

Abilene Christian University – Agricultural and Environmental Sciences

Course Title: ENVR 233 – Soil Science

Semester/Year: Spring 2013

Location/Time: ZL 202, Lecture MW 10-11; ZL 107, Lab M 2-5

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ACU Mission: To educate students for Christian service and leadership throughout the world.

A & E Mission: To educate students for Christian stewardship for sustainable food, fiber, environmental and natural resource systems in God's creation.

Primary Audience: This course is designed for undergraduate students in A&E but would also be relevant to students in related majors such as biology or chemistry.

Course Description: A basic course dealing with soil type and parent material, chemical, physical, and biological properties of soils.

Course Goal: All life depends on soil, effectively linking the physical and biological environments. The study of soil is paramount to understanding and integrating concepts in forestry, agriculture, horticulture, geology, environmental and cultural geography, archeology, and even human history. Students in the agriculture and the environmental sciences should have a working knowledge of soil processes, formation, composition, taxonomy, and geographic location, as this knowledge is integral to understanding both production agriculture and environmental protection and remediation. Concluding this course, students will have a working knowledge of soil processes that will broaden their scope of knowledge in the geosciences, and a greater appreciation of the role of soils in agriculture and the environment.

Student Learning Outcomes: Students will: (1) gain understanding of the concepts of soil physics, chemistry, nutrition, and ecology, (2) acquire skills to analyze graphical data presented in lecture or generated as part of the lab experience, (3) develop hypotheses, test them by conducting experiments in lab, interpret and draw conclusions from the data that may shed light on scientific explanations for phenomena, (4) explore current agro-ecological practices in comparison to historical practices and non-traditional practices.

Class Format: This course is composed of two 50 minute class sessions and one 170 minute lab session per week. Classroom instruction will primarily be in a traditional

lecture format. Laboratory sessions will be “hands on” and will focus on experiential learning.

Attendance: Class attendance is important and roll will be checked at the beginning of most class periods. Any student who misses greater than 20% of the course is subject to dismissal. In this case 20% is equal to 6 class meetings or 3 labs. Absences for illness are “excused” if accompanied by a letter of explanation from a health care professional (physician, nurse etc...). Missing class for extra-curricular activities will be counted as an “excused” absence (athletes and others should not get 6 “skips” in addition to missing for meets, games etc...). If dismissed from the course, students should expect to receive a final grade of “F”. Tardiness is unacceptable. Two tardies will be counted as an “unexcused” absence. At the 4rd “unexcused” absence or 2nd unexcused lab absence, the student’s grade will be dropped one letter. Both excused and unexcused absences count toward the total absences for the course.

Academic Integrity: Each member of the ACU community is expected to uphold and maintain the integrity of scholarship on this campus. Violations of the academic integrity policy (intentions to deceive, mislead, or misrepresent) are unbecoming a Christian and will be met with severe censure, including but not limited to a grade of zero on exams and/or out of class assignments, dismissal from the course, or possibly a final course grade of “F”. The full policy is available for review at the campus life web site and at the following offices: provost, college deans, dean of campus life, director of student affairs, director of residential life education and academic departments.

Classroom Behavior: Students are expected to behave and be engaged in the material covered in the class. Students should not talk when others are talking to the class, whether they are teachers, teaching assistants, or other students. Mobile and other electronic devices should only be used as part of a class activity and should otherwise be put away. Use of a mobile device when not part of a class activity will be counted as a tardy for the student. Lap-top computers may be used for taking notes, but not for purposes unrelated to the class session. Students who disrupt the class may be asked to leave and will be counted as “tardy” for that day.

Assignments and Grading:

Exams – There will be four exams this term, three unit exams and one non-comprehensive final. Each exam will cover a discrete unit of material. All exams will be worth 100 points each.

Laboratory – Each student will be expected to participate fully in lab. Laboratory in this class is a team effort. Teams of 3-4 students will complete lab exercises together. Laboratory is worth 150 points.

Course Grade:

Exams	400 points (55%)
<u>Laboratory</u>	<u>150 points (27%)</u>
Total	550 points

Your grade will be calculated on an accumulated point total basis. Therefore any student that accumulates 90% (495) of the total points will receive an “A” for the course, 80% (440) a “B”, 70% (385) a “C”, 60% (330) a “D”, < 60% an “F”.

Text: Brady, N.C., and R.R. Weil. Elements of the Nature and Properties of Soils, 3th Ed. New Jersey, Pearson – Prentice Hall Publishing. 2010. ISBN: 0-13-501433-6

iGadget app: SoilWeb

Additional Course Policies:

1. Late work will not be accepted! Assignments are due at the beginning of class!
2. All out of class assignments are to be “word-processed” in “*Times New Roman*” font and at a font size of 12, with one inch margins top-bottom-sides.
3. Students are expected to adhere to the university dress code outlined in the student guide. The guide is available on-line and may also be found in the campus life office on the main floor of McKinzie Hall.

Class Schedule (subject to change):

Week	Laboratory	Topic	Readings
1/14	No Lab (MLK Day)	Introduction	Chapter 1, 2, 3
1/21	Soil Texture	Geology	
1/28	Soil Color	Soil Formation	
2/4	Hydrometer	Soil Classification	
2/6 Exam 1			
2/11	Soil Physical Properties	Soil Taxonomy	Chapter 4, 5,
2/18	Soil Physical Properties	Soil Physical Properties	
2/25	Web Soil Survey		
3/4	Soil Pits		
3/6 Exam II			
3-11 NO CLASS – SPRING BREAK			
3/18	Soil Pits	Soil Colloids	Chapter 8, 11, 12, 13
3/20	Soil Pits	Organic Matter	
4/1	Soil Mapping Exercise	Soil Nutrients	
4/8	Soil Mapping Exercise		
4/10 Exam III			
4/15	Soil Biota	Soil Biology and Ecology	Chapter 10
4/22	Soil Chemistry	Soilless Media	
4/29	TBA	Composting	
5/8 (10:30-12:30am) – Final Exam			