

## BTNY 3624 – Taxonomy of Vascular Plants

Lecture: M, W, F 9:30-10:20, Lab W 1:30-4:10, Room: TY 351

**Instructor:** Dr. Jim Cohen  
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Student hours: F 1:30-3:30 PM or by appointment

**Course Objectives:** Taxonomy of Vascular Plants course focuses on two broad areas: 1) the evolution, diversity, and classification of vascular plants and 2) approaches surrounding contemporary and historic plant systematics. The first area will involve exploring the current diversity of vascular plants, with an emphasis on features that characterize and distinguish groups of plants, particularly at the levels of families, orders, and classes. We will also particularly examine this diversity through an evolutionary and comparative lens to understand current patterns of plant variation. The second area will involve investigating plant diversity in the manner of contemporary plant systematists, which includes studying morphometrics, chromosomal variation, breeding systems, and nomenclature. Through class, we will interact with the greater Ogden community and use our plant taxonomy and systematics knowledge to enhance natural experiences for the community (community engaged learning [CEL]).

According to Socrates, “Education is the kindling of a flame, not the filling of a vessel.” By gathering and discussing botanical knowledge throughout this course, you will have the opportunity to stoke your intellectual flame. If you do so, your flame will burn brighter, and your ability to create, analyze, and synthesize information will grow. If not, the kindling will sit idle, not helping build the fire of your botanical intellect.

**Student Learning Outcomes:** Upon successful completion of this course, you will be able to:

- Understand plant diversity as it relates to our current and historic taxonomic systems.
- Evaluate plant diversity through the lens of contemporary plant systematics methodologies.
- Recognize morphological, anatomical, and genomic features that characterize vascular plant taxa.
- Understand mechanisms and biological processes that result in plant diversity.
- Apply discipline-specific knowledge (i.e., plant taxonomy) to civic engagement (i.e., the local community concerning educational opportunities).

**Text:** *Plant Systematics, 3<sup>rd</sup> edition*, Michael Simpson, Academic Press, ISBN: 978-0128126288; Additional readings may be provided.

### Grading:

Exam 1 and 2	150 points (75 each)
Lightning talk	25 points
CEL project	100 points
CEL reflections	50 points
Participation	75 points
Quizzes	50 points
Lab mid-term	50 points
Final lab practical	100 points
Final Exam (Cumulative)	150 points
<b>Total</b>	<b>750 points</b>

## Lecture Schedule

Date	Topic	Reading
Aug. 28	Introduction	
Aug. 30	Introduction to plant systematics	3-16
Sept. 1	Ferns and fern allies	75-130
Sept. 4	Labor Day – no class	
Sept. 6	Ferns and fern allies	75-130
Sept. 8	Gymnosperms	130-165
Sept. 11	Gymnosperms	130-165
Sept. 13	Homology	17-24
Sept. 15	Early-diverging angiosperms and origin of angiosperms	187-206
Sept. 18	Early-diverging angiosperms and origin of angiosperms	187-206
Sept. 20	Phylogenetics	24-52
Sept. 22	Ranunculids and early eudicots	286-297
Sept. 25	Ranunculids and early eudicots (virtual class)	286-297
Sept. 27	Plant systematic case studies 1 and reflection 1	
Sept. 29	Rosids 1	297-325
Oct. 2	Rosids 1	297-325
Oct. 4	Plant variation	
Oct. 6	Rosids 2	325-362
Oct. 9	Rosids 2	325-362
Oct. 11	Review	
Oct. 13	Exam 1	
Oct. 16	Nomenclature and taxonomy	631-646
Oct. 18	Caryophyllids	362-384
Oct. 20	Fall break – no class	
Oct. 23	Caryophyllids	362-384
Oct. 25	Lightning talks	
Oct. 27	Asterids 1	384-412, 425-428
Oct. 30	Asterids 1	384-412, 425-428
Nov. 1	Herbarium visit	657-668
Nov. 3	Asterids 2	412-449
Nov. 6	Asterids 2	412-449
Nov. 8	Monocots 1	206-237
Nov. 10	Monocots 1	206-237
Nov. 13	Monocots 2	237-256
Nov. 15	Monocots 2	237-256
Nov. 17	Review	
Nov. 20	Exam 2	
Nov. 22	Monocots 3	256-272
Nov. 24	Thanksgiving – no class	
Nov. 27	Monocots 3	256-272
Nov. 29	Specimen stories	
Dec. 1	Plant breeding systems	595-602
Dec. 4	Plant systematic case studies 2 and reflection 2	
Dec. 6	Biosystematics	602-606
Dec. 8	Polyploidy	602-606

## Lab Schedule

Date	Topic
Aug. 30	Introduction to morphology and floral formulae
Sept. 6	Visit Ogden Nature Center
Sept. 13	Ferns and fern allies and gymnosperms
Sept. 20	Early-diverging angiosperms
Sept. 27	Ranunculids and early eudicots
Oct. 4	Rosids 1
Oct. 11	Rosids 2
Oct. 18	Lab midterm
Oct. 25	Carophyllids
Nov. 1	Asterids 1
Nov. 8	Asterids 2
Nov. 15	Monocots 1
Nov. 22	Monocots 2
Nov. 29	Monocots 3
Dec. 6	Lab final

**The instructor reserves the right to make any changes necessary to the course and will inform the students as changes occur.**

**Class Behavior:** Be respectful of your classmates, and do not disturb them by talking in class, arriving late, or participating in other disruptive behavior. Furthermore, you are not permitted in class to use cellular phones, pagers, two-ways, or other similar types of devices. If you use your cellular phone or other device in class, you may be asked to leave class due to the disruptive nature of your activity. Remember to act as you wish others would act.

**Email Policy:** I will respond to emails within 48 hours of receiving them, but only if the email includes all of the following: subject, salutation, body, and signature. Correct spelling and grammar are expected.

**Make-up Exams and Late Assignments:** Turning in assignments after the deadline or scheduling a make-up exam will not be possible unless you discuss the matter with the professor at least 24 hours before the assignment is due or the test is administered. Should there be extenuating circumstances (e.g., severe illness, funeral, accident), contact me as soon as possible in order to reschedule. Should you not follow these guidelines, you will receive a zero for the assignment or exam.

**ADA accommodations:** Any student requiring accommodations or services due to a disability must contact Disability Services (DS) in room 181 of the Student Services Center or Room 256 at the Davis Campus. Disability Services can also arrange to provide course materials (including this syllabus) in alternative formats upon request.

**Academic integrity:** The WSU Student Code defines plagiarism as 'the unacknowledged (uncited) use of any other person or group's ideas or work' (Section 6-22, part IV, subsection D, 2, b). Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, falsification, accessing unauthorized course or test information, using unauthorized resources, or breaches of copyright laws. None of these will be tolerated in this class. The penalty for academic dishonesty in this course is failure on the assignment and possibly the course, depending on circumstances.

**Inclusive classroom:** Pivotal to Weber State University's mission is the need to embrace and value the diversity of its members. Acknowledging the uniqueness of each individual, we seek to cultivate an environment that encourages freedom of expression. Because the University is a community where inquiry is nurtured and theories are tested, every individual has the right to feel safe to express ideas that differ from those held by other members of the community. However, all persons who aspire to be part of our campus community must accept the responsibility to demonstrate civility and respect for the dignity of others. Recognizing that the proper balance between freedom of expression and respect for others is not always apparent or easy to achieve, we must continually challenge ourselves and each other in an atmosphere of mutual concern, good will and respect. Therefore, expressions or actions that disparage an individual's or group's ethnicity, gender, religion, sexual orientation, marital status, age or disability are contrary to the mission of Weber State University.

**Core beliefs:** According to the University's Policies and Procedures Manual (PPM 6-22 IV), students are to "[d]etermine before the last day to drop courses without penalty, when course requirements conflict with a student's core beliefs. If there is such a conflict, the student should consider dropping the class. A student who finds this solution impracticable may request a resolution from the instructor. This policy does not oblige the instructor to grant the request, except in those cases when a denial would be arbitrary and capricious or illegal. This request must be made to the instructor in writing and the student must deliver a copy of the request to the office of the department head. The student's request must articulate the burden the requirement would place on the student's beliefs.

**High fives:** I plan to give high (and possibly low) fives during class. If you would not like to participate and receive high (and possibly low) fives, you are not required to do so and participation will not impact one's grade.

**Community Engagement:** In class, we will participate in community engaged learning (CEL), and this semester we will be involved in using our knowledge of plant taxonomy to help develop botanical educational materials for use with the Ogden Nature Center. On your own and in class, we will spend time not only working on the project materials but also reflecting on your involvement in this project, which will include reasons that we use our scientific and botanical knowledge in the community and ways that we, as students of botany, can continue to bring our skills to bear on and enhance our communities. There will be two reflection assignments, each with a different prompt. You will have the opportunity to write about your thoughts and experiences working with our partner and the project, and in class, we will discuss your experiences with this activity, including various ways in which you in general and specifically with botany, taxonomy, and science knowledge can contribute to our communities. Expect to spend, on average, 15 hours over the semester working on this project, and we will track our hours to understand the time contribution WSU students help make to our community. More details on all aspects of the project and community engagement are forthcoming and will be available on canvas.

**University closure:** If for any reason the university is forced to close for an extended period of time, we will conduct our class via Canvas, e-mail, or whatever form of communication is most conducive to our class structure for each class.

**Course fees:** There is a course fee of \$20 associated with this class.

**Safety issues related to COVID-19:** From WSU, “We strongly encourage all Weber State students, faculty, and staff to get tested and vaccinated. Please check the WSU Coronavirus Testing and Safety and Vaccines pages for times, days, and locations.” If you are sick, please stay home. I will work with you to ensure that you are able to virtually attend class and have access to materials.