

Biology 2406:001 & Z01 – Environmental Biology - Fall 2020
Lecture M-W-F 9:00-9:50 WSB 107 Lab W 3:30-5:30 WSB 107
Syllabus

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Class Website: <http://sulross.blackboard.com> & <http://faculty.sulross.edu/critzi/>

Text: Essential Environment: The Science Behind the Stories. 6th Edition. 2018.
Withgott, J. and M. Laposata.

Course Description: Environmental Biology is an introduction to the biological effects of human activities on the environment and possible alternatives for a more effective use of natural resources. The course emphasizes water, soil, and air pollution, as well as other current world ecological concerns. The course will consist of formal lectures, open discussions, and formalized debates over current environmental topics. The laboratory will focus on EPA Standard Methods used in field and laboratory analysis or environmental samples and other basic environmental and ecological research procedures.

Student Learning Outcomes

The graduating biology student graduating with a BS in Biology should be able to:

- 1) The student will be able to demonstrate an understanding of basic biological concepts, including but not limited to evolution via natural selection, cell theory, and the role and function of DNA.
- 2) The student will be able to demonstrate utilization of various field techniques toward addressing scientific questions in the specific discipline. These field techniques can include, but are not limited to, plant collection and processing, various animal collection techniques, ecological surveying and sampling, and biodiversity indexing.
- 3) The student will be able to use biological instrumentation to solve biological problems using standard observational strategies.
- 4) The student will develop writing skills by summarizing and critiquing recent relevant biological literature.

Course Learning Objectives:

- 1) Students will identify the basic elements associated with environmental biology (species, nutrient cycles, etc.)
- 2) Students will describe the path that elements cycle through the environment.
- 3) Students compare various methods of using natural resources, and predict which ones are the best to use under various conditions.
- 4) Students will appraise their own use of environmental resources, and apply this to improving their daily impact on the environment.

- 5) Students will demonstrate a proficiency of environmental demonstration techniques, to better enable them to teach and educate others about environmental biology.

Grading: Your grade will be assigned based on the percentage of points you get out of a total possible 500 points. (100pt exams (4), 100pts Participation and Presentations)

Tests: There will be a total of 4 exams, each worth 100 points. If you miss an exam and have a legitimate excuse, contact me within 24 hours of the test and we will arrange a make-up test. If you do not contact me within 24 hours, you will receive a zero on that exam.

Attendance: Students missing 20% of lectures (9 lectures) OR labs (3 labs) may be dropped from the class per the SRSU catalog. Any student dropped for excessive absences will receive an F for the course grade. Please notify your instructor BEFORE missing class for authorized activities, death in the family, or illness. Exams missed for any reason must be made up within one week of the originally scheduled date. **REGARDLESS OF WHY AN ABSENCE OCCURS, YOU MAY BE GIVEN AN F FOR THE COURSE GRADE IF YOU ACCUMULATE SIX ABSENCES.**

If you are feeling ill, have a fever of 100 F, or am exhibiting any symptoms of the current COVID infection, please stay home and self-quarantine until you are either tested and cleared, or have been symptom free for over 10 days. As this class will be offered on-line as well as in person, attendance and participation online is the equivalent of in-class participation. Whether you are connecting to the class during the scheduled class time in zoom or viewing the recordings of class in Blackboard and posting in the discussion forums, activity each week is required.

Lecture courtesy: The general rules of classroom etiquette are below.

- 1) Please do not talk to others in class while the instructor is lecturing. If you have a question, ASK THE INSTRUCTOR! That's what I'm here for.
- 2) No eating, chewing, dipping, etc.
- 3) Please turn cell phones and pagers to silent while in class. They are disruptive to the entire class, and detract from learning.
- 4) For remote connections, please attend class as professionally as one would do in person (ie. Wearing clothes, not being disruptive or disrespectful to your peers, etc.)
- 5) If attending class in person, please wear your mask at all times and maintain social distancing. Failure to do so will result with being asked to leave the class and count as an absence for the day.

Students with disabilities will be provided reasonable accommodations. If you would like to request such accommodations because of physical, mental, or learning disability, please contact the ADA Coordinator for Program Accessibility at 837-8203, FH 112.

TENTATIVE LECTURE OUTLINE

DATE	LECTURE TOPIC	CHAPTER
Aug 24	Introduction to Environmental Science	1
Aug 26	Nature of Science and Environmental Science	1
Aug 28	Environmental Ethics	6
Aug 31	Sustainability	6
Sept 2	Economics	6
Sept 4	Economics continued	6
Sept 7	Labor Day – No Class	
Sept 9	Environmental Policy here and there	7
Sept 11	Environmental Policy process	7
Sept 14	Exam I	
Sept 16	Environmental Chemistry	2
Sept 18	Energy and Ecosystems	2 & 5
Sept 21	Biogeochemical Cycles	5
Sept 23	Evolution	3
Sept 25	Biodiversity	3
Sept 28	Ecological Organization	3
Sept 30	Population Ecology	3
Oct 2	Systems and Cycles	5
Oct 5	Species Interactions	4
Oct 7	Ecological Communities	4
Oct 9	Biomes	4
Oct 12	Exam II	
Oct 14	Human Population Growth	8
Oct 16	Human Population Growth	8
Oct 19	Agriculture	9 & 10
Oct 21	Agriculture	9 & 10
Oct 23	Toxicology	14
Oct 26	Waste Management	22
Oct 28	Outdoor Air Pollution	17
Oct 30	Indoor Air Pollution	17
Nov 2	Climate Change	18
Nov 4	Freshwater	15
Nov 6	Oceans	16
Nov 9	Exam III	
Nov 11	Biodiversity	11
Nov 13	Conservation	11
Nov 16	Land Use – Forests and Parks	12
Nov 18	Fossil Fuels	19
Nov 20	Minerals and Mining	23
Nov 23	Urbanization	13
Nov 25	Thanksgiving Holidays – No Class	
Nov 27	Thanksgiving Holidays – No Class	
Nov 30	Old Alternatives	20

Dec 2
Dec 8 8:00 am

New Alternatives
Final exam for MWF 9:00

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Note – This outline is subject to change for reasons of course interest, time constraint, or instructor whim. The exams will be administered on the dates given, unless material relevant for a given exam has not been covered. Under such cases, an exam may be moved a class period or two to aid in the clarity and understanding of the material.

ENVIRONMENTAL BIOLOGY LABORATORY SCHEDULE

DATE	LABORATORY
Aug 26	No Lab
Sept 2	Introduction to Library and Internet Research
Sept 9	Air Pollution Lab
Sept 16	Ecosystems – Walking Field Trip on Sul Ross Hill
Sept 23	Analysis of Water Samples
Sept 30	Measuring Diversity – Use of Diversity Indices
Oct 7	Soil Lab – Properties and Pollutants
Oct 14	Comparison of Alternative Building Materials
Oct 21	Environmental Politics and Policies – How-to-Activity
Oct 28	Prep for Lecture Discussions
Nov 4	Prep for Lecture Discussions
Nov 11	Prep for Lecture Discussions
Nov 18	Prep for Lecture Discussions
Nov 25	Thanksgiving Holiday
Dec 2	Urbanization video and discussion