

## Composites and Legumes, BIOL 5307, Fall 2014

### Syllabus

**Instructor:** Martin Terry, DVM, PhD  
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**Office Hours:** M 3:00–5:00 p.m., T 2:00–5:00 p.m., or by appointment. Drop in at random if you feel lucky. If I'm in the office, you're welcome.

**Time and Venue of Lecture:** MWF 9:00–9:50 a.m., WSB 204

**Textbooks:** None required.  
Recommended: Funk VA, Susanna A., Stuessy TF, Bayer R.J. (eds.). 2009. *Systematics, Evolution, and Biogeography of Compositae*. International Association for Plant Taxonomy, Vienna, Austria.  
Recommended: Turner BL. 1959. *The Legumes of Texas*. University of Texas Press, Austin.  
Recommended: Correll DS, Johnston MC. 1970. *Manual of the Vascular Plants of Texas*. Texas Research Foundation, Renner, Texas.  
Recommended: Turner BL, Nichols H, Den G. 2003. *Atlas of the Vascular Plants of Texas, Vol. 1, Dicots*. Botanical Research Institute of Texas, Fort Worth.

### Tentative Lecture Schedule:

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DATE	LECTURE TOPICS
8/25	Introduction, history of systematic study of Compositae
8/27	History of systematic study of Compositae
9/29	Useful terminology – first installment
9/01	<b>Labor Day</b>
9/03	Economic importance of Compositae
9/05	Character evolution of Compositae – chromosomal base number evolution
9/08	Character evolution of Compositae – secondary chemistry
9/10	Character evolution of Compositae – microcharacters
9/12	Character evolution of Compositae – pollen
9/15	Character evolution of Compositae – flowers
9/17	Character evolution of Compositae – breeding systems, polyploidy, and islands
9/19	<b>FIRST EXAM</b>
9/22	Phylogeny, classification and biogeography of the tribes – a first look
9/24	Cladistic analysis of relationships within the order Asterales; <b>term paper topic due.</b>
9/26	Compositae – complexity at the base of the tree; more terminology
9/29	Subfamilies of the Compositae – Barnadesioideae
10/01	Subfamilies of the Compositae – Mutisioideae
10/03	Subfamilies of the Compositae – Stifftioideae
10/06	Subfamilies of the Compositae – Wunderlichioideae
10/08	Subfamilies of the Compositae – Gochnatioideae (and Hyalideae)
10/13	Subfamilies of the Compositae – Hecastocladoideae
10/15	Subfamilies of the Compositae – Carduoideae

10/17	Subfamilies of the Compositae – Pertyoideae
10/20	Subfamilies of the Compositae – Cichorioideae
10/22	Subfamilies of the Compositae – Asteroideae
10/24	Tribes and genera commonly represented in West Texas
10/27	Tribes and genera commonly represented in West Texas
10/29	<b>Second Exam</b>
10/31	Leguminosae – introduction
11/03	Leguminosae – floral and fruit morphology
11/05	Leguminosae – chromosomal data and breeding system
11/07	Leguminosae – secondary chemistry
11/10	Leguminosae – economic importance
11/12	Leguminosae – biogeography and floristic regions
11/14	Leguminosae – Papilionoideae
11/17	Leguminosae – Papilionoideae
11/19	Leguminosae – Mimosoideae
11/21	Leguminosae – Mimosoideae
11/24	Leguminosae – Caesalpinoideae
11/26-28	<b>Thanksgiving Hols</b>
12/01	<b>Third Exam</b>
12/03	Review; term papers due.
12/05	<b>Dead day (R.I.P.). No class. Study!</b>
12/10	<b>Final Exam: Wednesday, 8:00 a.m.</b>

### **OBJECTIVES OF THIS COURSE:**

- Understand the role of key figures in the history of the botany of the Compositae and Leguminosae.
- Appropriately apply the terminology used in the description of the morphology, evolution, phylogenetic analysis and biogeography of these plants.
- Understand the classification and nomenclature of composites and legumes.
- Recognize the morphological features of pollen grains and how they are used in the systematic study of the Compositae and Leguminosae.
- Use a cladistic approach to analyze relationships among related taxa in these groups.
- Understand the role of DNA sequence analysis in creating cladistic trees in these families.
- Recognize the role of chromosome analysis in systematic grouping of composites and legumes.
- Analyze the morphology of flowers and floral characters in the two families.
- Compare the results of morphological analysis and molecular analysis in inferring relationships among taxa in these families.
- Analyze micro-characters in composites.
- Understand plant breeding systems, polyploidy, and their role in the colonization of islands.
- Analyze the secondary chemistry of composites and legumes.
- Demonstrate knowledge of the economic importance of composites and legumes, with emphasis on the native species of West Texas.

**GRADING:** Grades as a percentage of 500 total points will be reported as letter grades according to the following percentage intervals: A = 89.5–100%. B = 79.5–89.5%. C = 69.5–79.5%. D = 59.5–69.5%. F = 0–59.5%.

**POINT DISTRIBUTION:**

Three Lecture Exams @ 100 points	300
Term Paper	50
Final Exam (comprehensive)	150
<b>TOTAL POINTS FOR COURSE:</b>	<u>500</u>

**Attendance** is required. Students will be dropped with an F for excessive absences, defined as absences that exceed 20% of the course (i.e., 9 lectures in this course). If you know that you must miss a class, please show me the courtesy of letting me know in advance.

**DISABILITIES INFORMATION:** It is Sul Ross State University policy to provide reasonable accommodation to students with disabilities. Qualified students with disabilities needing academic or other accommodations to ensure full participation in the programs, services and activities at Sul Ross State University should contact the Counseling and Accessibility Center, Ferguson Hall 112, Box 122, Alpine, TX 79832 (phone 432-837-8203).