-volunteers needed
- **Sunday May 18** Wildflower festival at Mt Pisgah Arboretum
- **Monday May 19** Guest Lecture by Gail Baker (attendance required)
- **Monday May 26** Memorial Day holiday
- **Monday June 2** Horse Rock Ridge from 2:00-6:00pm. (attendance required)
- **Wednesday June 4** Lab Practical Final
- **Friday June 6** Potluck in class with prizes, including one for dish with most families in it.
- **Monday June 9** **FINAL EXAM 10:15 am**

**Grading:**
- **Exams** will cover subjects and vocabulary presented in lecture or lab, whether that material is in the textbook or not. Furthermore, you are expected to know what is in the assigned reading, even if we don’t cover that material in lab or lecture. Questions may be multiple choice, short essay, fill in the blank, or true/false format. The final exam will be cumulative.

- **Lab quizzes:** There will be a lab quiz every week (usually on Monday). The lab quizzes will focus on family recognition and keying, however they may also include questions based on reading assignments; points will be taken away for misspelling family names.
### Assignment

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<th>Assignment</th>
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<td>Midterm Exam</td>
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<td>Final Exam</td>
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<td>Wildflower Festival Set up</td>
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### Schedule

#### Lectures, Labs & Reading Assignments

**Week One: 3/31**

**Lect#1 Introduction** READ: Simpson pp. 1-16.

**Lect#2 Plant Walk** (meet at N. side Autzen bridge at 12:00)

**Lect#3 Angiosperm evolution: the first flower.** READ: Simpson pp. 176-178; Sun et al 2011; Crepet 2000; *(Optional reading: Barkman et al. 2000, Pennisi 2009).*

**Lab#1 Looking at Flowers** READ: Simpson pp. 165 & 468-487. *Families of the week.*


**Families of the week:** Nymphaeales (*Nymphaeaceae* pp. 187-188), Magnoliaceae, Lauraceae (*Lauraceae* pp. 190-191), Piperales (*Aristolochiaceae* pp. 192-196), Monocots I: Liliales (*Liliaceae* pp. 213, 215)

**Week Two: 4/7**

**Lect#4 Angiosperm characteristics.** READ: Simpson pp. 163-176, 669-678; Niklas 1999.

**Lect#5 Plant Walk** (meet at Museum of Natural and Cultural History at 12:00)

**Lect#6 Why are flowers so variable?** Intro to breeding systems; Selection by pollinators. READ: Simpson pp. 573-580; Waser et al 1996.

**Lab#3 QUIZ #1. Monocots I.** READ: Kelch, D. 2002.

**Lab#4 FIELD TRIP TO MOUNT PISGAH** READ: Simpson pp. 12 & 605-610, Boyden 1982.

**Families of the week:** Monocots I: Liliales (*Liliaceae* pp. 213, 215; *Melanthiaceae* see my notes and APG3), Asparagales (*Asparagaceae* see my notes and APG3; *Amaryllidaceae* pp. 220, 222; *Iridaceae* pp. 224-225; *Orchidaceae* pp. 226-228), Eudicots: Ranuncules (*Ranunculaceae* pp. 280-281, *Papaveraceae* pp. 280-281, *Ranunculaceae* pp. 280, 282)
Week Three: 3/14
ATTENDANCE REQUIRED

Lect#8 Plant Walk (meet at N. side Autzen bridge at 12:00)
Lect#9 Why are fruits so variable? Selection for Dispersal. READ: Simpson pp. 489-494.

*Lab#5 QUIZ #2. The Caryophylliid Clade.
*Lab#6 The Caryophylliid Clade con’d

SATURDAY APRIL 19 COAST FIELD TRIP 8:00AM-6:00PM. READ: LEROY 2002.


Week Four: 4/21
Lect#10 Why are leaves so variable. Selection by the environment and other organisms. READ: DeFilipps 2002.
Lect#11 Plant Walk (meet at the Urban Farm at 12:00)
Lect#12 Ordinal Overview

*Lab#7 QUIZ #3. Families of the week.
*Lab#8 Families of the week

Families of the week: Geraniales (Geraniaceae pp. 347,350), Curcurbitales (Cucurbitaceae pp. 341,343), Fabales (Fabaceae pp. 328-330), Fagales (Fagaceae pp. 344,346, Betulaceae pp. 344,345)

Week Five: 4/28
Lect#13 MID-TERM EXAM
Lect#14 Plant Walk (meet at N. side Autzen bridge at 12:00)
Lect#15 Systematics & Taxonomy READ: Simpson pp. 17-48;

*Lab#9 AMAZON PARK FIELD TRIP with Bruce Newhouse, botanical consultant with Salix Associates. READ: Kaye 1992. ATTENDANCE REQUIRED

*Lab#10 QUIZ #4. Families of the week.

Families of the week: Malpighiales (Euphorbiaceae pp. 315, 319, Violaceae pp. 323,325, Salicaceae pp. 322, 324), Rosales (Rosaceae pp. 334-335), Brassicales (Brassicaceae pp. 357-359)
Week Six: 5/5
Lect#17 Plant Walk (meet at N. side Autzen bridge at 12:00)
Lect#18 Species interactions: Herbivores, parasites, mutualists READ: Simpson pp. 611-626; Cullings et al. 1996.

*Lab#11 QUIZ #5. Families of the week.
*Lab#12 Families of the week


SATURDAY MAY 10 FIELD TRIP: CASCADE TRANSECT FROM 8:00AM-6:00PM.

Week Seven: 5/12
Lect#19 Species and Speciation READ: Simpson pp. 649-665.
Lect#20 Plant Walk (meet at the Urban Farm at 12:00)
Lect#21 Plant Ecology & Evolution: Biogeography, adaptations etc. READ: Baldwin and Sanderson1998; Crepet and Niklas 2009.

*Lab#14 Families of the week


SATURDAY MAY 17 MOUNT PISGAH WILDFLOWER FESTIVAL SET UP
9:00AM-1:00PM.
SUNDAY MAY 18 MOUNT PISGAH WILDFLOWER FESTIVAL
10:00AM-5:00PM.

Week Eight: 5/19
Lect#22 Guest lecture by Gail Baker. Touring One of the World’s Biodiversity Hotspots: the Southwest Australian Floristic Region. ATTENDANCE REQUIRED
Lect#23 Plant Walk (meet at N. side Autzen bridge at 12:00)
Lect#24 Pollination ecology of mushroom-mimicking neotropical orchids. (Tobias’ dissertation research).

*Lab#15 QUIZ #7. Families of the week.
*Lab#16 Asteraceae

Week Nine: 5/26
Lect#25 NO SCHOOL – MEMORIAL DAY – get out and botanize!
Lect#26 Grasses and Grasslands (meet 129 Heustis, at noon)
Lect#27 Phytochemistry

*Lab 17 Graminoids


Week Ten: 6/2
Lect#28 Economic Botany
Lect#29 no lecture due to Lab Exam in the afternoon.
Lect#30 Plant Family Potluck. There will be prizes! Including the grand prize for the dish with most families in it. (Record to date is 57 families by Jesse McAlpine in 2012.)

Lab 18 HORSE ROCK RIDGE field trip with Cheshire Mayrsohn, BLM Botanist.
ATTENDANCE REQUIRED
Lab 19 FINAL LAB PRACTICAL.

FINAL EXAM: MONDAY JUNE 9 AT 10:15 IN HUESTIS 129.

*Lab includes exercise to hand in

MISCELLANEOUS COURSE POLICIES

Classroom conduct (Modified from Alan Dickman and Bitty Roy)
I expect everyone to follow University rules and guidelines for behavior. Academic dishonesty, which includes cheating and plagiarism, is a serious offense and will be treated according to the guidelines in the student conduct code (located at uodos.uoregon.edu). This doesn't mean you shouldn't talk with other students about what you are thinking or writing; it does mean that when you write something, it should be in your own words, not copied from someone else.

I ask that we all do our best to be intellectually honest while also being tolerant of personal differences. I welcome and encourage intellectual controversy--I think it is essential to real learning. At the same time, I ask that we all respect the rights of others to hold different opinions, even as we challenge the ideas supporting those opinions. I promise to value each of you as individuals; I view the grade you earn to be a reflection of the quality of work you have done, but not of you as a person.

Out of respect for other students, and in keeping with departmental policy, you should plan to arrive at class on time and to stay until class is over. If, on occasion, you do arrive late, please be considerate of others and enter quietly at a time and in such a
way that you don’t disturb other students. If you need to leave early, please sit near an exit so that you can leave without disrupting the class. I ask that you not interfere with the ability of other students to learn by making noise, texting, checking email, etc. when someone else (instructor or classmate) is talking.

Make-up exams will be allowed only if arranged in advance, and only in cases of illness or other documented emergencies such as a death in the family. Exams must be made up no later than the class period following that in which the exam was given (because exams will be returned to the whole class at that time). Documentation of the emergency or illness is required.

I expect students to maintain high standards of academic integrity during my classes. Penalties for cheating range from receiving a zero score on the relevant test, quiz or exercise to receiving an F grade in the class. Mutilation of library materials or other shared materials (including herbarium specimens) for any exercise associated with this class will result in an F grade for the entire class.

Electronic devices
Please turn off cell phone ringers during lecture, lab and field trips. Electronic devices may not be used during a quiz or test. It is understood that many people will use their phones as cameras in a class like this. This of course is permissible, however if it is apparent that texting, chatting or other activity is becoming a distraction you will be asked to refrain from said activity.

Crises happen
If you have problems that interfere with your ability to do the work in this class, please let me know promptly. I am willing to make special arrangements when the need is real and when you have done your best to deal with the situation in a timely manner.

The University of Oregon Counseling Center, provides students with confidential consultation 24 hours a day, 7 days a week. From 8-5 Monday through Friday you will be connected with the front desk, and after hours, the same number connects to their support line. Their number is 346-3227. Students often believe that their issues are not “severe” enough for them to call, but at the Counseling Center, no problem is too small. If you miss a class, it is your responsibility to contact a classmate to get lecture notes.

Accessible Education Center
If you have a documented disability and anticipate needing accommodations in this course, please make arrangements with me soon.

The University of Oregon is working to create inclusive learning environments (more info at http://aec.uoregon.edu). Please notify us if there are any aspects of the instruction or design of this course that results in barriers to your participation. If you have a documented disability and anticipate needing accommodations in this course, please talk to your instructors during the first week of classes. Please request that the AEC Counselor send a letter verifying your need. Please call 541-346-1155, email uoaec@uoregon.edu, or drop by 164 Oregon Hall to schedule an appointment.