SUL ROSS STATE UNIVERSITY
GENERAL BOTANY, BIOL 1311-001, Spring 2017

Instructor: Dr. Martin Terry
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(Please include the word "**Botany" or "1311"** in the subject field of the email.)

Office Hours: M 3:00–5:00 p.m., T 3:00−5:00, 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 201

Textbooks: Evert and Eichhorn, *Raven Biology of Plants*, **8th Edition**, W.H. Freeman Publishers

Course description: This class provides a general survey of the plant kingdom which considers the fundamentals of biological facts, laws, and principals as they apply to plants and the structures and functions of the organs and systems of representative plants. Specific topics are listed below.

Core Objectives addressed:
1) Communication Skills – Students will effectively communicate the results of scientific investigations; using oral, written, and visual communication, either in group discussions or on written exams.
2) Critical Thinking Skills – Students will include creative thinking, innovation, inquiry, and analysis required to relate new information with previous information in a way that demonstrates the diversity and similarity due to evolutionary ancestry.
3) Empirical and Quantitative Skills – Students will use basic math skills to solve problems regarding metric conversions, as well as problems related to genetic outcomes and probability resulting in informed conclusions.
4) Teamwork Skills – Students will work effectively with others to support a shared goal during lab sessions on activities, such as dissections, problem solving, and other experimental procedures.

Objectives of this course (including lab):
- Understand the role of key figures and events in the history of biological science.
- Understand evolution and the processes that influence it
- Understand terminology relevant to biological laboratory work and fieldwork.
- Explore the applications of scientific skills and knowledge to daily living.
- Understand the safe and proper use of laboratory and field equipment and supplies.
- Understand the principles of experimental laboratory research and proper reporting techniques.
- Understand principles of classification and naming of living organisms.
- Recognize major cell structures and their functions.
- Analyze cell division and reproduction.
- Understand aerobic respiration and photosynthesis—their similarities and differences.
- Be able to identify the processes of molecular biology—replication, transcription and translation—and the roles of DNA and RNA in the process of protein synthesis.
- Understand the structure and functions of genes and chromosomes.
- Compare the fundamental concepts of Mendelian genetics.
- Analyze characteristics of fungi, algae, mosses, and ferns.
- Analyze characteristics of gymnosperms and angiosperms.
- Analyze characteristics of roots, stems, and leaves.
- Understand mechanisms of plant reproduction.
- Understand the effects humans have on the environment and vice versa.

Grading: Grades as a percentage of 900 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%. For borderline grades, the instructor may apply criteria which are qualitative—e.g., class participation or other evidence of effort in the course or lack thereof—to determine whether to round the letter grade up or down.

Point distribution:	Three Lecture Exams @ 100 points	300
	Final Exam (comprehensive)	150
	Lecture quizzes: 10 pop quizzes @ 10 points =	100
	TOTAL POINTS:	550

Tentative Lecture Schedule and Reading Assignments:

DATE	LECTURE TOPICS	CHAPTER	PAGES
JAN 18	Introduction **Get textbook ASAP!!!!!!!!**	1	1-13
JAN 20	Introduction, Chemistry of Life (Carbs)	1, 2	1-13, 14-34
JAN 23	Chemistry of Life (Lipids, Proteins)	2	14-34
JAN 25	Chemistry of Life (Nucleic Acids)	2	14-34
JAN 27	Cell Structure & Function	3	35-58
JAN 30	Cell Cycle; Mitosis	3	58-70
FEB 1	Sexual Reproduction; Meiosis	8	141-147
FEB 3	Molecular Biology (DNA, RNA: how they function)	9	163-169
FEB 6	Molecular Biology (Protein synthesis)	9	169-179
FEB 8	**FIRST EXAM**		
FEB 10	Movement across Membranes; Concentration	4	71-78
FEB 13	Concentration and Energy	4	78-87
FEB 15	Flow of Energy	5	88-101
FEB 17	Photosynthesis (Solar Energy —> Chemical Energy)	7	115-139
FEB 20	Photosynthesis	7	115-139
FEB 22	Respiration (Chemical Energy —> ATP Energy)	6	102-114
FEB 24	Respiration	6	102-114
FEB 27	Genetics	8	141-162
MAR 1	Genetics	8	141-162
MAR 3	Evolution	11	198-217
MAR 6	Evolution	11	198-217
MAR 8	**SECOND EXAM**		
MAR 10	Nomenclature, Taxonomy & Systematics	12	218-237
MAR 13–17	**SPRING BREAK — NO CLASSES**		
MAR 20	Alternation of Generations	17	376-377; Fig. 17-8
MAR 22	Tissues and Organs of the Plant Body	23	510-527
MAR 24	Roots		
MAR 27	Shoots (stems, leaves)		
MAR 29	Nonvascular Plants: Bryophytes	16	345-367
	Moss Life Cycle		Fig. 16-15
MAR 31	Seedless Vascular Plants	17	368-389
	Lycopodium & *Selaginella* Life Cycles:		Figs. 17-15, 17-18
APR 3	Seedless Vascular Plants	17	389-407
	Equisetum, Polypodium Life Cycles		Figs. 17-34, 17-40, 17-30
APR 5	Vascular Seed Plants: Gymnosperms	18	408-433
	Pine Life Cycle	18	Fig. 18-17
APR 7	Vascular Seed Plants: Angiosperms	19	434-459
	Angiosperm Life Cycle		Fig. 19-22
APR 10	Angiosperms: Monocots, Eudicots		
APR 12	Angiosperms: Flowers, Fruits	20	452-474
APR 14	Ecology	www.whfreeman.com/raven	
APR 17	Ecology	www.whfreeman.com/raven	
APR 19	Plants and People	21	475-495
APR 21	Plant Hormones	27	603-621
APR 24	Plant Nutrition & Soils	29	645-666
APR 26	Ethnobotany; Plants and People	21	501-523
APR 28	Ethnobotany; Plants and People	21	501-523
MAY 1	**THIRD EXAM**		
MAY 3	Review; Evolution revisited; last day of class.		

MAY 8, Monday: FINAL EXAM 10:15 a.m.–12:15 p.m.

ATTENDANCE is required in both lecture and lab. Students will be dropped with an F for excessive absences, defined as absences that exceed 20% of the course (i.e., 9 lectures or 3 labs or proportional combinations of lectures & labs in this course).

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).