BI 442/542 Systematic Botany

Spring 2019

Tobias Policha (Instructor) tpolicha@uoregon.edu. (541) 513-8263 (emergencies only)
Office hour: Friday 11:00 – 11:50. 129 Huestis, or by appointment.
Jamie Wright (G.E.) jwrigh12@uoregon.edu
Office hour: TBA.
Calvin Penkauskas (Lab Assistant) cpenkaus@uoregon.edu

Lectures: Mon. & Fri. 12:00 - 12:50. 129 Huestis.
Plant Walks: Wednesdays 12:00-12:50. Alton Baker Park. Meet across the Willamette river at the North end of the 'Autzen' footbridge. (We will also go to the Urban Farm 2x– see schedule for details; **Weeks 5 & 9 plant walks will be on Friday – not Wednesday**)
Laboratory: Mon. & Weds. 14:00 - 16:50. 129 Huestis.

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
3. What causes variation in plant characteristics
4. Identification of plants using dichotomous keys
5. Recognition of important angiosperm families
6. Recognition of local flora
7. Knowledge of food plants
8. Plant ecology

Required books:
Simpson. MG. 2010. Plant Systematics. 2nd. Ed. Elsevier Press, Burlington, MA.
Hitchcock, C. L. and A. Cronquist. 2018. Flora of the Pacific Northwest 2nd ed. University of Washington Press, Seattle & London. 978-0295742885.
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 resources:

Harris, JG. and MW. Harris. 2001. Plant identification terminology: An illustrated glossary. 2nd ed. Spring Lake Publishing, Spring Lake, UT.

Oregon Flora Project. 2014. Oregon Wildflowers App. http://www.highcountryapps.com/OregonWildflowers.aspx

Pojar and MacKinnon. 2004. Plants of the Pacific Northwest coast. Revised ed. Lone Pine Publishing, Auburn, WA.

Elpel T.J. Any edition. Botany in a day. HOPS Press, Pony MT.

Required Field Trips:

Wednesday April 10 (Mt. Pisgah) from 2:00-18:00
Saturday April 27 (Coast) from 8:00am-18:00
Monday April 29 (Amazon Park*) from 2:00-18:00
Saturday May 11 (Cascade Transect) from 8:00am-19:00
Monday June 3 (Horse Rock Ridge) from 2:00-18:00

Meet in parking lot at Onyx Bridge and Franklin Blvd (behind the Science Library).
Be prompt. We will leave EXACTLY on time.
*April 25 meet in parking lot at corner of Amazon Parkway and E. 24th ave. See Canvas for directions.

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.

Assessment:

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.

Lab quizzes: There will be six lab quizzes. The lab quizzes will focus on family recognition, species ID, and keying, however they may also include questions based on reading assignments; points will be deducted for misspelling.

Assessment	#	% Each	Total
Midterm Exam	1	20	20
Final Exam	1	25	25
Practical Exam	1	12	12
Quizzes	6	3	18
Labs	15	1	15
Field Trips	5	2	10
			100

SCHEDULE:

Week	Date	Topic	Reading
1	4/1	1. Introduction to Systematic Botany	Simpson 3-16, APG III 2009
1	**4/1**	**Lab 1: Floral Diversity**	Simpson 163-176, 468-489 & 669-678
1	4/3	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
1	**4/3**	**Lab 2: Vegetative Diversity**	Simpson 461-468 & 605-610
1	4/5	2. Systematics	Simpson 611-626
2	4/8	3. Angiosperm Origins	Simpson 176-178, Pennisi 2009, Sun et al 2011
2	**4/8**	**Lab 3: Fruit Diversity (QUIZ 1)**	Simpson 484-494
2	4/10	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
2	**4/10**	**Field Trip: Mt. Pisgah**	
2	4/12	4. Magnoliids	Simpson 182-185, 189-197
3	4/15	5. Monocots I	Simpson 200-202, 204-208 & 213-230. Keltch 2002
3	**4/15**	**Lab 4: Magnoliids (QUIZ 2)**	Nymphaeales, Laurales, Magnoliales, Piperales
3	4/17	Plant Walk: Urban Farm	Meet at the Urban Farm
3	**4/17**	**Lab 5: Monocots I**	Alismatales, Liliales, Asparagales
3	4/19	6. Selection on Flowers & Fruits	Simpson 489-494 & 573-580, Waser et al 1996
4	4/22	7. Basal Eudicots	Simpson 275-281, 287-291 & 295-312.
4	**4/22**	**Lab 6: Basal Eudicots (QUIZ 3)**	Ranunculales, Saxifragales
4	4/24	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
4	**4/24**	**Lab 7: Core Eudicots (w/ Lecture 8)**	Caryophyllales
4	4/26	9. Selection on Leaves	
4	**4/27**	**Field Trip: Coast**	**ALL DAY SATURDAY**
5	**4/29**	**MIDTERM EXAM**	
5	**4/29**	**Field Trip: Amazon Park**	
5	5/1	10. Rosids: Fabids I	Simpson 315-326, 328-330, 334-335 & 339-347
5	5/1	**Lab 8: Rosids I: Fabids**	Malpighiales, Fabales

5	5/3	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
6	5/6	11. Rosids: Fabids II	Simpson 347-350, 357-360, 366-371.
6	5/6	**Lab 9: Rosids: Fabids II (QUIZ 4)**	Rosales, Cucurbitales, Fagales
6	5/8	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
6	5/8	**Lab 10: Rosids II: Malvids (w/ Lecture 12)**	Geraniales, Sapindales, Malvales, Brassicales
6	5/10	13. Species and Speciation	Simpson 580-582 & 649-665
6	5/11	**Field Trip: Cascades**	**ALL DAY SATURDAY**
7	5/13	14. Asterids	Simpson 372- 380, 389-394 & 402-416. Olmstead 2002
7	5/13	**Lab 11: Asterids (QUIZ 5)**	Cornales, Ericales
7	5/15	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
7	5/15	**Lab 12: Asterids: Lamiids (w/ Lecture 15)**	Solanales, Boraginales, Lamiales
7	5/17	16. Phylogenetics & Molecular Systematics	Simpson 17-48, 585-600, 681-689
7	**5/18**	**WILDFLOWER FESTIVAL**	Extra credit opportunity for helping with set-up
7	**5/19**	**WILDFLOWER FESTIVAL**	
8	5/20	17. Asterids: Campanulids	Simpson 419-433
8	**5/20**	**Lab 13: Asterids: Campanulids (QUIZ 6)**	Apiales, Dipsacales
8	5/22	Plant Walk: Urban Farm	Meet at the Urban Farm
8	5/22	**Lab 14: Asterids IV: Asteraceae (w/ Lecture 18)**	Asteraceae
8	5/24	19. Ethnobotany	TBA
9	**5/27**	**MEMORIAL DAY**	**NO SCHOOL**
9	5/29	20. Commelinids	Simpson 230-264
9	**5/29**	**Lab 15: Commelinids**	Arecales, Poales, Commelinales, Zingiberales
9	5/31	Plant Walk: Alton Baker Park	Meet at N. end of the 'Autzen' footbridge.
10	6/3	**FAMILY REVIEW**	
10	**6/3**	**Field Trip: Horse Rock Ridge**	
10	**6/5**	**PRACTICAL FINAL**	
10	**6/7**	**PLANT FAMILY POTLUCK** Grand prize for the dish with most families.	Review for final
FINAL	**6/10**	**FINAL EXAM 10:15**	

ON-CAMPUS RESOURCES

Accessible Education Center (AEC)
The University of Oregon is working to create inclusive learning environments. If there are aspects of the instruction or design of this course that result in barriers to your participation, please notify us as soon as possible. You are also encouraged to contact the Accessible Education Center. If you are not a student with a documented disability,

but you would like for us to know about class issues that will impact your ability to learn, come visit during office hours so that we can strategize how you can get the most out of this course. Oregon Hall, Suite 360. (541) 346-1155, uoaec@uoregon.edu, https://aec.uoregon.edu.

Center for Multicultural Academic Excellence (CMAE)
Promoting student retention and persistence for historically underrepresented and underserved populations. Programs and services that support retention, academic excellence, and success at the UO and beyond. Committed to all students, including undocumented and tuition equity students. Located on the 1st Floor of Oregon Hall (541) 346-3479, cmae@uoregon.edu.

Counseling Center
The Counseling Center provides students with confidential consultation 24 hours a day, 7 days a week. 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. https://counseling.uoregon.edu/

COURSE POLICIES

Academic Integrity
All students are expected to complete assignments in a manner consistent with academic integrity. Students must produce their own work and properly acknowledge and document all sources (ideas, quotations, paraphrases). Students can find more complete information about the University of Oregon's Policy on Academic Dishonesty in the student conduct code (located at dos.uoregon.edu/conduct).

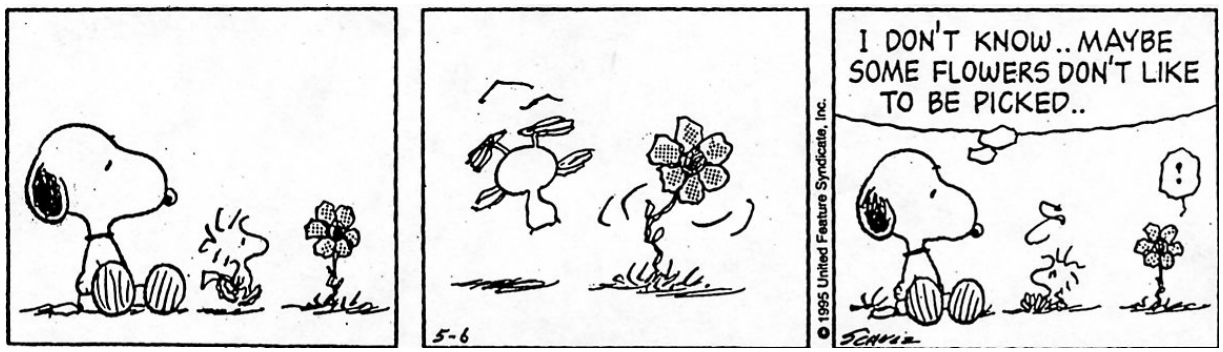
Inclusiveness
Open inquiry, freedom of expression, and respect for difference are fundamental to a comprehensive and dynamic education. We are committed to upholding these ideals by encouraging the exploration, engagement, and expression of divergent perspectives and diverse identities.

Electronic Devices
Please put away and **do not use** your own computers, cell phones, or other electronic devices during lecture or lab. Evidence (ie https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html?_r=3) suggests that computers are not a good way for taking notes in science courses and they are distracting to other students. Please be prepared to write and draw by hand in this class.

Communication
I will try to make myself as available as possible for questions related to course material. However, I ask that you pose questions to fellow students first. If it pertains to course administration, **double-check the syllabus and Canvas.**) If you email after

regular business hours you may not hear back from me until the next day. ***Please include "BI 442 (BI 542)" in the subject line of all emails.***

Prohibited Discrimination and Harassment
UO is committed to providing an environment free of all forms of prohibited discrimination and harassment, including sex or gender based violence. As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. Students experiencing any form of prohibited discrimination or harassment may seek further information on safe.uoregon.edu, respect.uoregon.edu, titleix.uoregon.edu, or aaeo.uoregon.edu or contact the Title IX office (541-346-8136), Office of Civil Rights Compliance office (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help.



"Plants are nature's alchemists, expert at transforming water, soil and sunlight into an array of precious substances, many of them beyond the ability of human beings to conceive, much less manufacture."
— **Michael Pollan**, The Botany of Desire: A Plant's-Eye View of the World

*Wilson, C. A. 2004. Phylogeny of *Iris* based on chloroplast *matK* gene and *trnK* intron sequence data. Molecular Phylogenetics and Evolution **33**:402-412. (Other photos © T. Policha)