

Biology 304/504: PLANT TAXONOMY

Fall 2013

Meets Mon & Wed 8:00 – 10:00 AM in the Herbarium (9 Halsey Science)

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Office hours: TuTh 10:30 AM – 2:30 PM

F 8:00 AM – 10:00 AM

Textbook:

T. G. Lammers, *Course Manual: Biol 304/504 Plant Taxonomy*, 4th ed. (UWO Doc Services, 2011).

Objectives:

This course is a part of a **liberal education**. The Association of American Colleges and Universities uses the term “liberal education” to refer to a philosophy of education that empowers individuals with broad knowledge and transferable skills, and that cultivates social responsibility and a strong sense of ethics and values. My specific objectives with this course are to introduce you to the dynamic and highly synthetic discipline of plant taxonomy and help you to appreciate its role in the biological sciences.

Course content will fall into three major areas:

- Theory and principles underlying systematic biology.
- Methodology of classification and nomenclature.
- Recognition of major families of flowering plants (angiosperms).

Upon successful completion of this course, you will ...

- be familiar with the basic terminology used to describe plants;
- be able to recognize 37 major plant families;
- be familiar with the procedures by which plants are classified;
- be familiar with the basic principles and rules of plant nomenclature; and
- appreciate the role of taxonomy in the biological sciences.

Attendance Policy: I expect you to attend *every* class, as it will be very difficult for you to earn a good grade if you do not. You should only miss class if the consequences of *attending* will be even more unpleasant than the consequences of *missing*. If you must miss class, it is *your* responsibility to get notes from a fellow student. Do *not* miss an exam for any but the most *extreme* emergencies (*e.g.*, grievous illness or injury, death of a loved one). If such an emergency should arise, you will notify me (preferably by e-mail) *before class* or *immediately thereafter* to make alternative arrangements. If you do not do so, you will receive *zero points* for the exam.

Evaluation:

Over the course of the semester, you will have the opportunity to earn 500 points:

Writing Exercise I	50 pts.	Nomenclature Exercise	30 pts.
Writing Exercise II	50 pts.	Classification Exercise	100 pts.
Lecture Exam I	75 pts.	Lecture Exam II	75 pts.
Mid-term Lab Exam	40 pts.	Final Lab Exam	80 pts.

What is the rationale behind the various assignments and tests?

- The two *Writing Exercises* will give you the opportunity to practice your reasoning and compositional skills, by writing commentaries on essays dealing with the significance of systematics.
- The *Nomenclature Exercise* will test your understanding of the rules of nomenclature, your ability to think critically, and your problem solving skills, by giving you lists of synonyms and asking you to select the correct name under given circumstances.
- The *Classification Exercise* will test your understanding of the kinds of data used in plant systematics, your ability to think critically, and your problem solving skills, by giving you a set of data for a group of plants and asking you to classify those plants. There is no one “correct” answer; your grade for the exercise will be based upon (1) your knowledge of the strengths and weaknesses of the various types of data, and (2) your ability to logically support the classification you have created.
- The two *Lecture Exams* will test your comprehension of topics covered in lecture. The first will cover material through 19 October, the second only material from 31 October to 7 December.
- The two *Lab Exams* will test your ability to recognize major plant families on sight, whether as live material, herbarium specimens, or color images. The mid-term will cover the sixteen families covered through 19 October, while the final will cover *all 34 families*.

Your final letter grade in the course will be based on the total number of points that you earn, according to the following scale:

0-297 F	298-307 D-	308-337 D	338-347 D+	348-357 C-	358-387 C	388-397 C+
398-407 B-	408-437 B	438-447 B+	448-457 A-	458-500 A		

This grade scale is absolutely rigid. Do **not** expect to be bumped up a grade if you are “close” as a cushion is already built into these grade spans, e.g., 298 points is only 59.6% not 60%.

Students with Disabilities

Students with disabilities are welcome in this course. Please contact me in the first week of class so that all possible accommodations may be made.

Graduate Students

Graduate students are held to higher standards in all aspects of their course participation. They are expected to participate in classroom discussions more readily, to express greater clarity and organization in their speaking and writing, to evince a fuller and richer command of the material on examinations and in exercises and assignments. As part of this higher standard, they will be evaluated according to the following scale:

0-359 F	360-389 C	390-399 C+	400-414 B-	415-439 B	440-449 B+
450-464 A-	465-500 A				

Class Schedule

Date	#	Lecture	Lab	Due
4 Sep	1	Introduction to Plant Taxonomy	Introduction to Angiosperms	
9 Sep	2	Philosophical & Practical Basis of Classification	Vegetative Characters	
11 Sep	3	Taxonomic History: Prehistory to 1700	Floral Characters	Writing Exercise I
16 Sep	4	Taxonomic History: Linnaeus	Basal angiosperms: Nymphaeaceae	
18 Sep	5	Taxonomic History: 1775 to 1950	Magnoliids: Magnoliaceae, Piperaceae	
23 Sep	6	Taxonomic History: 1950 to Present	Basal monocots: Alismataceae, Araceae	
25 Sep	7	Data: Morphology & Anatomy	Petaloid monocots: Liliaceae, Trilliaceae	
30 Sep	8	Data: Embryology	Petaloid monocots: Agavaceae, Alliaceae,	
2 Oct	9	Data: Palynology	Petaloid monocots: Iridaceae, Orchidaceae	
7 Oct	10	Data: Cytology	Commelinid monocots: Arecaceae, Juncaceae	Writing Exercise II
9 Oct	11	Data: Chemistry	Commelinid monocots: Cyperaceae	
14 Oct	12	Data: Molecular Biology	Commelinid monocots: Poaceae	
16 Oct	13	Data: Ecology	Basal eudicots: Ranunculaceae	
21 Oct	Lecture Exam I			
23 Oct	Mid-term Lab Exam			
28 Oct	14	Botanical Nomenclature	Caryophyllids: Caryophyllaceae, Cactaceae	
30 Oct	15	Botanical Nomenclature	Caryophyllids: Chenopodiaceae, Polygonaceae	
4 Nov	16	Botanical Nomenclature	Rosids: Rosaceae	
6 Nov	17	Botanical Nomenclature	Rosids: Fabaceae	Classification Exercise
11 Nov	18	Botanical Nomenclature	Rosids: Malvaceae, Onagraceae	
13 Nov	19	Evolutionary Biology	Rosids: Brassicaceae, Cucurbitaceae	
18 Nov	20	Evolutionary Biology	Rosids: Fagaceae, Juglandaceae	Nomenclature Exercise
20 Nov	21	Evolutionary Biology	Asterids: Solanaceae, Apiaceae	
25 Nov	22	Phylogenetics	Asterids: Scrophulariaceae, Lamiaceae	
2 Dec	23	The Plant Systematics Community	Asterids: Campanulaceae	
4 Dec	24	The Role of Field Studies	Asterids: Asteraceae	
9 Dec	Lecture Exam II			
11 Dec	Final Lab Exam			