Environmental Soil Science

Syllabus

Instructor: Kenneth W. Farrish
Room 108 Forestry Lab Building
(936) 468-2475 or 2331
kfarrish@sfasu.edu
Office hours 8:00 am to 11:00 am Monday and Wednesday
8:00 am to 11:00 am Friday

Department: Environmental Science

Lecture: 11:00 to 11:50am MW, Forestry Laboratory Building, Room 103

Laboratory Room: Forestry laboratory Building, Room 109

Laboratory Instructor: Briana Clark
Room 101 Forestry Laboratory Building
(936) 468-2272
clarkbm@jacks.sfasu.edu


Course Description: Three semester hours, two hours lecture and three hours laboratory per week. The physical, chemical and biological properties of soils, the role of soils in environmental quality, biogeochemical cycles, soil management techniques, and soil classification. Prerequisite: CHE 134

Course Objectives: The primary objective of this course is to make the student aware of the importance of soils as part of the environment. This required core course will address the needs of environmental science and related majors, and the subject matter supports courses in ecology, hydrology, remediation and reclamation, and site assessment. Required field trips.

Program Learning Outcomes: BS Environmental Science
1. Demonstrate competency in environmental assessment;
2. Demonstrate understanding in environmental management;
3. Demonstrate understanding in environmental policy and professional ethics;
4. Demonstrate competency critical thinking communicated through effective scientific written reports and oral presentations.
5. Demonstrate preparation to pursue a professional career and/or graduate degree programs.
B.S. Environmental Science Program Learning Outcomes

Proficiency Levels

<table>
<thead>
<tr>
<th>Course</th>
<th>PLO 1 Environmental Assessment</th>
<th>PLO2 Environmental Management</th>
<th>PLO3 Environmental Policy &amp; Professional Ethics</th>
<th>PLO4 Critical Thinking, Oral &amp; Written Communication</th>
<th>PLO5 Professional Career &amp;/or Graduate Degree Program</th>
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</thead>
<tbody>
<tr>
<td>ENV 349</td>
<td>A</td>
<td>A</td>
<td>I</td>
<td>A</td>
<td>A</td>
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N/A – Not Applicable, B – Basic, I – Intermediate, A – Advanced, M – Mastery

Definition of Rating Categories:

1. **N/A** – Not Applicable – course does not support the Program Learning Outcome.

2. **B** – Basic – course supports Program Learning Outcome by providing students with fundamental information, definitions, concepts, and lab activities relative to the expected outcomes.

3. **I** – Intermediate – course supports Program Learning Outcome by providing students with topic-specific information, concepts, applications, and lab activities that increase the students’ skills in making tactical implementation decisions relative to the expected outcomes.

4. **A** – Advanced – course supports Program Learning Outcome by providing students with transitional, high level topic-specific information, activities, and opportunities that enable the students to apply their critical thinking and tactical skills to resolved increasingly challenging strategic situations.

5. **M** – Mastery – course supports Program Learning Outcome by providing students with opportunities to independently apply tactical and strategic planning skills to successfully accomplish real-world, non-academic management objectives. Completes students’ preparedness for entry-level professional activity accomplishment.

Student Learning Outcomes: The primary objective of this course is to make the student aware of the importance of soils as a major component of the environment. The course will cover aspects of the physical, chemical and biological properties of soils and how these relate to land management. This required course will address the needs of environmental science majors and minors. The subject matter supports courses in environmental hydrology, wetland delineation and function, environmental planning, and environmental assessment and management.

Course Calendar:

<table>
<thead>
<tr>
<th>Lecture Topics</th>
<th>Text Chapters</th>
<th>Dates*</th>
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</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
<td>8/27, 8/29</td>
</tr>
<tr>
<td>Soil Formation and Morphology</td>
<td>2</td>
<td>9/03, 9/05, 9/10</td>
</tr>
<tr>
<td>Soil Physical Properties</td>
<td>4</td>
<td>9/12, 9/17, 9/19, 9/24</td>
</tr>
<tr>
<td>EXAM 1</td>
<td></td>
<td>9/26</td>
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</table>
Soil Water | 5 | 10/01, 10/03, 10/08
Soils and the Hydrologic Cycle | 6 | 10/10, 10/15
Soil Aeration and Temperature | 7 | 10/17, 10/22
EXAM 2 | | 10/24
Soil Colloids and Chemical Properties | 8 | 10/29, 10/31, 11/05
Soil Organisms | 11 | 11/07
Organic Matter | 12 | 11/12
EXAM 3 | | 11/14
Fall Break | | 11/19-11/23
Plant Nutrients and Fertility Management | 13,14,15,16 | 11/26, 11/28
Soil Classification | 3 | 11/28, 12/03
Soils and Environmental Problems | 18 | 12/05
EXAM 4 | | 12/10(FINALS WEEK)

*Schedule likely to change

Course Policies:

A. Grading System - Four exams together will comprise 80 percent (each 20 percent) of the final grade. The overall laboratory grade will comprise the remaining 20 percent of the final grade. The overall laboratory grade is calculated as the mean of the four laboratory reports, three quizzes, and one assignment. All students entering the environmental science and forestry undergraduate degree programs during or after fall semester of 2008 must make a grade of C or better in each core environmental science (ENV) or forestry (FOR) courses to have the course count toward graduation. This course is a core environmental science course.

B. Grading Scale - The following scale is adhered to strictly. Individual overall means are calculated to the first decimal place.

- 90.0 - 100 = A
- 80.0 - 89.9 = B
- 70.0 - 79.9 = C
- 60.0 - 69.9 = D
- < 60.0 = F

C. Late Assignments - Make-up exams will only be given if arrangements are made with the instructor before missing the scheduled exam. A documented excuse will be required. Otherwise, missing exams will be counted as zeroes in the overall grade computation. Late laboratory assignments will not be accepted.

D. Attendance - Attendance in the laboratory section is mandatory. The final laboratory grade will be reduced by one letter grade per unexcused absence.
E. Other Policies

**Academic Integrity (A-9.1)**

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

**Definition of Academic Dishonesty**

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

See the complete policy at: [http://www.sfasu.edu/policies/academic_integrity.asp](http://www.sfasu.edu/policies/academic_integrity.asp)

**Withheld Grades Semester Grades Policy (A-54)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Responsible Use of Technology**

It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop
computer for matters unrelated to the course may be grounds for dismissal from class or other penalties.

**Acceptable Student Behavior**
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. Please read the complete policy at: http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf
# LABORATORY SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Lab</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Aug 27</td>
<td>-</td>
<td>No Labs</td>
</tr>
<tr>
<td>Sep 03</td>
<td>-</td>
<td>No Labs</td>
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</tbody>
</table>
| 10    | 1   | Introduction  
       |      | PowerPoint set- *Soil Properties* and Land Use  
       |      | Lab Reports-Soil Science Society of America (SSSA) format  
       |      | **Assignment 1**: Constructing scientific tables and figures |
| 17    | 2   | Soil Formation and Landscapes  
       |      | Soil-forming Factors Video  
       |      | Walking Tour: Soils and landforms near Lanana Creek  
       |      | **Assignment 1 due** |
| 24    | 3   | SFA Experimental Forest  
       |      | Woden soil profile description  
       |      | (Typic Paleudalf)  
       |      | **Quiz (Labs 1 and 2)** |
| Oct 01| 4   | SFA Experimental Forest  
       |      | Mantachie soil profile description  
       |      | (Fluventic Endoaquept)  
       |      | View Bowie soil profile  
       |      | (Plinthic Paleudult)  
       |      | View Nacogdoches soil profile  
       |      | (Rhodic Paleudalf) |
| 08    | 5   | Laboratory  
       |      | Soil texture  
       |      | Water movement video  
<pre><code>   |      | **Report Due (Labs 3 and 4)** |
</code></pre>
<table>
<thead>
<tr>
<th>Date</th>
<th>No.</th>
<th>Labor</th>
<th>Details</th>
</tr>
</thead>
</table>
| 15     | 6   | Laboratory | Bulk density, particle density, pore space  
|        |     |         | Prepare samples for field capacity and  
|        |     |         | wilting coefficient determinations |
| 22     | 7   | Tonkawa Area | Typic Quartzipsamment  
|        |     |         | Aquic Quartzipsamment  
|        |     |         | Typic Psammaquent  
|        |     |         | Complete moisture coefficients  
|        |     |         | **Report Due (Labs 5 and 6)** |
| 29     | 8   | Laboratory | Soil microorganisms - start  
|        |     |         | Soil nutrient video  
|        |     |         | **Quiz (Lab 7)** |
| Nov 05 | 9   | Laboratory | Soil chemistry- SFA Soil, Plant, and  
|        |     |         | Water Analysis Laboratory Tour  
|        |     |         | Finish microorganisms |
| 12     | 10  | Laboratory | Soil moisture, strength, and respiration  
|        |     |         | measurements  
|        |     |         | Soil Survey Report Assigned  
|        |     |         | **Report Due (Labs 8 and 9)** |
| 19     |     | No Labs – Thanksgiving Break | |
| 26     | 11  | USDA Natural Resources Conservation  
|        |     | Service-East Texas Plant Materials  
|        |     | Center |
| Dec 03 | 12  | Laboratory | **Soil Survey Report Due**  
|        |     |         | **Quiz (Labs 10 and 11)**  
|        |     |         | Lab evaluation |
*Schedule subject to change