2019 Syllabus for Biology 313: Plant Taxonomy

Lecture: Tuesday/Thursday 8:00am–9:40am (251 ISC)

Lab: Wednesday 1:20-5:20pm (251 ISC)

Instructor: Dr. Althea A. ArchMiller
Office: 220 Integrated Science Center
218.299.3793 (office) / 218.556.8053 (cell)
Email: aarchmil@cord.edu
Twitter: @aaarchmiller
Office Hours: Mon/Wed 10:30-11:00 & T/Th 10:30-12:00

The schedules and policies associated with this course may be subject to revision or change as a consequence of changing circumstances or events. Reasonable notification will be provided to students prior to any major changes in course policies or procedures.

Course Description

Identification, nomenclature, and classification of vascular plants.

Course Goals

The primary objective of this course is to provide a basis for your understanding of plant taxonomy, which includes the identification, classification, and relationships of vascular plants and plant families. You will learn how to observe, describe, and draw the features of plants that make them identifiable and increase your knowledge of regional plant species. This class is also a field class, which means that you will get to enjoy spending 24+ hours outdoors in various weather and ecosystems!

My learning outcomes for you are being able to:

1. Describe how plant families are related and classified
2. Identify plants based on herbarium collections, dichotomous keys, and field guide books
3. Hone your observation and drawing skills
4. Maintain detailed and organized field notes
5. Compare regional ecosystems and cultural features
6. Communicate your scientific knowledge in meaningful and effective ways

Your personal learning outcomes are being able to:

Required Material

- Murrell. *Vascular Plant Taxonomy.* 2010. 6^{th} Edition. Kendall Hunt.
- Chadde. *Minnesota Flora: An Illustrated Guide to the Vascular Plants of Minnesota.* 2013.
- Johnson. *American Eden: David Hosack, Botany, and Medicine in the Garden of the Early Republic.* 2018.
- Dedicated plant collection notebook such as "Rite in the Rain" or Moleskin. I recommend one with numbered pages and blank or faint horizontal lines. Sketchbooks also work well.
- 10x Hand Lens available for purchase from Joy Navratil in the Biology Department Office

Accommodations for Students with Disabilities

In accordance with the Americans with Disabilities Act, Concordia College and your instructor are committed to making reasonable accommodations to assist individuals with documented disabilities to reach their academic potential. Such disabilities include, but are not limited to, learning or psychological disabilities, or impairments to health, hearing, sight, or mobility. If you believe you require accommodations for a disability that may impact your performance in this course, you must schedule an appointment with Disability Services to determine eligibility. Students are then responsible for giving instructors a letter from Disability Services indicating the type of accommodation to be provided; please note that accommodations will not be retroactive. The Disability Services office is in Old Main 109A, phone 218-299-3514; cobbernet.cord.edu/directories/offices-services/counseling-center-and-disability-services/disability/

THE BEST WAY TO BE SUCCESSFUL IN THIS CLASS is to take lots of handwritten notes in a lecture notebook and your field notebook, as appropriate. If you need accommodations for other learning techniques, please let me know as soon as possible.

You may take photos of plants during fieldtrips, but *only* after first making complete field notes and drawings in your field notebook. **Please be respectful and turn your cell phones off during lecture.**

Respect for Diversity

It is my intent that students from diverse backgrounds and perspectives be well-served by this course, and that the diversity that students bring to this class be viewed as a resource. Please let me know ways to improve the effectiveness of the course for you, personally, or for other students or student groups. As a student in this class, you are required to treat other members of the class with respect and kindness. Disrespectful, rude, or exclusive behavior will not be tolerated.

Academic Integrity (from Student Handbook)

"Students are responsible for maintaining and encouraging academic integrity at the college. We expect all students to act with integrity in the classroom and in completing and submitting assignments. Ultimately, students bear the responsibility of ensuring the integrity of their own work. Students are expected to meet at least the minimal requirements of each course with work of appropriate quality.

"At no time is cheating on examinations, quizzes, or assignments acceptable at Concordia. Students are also expected to exercise appropriate caution to avoid plagiarism on written assignments."

I will not tolerate any instance of academic dishonesty, including cheating, plagiarism, falsification, facilitating others' violations, or impeding (see student handbook for definitions).

Instances of academic dishonesty will result in either a failing grade for that activity or for the course, according to the perceived intent and extent of the instance(s) of academic dishonesty. All academic integrity violations will be reported to the Office of Academic Affairs.

Grades

You must participate in 24 hours of fieldwork to get "field course" credit in this class.

Percentage	Grade
≥ 93	A
90-92.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
60-66.9	D
< 60	F

Category	Item	Date	Pts	%
Exams				20
	Terminology Exam	Sept. 10	5	
	Exam 1	Oct. 3	5	
	Exam 2	Nov. 7	5	
	Final Exam	TBD	5	
Lab Exams				15
	Lab Exam 1	Sept. 24	5	
	Lab Exam 2	Oct. 17	5	
	Lab Exam 3	Nov. 26	5	
Plant Collection				30
Notebook	Initial 15 spp.	Sept. 24	15	
	Second 10 spp.	Oct. 17	10	
	Final 5 spp.	Nov. 26	5	
Other				35
	Assignments	Various	15	
	Family Presentation	Dec. 4	15	
	Participation		5	
			Total 100	100%

EXAMS will test your understanding of plant taxonomy terminology, interrelatedness of plants and plant families, and cultural/economic properties of plants as covered in lectures.

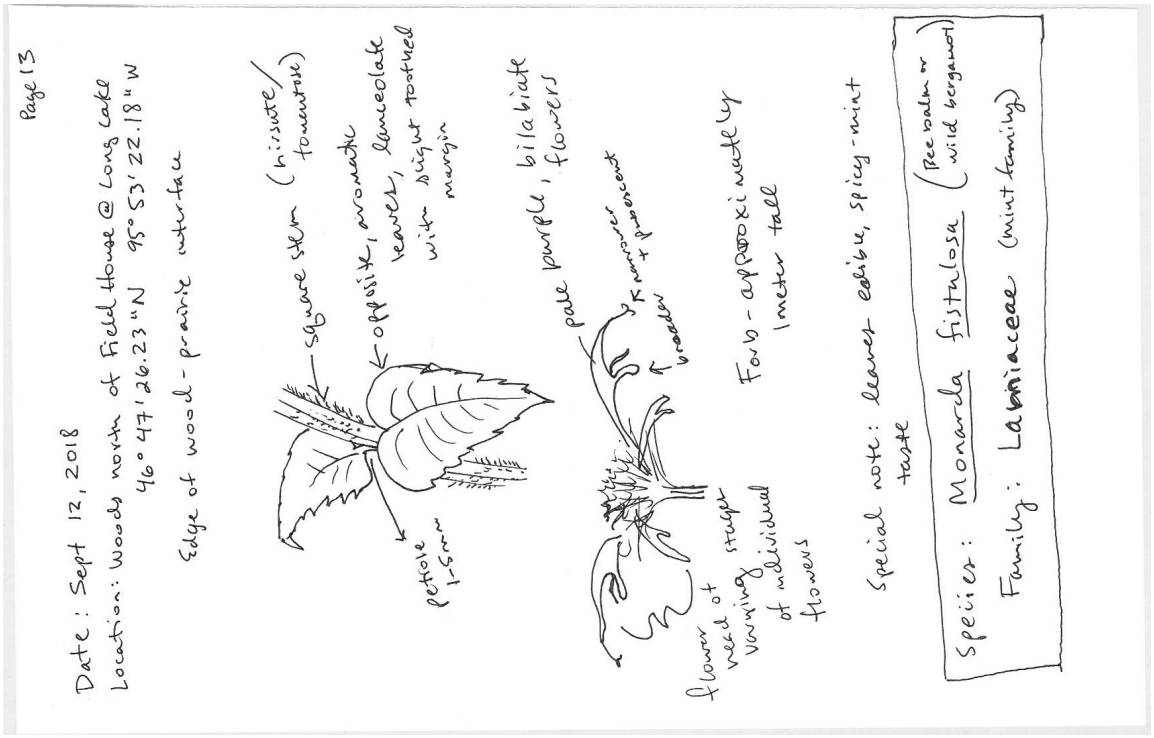
LAB EXAMS will test your ability to identify plant species and plant families. Scientific names will need to be used and spelled correctly for full credit. Spelling errors and common names will be counted for partial credit. Specimens used in lab exams will be a combination of live plants, dried plants, twigs, photographs, and/or fruit/seeds. Part of each lab exam will test your ability to use a key to identify an unknown plant.

THE PLANT COLLECTION will be a list of species provided in a table that will correspond with and be handed in with your field notebook. For full credit, you will need to have scientific name and family (1pt), completed field notes (1pt), technical descriptions (1pt), and drawings (1pt) for each individual species you "turn in" for review. Species records can span multiple notebook pages (e.g., early season leaf drawing, later season twig drawing), but separate entries for the same species do not count as multple species.

You will need to turn in 15 individual species at Lab Exam 1, an additional 10 at Lab Exam 2, and an additional 5 at Lab Exam 3 (see schedule and grade breakdown for specific dates). The final 30 species should cover at least 10 families.

This is an example of the table and of a full-credit notebook page. Note: drawings do not have to be perfect, but they do need to reflect specifics that would help in identifying that particular species.

Plant	Family	*Genus species*	Common name(s)	Type	Page(s)	Instructor Check
1	Lamiaceae	*Monarda fistulosa*	wild bergamot	Forb	13	9/25/2018: 4/4
2	Ulmaceae	*Ulmus americana*	American elm	Tree	11,20	9/25/2018: 3/4
⋮						



ASSIGNMENTS will include various low-stakes activities that will help you become a better scientist and citizen such as:

- Vocabulary worksheet
- In-class exercises
- Reflection papers (e.g., Symposium, Fugelstad lecture; each no more than 1 page)
- Sculpture collaboration project
- *American Eden* discussions and participation in Master Class

THE FAMILY PRESENTATION will be an oral presentation given in lab on December 5th. Specific guidelines, expectations, and a list of possible families to present on will be handed out at a later date.

PARTICIPATION in class and lab is essential. Participation is a small part of the final grade; however, a record throughout the semester of exemplary participation and attendance will also help in the case of a borderline final grade. Active participation also nurtures learning, and will improve the quality of future recommendation letters from your instructors.

Attendance Policy

Regular attendance and participation in class is critical to your success at Concordia College. Because any absence, excused or unexcused, detracts from the learning experience, you are expected to attend all classes. I also value the educational experience afforded by student participation in co-curricular activities; however, you are responsible for notifying me of scheduled absences (e.g., co-curricular activities) at the beginning of the semester, or as soon as that information is available (but at least 24 hours in advance).

If absences become what I determine to be excessive (from 10-15% of classes, without valid college-recognized excuses), points will be deducted from your final percentage. In extreme cases ($>$ 20% of

classes or 6 unexcused absences), I will assign a failing grade. **I strongly recommend that you are present and participate in the class.**

Course Schedule (version dated 8/29/2019)

- This class will be heavily front-loaded because of the waning fall plant season. Thus, we will focus the first month on observing and identifying as many species as possible.
- Also, this course counts as a "field course," which means that you must be present in class for at least 24 hours of outdoor field labs (travel to and from field sites does not count). **It's important to dress appropriately for the weather for all lab sessions.**
- Chapters listed are from Murrell *Vascular Plant Taxonomy*
- Lab Exams will be held during lecture times.

Important Dates

- **Tuesday, Sept 10** Terminology Exam
- **Thursday, Sept 12 through Saturday, Sept 14** Badlands Trip
- **Wednesday, Sept 18** Symposium; lab re-convened at Symposium
- **Tuesday, Sept 24** Lab Exam 1 & Plant Collection Check (first 15 spp.)
- **Thursday, Oct 3** Exam 1
- **Friday, Oct 4** Master class with Victoria Johnson
- **Thursday, Oct 17** Lab Exam 2 & Plant Collection Check (second 10 spp.)
- **Tuesday, Nov 20** Exam 2
- **Tuesday, Nov 26** Lab Exam 3 & Plant Collection Check (final 5 spp.)
- **Wednesday, Dec 4** Family presentations
- **Wednesday, Dec 11** Botany of food lab
- **Wednesday, Dec 18 2-4pm** Final Exam

Topics and chapters

- Terminology (Ch 3, 11)
- Using Keys (Ch 5)
- Grass & Aster special anatomy (p420-425, p492-496)
- Phylogeny; Scientific Names; Common Names (Ch 2, 4, 6)
- Monilophyta (Ch 9)
- Angiosperm Introduction (Ch 11)
- Basal Angiosperms (Ch 12)
- Monocots (Ch 15)
- Eudicots: Rosids (Ch 13)
- Eudicots: Asterids (Ch 14)
- Gymnosperms (Ch 10)
- Special Topic:

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Aug 26th	27th	28th	29th First Day of Class Emma C. Lecture	30th
Sep 2nd *American Eden* Ch 1-3	3rd	4th Lab: Long Lake	5th Terminology worksheet due	6th
9th *American Eden* Ch 4-6	10th Terminology Exam	11th Lab: Felton Prairie	12th Badlands	13th Badlands
16th *American Eden* Ch 7-9 Adopt campus plant for art collaboration	17th	18th Symposium	19th	20th
23rd *American Eden* Ch 10-14	24th Lab Exam 1 & Plant Collection	25th Lab: Frenchman's Bluff	26th	27th
30th *American Eden* Ch 15-17	Oct 1st Herbarium activity	2nd No lab	3rd EXAM 1	4th *American Eden* Master Class Community Time
7th Draft plant description due	8th	9th Lab: Tamarac & Hubble Pond	10th	11th
14th	15th	16th Lab: Amor & Davies' WMA	17th Lab Exam 2 & Plant Collection	18th
21st *Fall Break*	22nd *Fall Break*	23rd *Fall Break*	24th *Fall Break*	25th *Fall Break*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
28th	29th	30th Lab: Gallery Opening	31st	Nov 1st
4th	5th	6th Lab: Campus Gymnosperms	7th EXAM 2	8th
11th	12th	13th Lab: Winter twigs	14th	15th
18th	19th	20th Lab: Greenhouse	21st	22nd
25th	26th Lab Exam 3 & Plant Collection	27th *Thanksgiving*	28th *Thanksgiving*	29th *Thanksgiving*
Dec 2nd	3rd	4th Lab: Family Presentations	5th	6th
9th	10th	11th Botany of Food	12th	13th
16th	17th	18th FINAL EXAM 2-4pm	19th	20th