Syllabus

For

Soil Resources and Conservation

AGRN 5080/6080

Instructor: Dennis A. Shannon  Fall 2008
Laboratory Instructor: TBA
Objectives of Course: Provide sound principles and procedures for planning the wise use and management of soil resources for agricultural and non-agricultural purposes.


In addition, students will need a 2-2½ inch notebook dedicated for references that will be provided by the instructor.

Lectures: Topics will be presented in the order shown in the course outline. Dates may be adjusted to accommodate schedules of guest speakers and opportunities for making the course more meaningful.

Laboratory: Exercises will cover a number of topics related to the lectures. Field exercises will provide an opportunity for “hands-on” application of principles relating to subjects such as site inventories and evaluations, estimating soil loss, determining highly erodible cropland, determining wetlands, planning erosion control systems on agricultural and nonagricultural lands and field estimates of soil quality attributes. An all-afternoon field trip (1 - 5 PM) is tentatively planned for Thursday November 6, 2008 to see a variety of conservation practices used in the area that are typical of those used in the Southeastern U.S. Reports will be assigned to provide students opportunities to practice and demonstrate principles learned during the laboratory exercises.

Term Paper and Oral Presentation: Each student will prepare a written report and make an oral presentation on an assigned topic related to one of the lecture topics. Presentations will be made during the last week of class unless the student and the instructor agree upon an earlier date. The grade for the report and presentation will reflect the quality of the document and the presentation (factors of importance related to the document include extent of relevant information, extent of research through references, organization of materials, clarity and completeness).

Attendance Policy

1. Students are expected to attend all lectures and laboratory sessions
2. Failure to complete assignments or to take exams at designated times without an acceptable excuse will result in a zero for that assignment or exam.
3. Absences may be excused for the following reasons:
   a. Illness of the student or serious illness of a member of the student’s
immediate family.
b. Death of a member of the student’s immediate family.
c. Subpoena for court appearance.
d. Trips for University classes or participation in intercollegiate athletic
events (verified by letter from professor, Dean or Athletic Department
official)
e. Religious holiday.
f. Other reasons the instructor deems appropriate, e.g. job interview

Grades:                      Grade Scale

Exam 1  10 %                90 - 100  = A
Exam 2  11 %                80 - 89   = B
Exam 3  16 %                70 - 79   = C
Exam 4  10 %                60 - 69   = D
Laboratory Reports 15 %
Quizzes  1 %                Below 60  = F
Term paper     8 %
Oral Presentation 7 %
Final Exam    22 %

One-hour Exams

Sept. 4, 2008 (Thursday)
Sept. 23, 2008 (Tuesday)
October 28, 2008 (Tuesday)
December 2, 2008 (Thursday)

Exams will consist of multiple-choice questions, true/false, matching questions and other
questions answered by computations and written statements.

Final Exam: Thursday, December 13, 2007 at 2:00 - 4:30. Students who maintain an A
or B average prior to the final and are satisfied with their grade will be allowed to skip
the final exam.

Assistance Outside of Classroom and Lab

Dennis Shannon is in Room 215 Funchess Hall. You may see him after class or call 844-
3963 to set up an appointment. Or send an email message to shannda@auburn.edu.

Julie Guckenberger is located in Room 133 Funchess Hall. You may make an
appointment by email or just stop by. Office number is 844-4087 and email is
guckejl@auburn.edu.


References

The textbook for the course is *Soil Resources and Conservation for Productivity and Environmental Protection* by Frederick R. Troeh, J. Arthur Hobbs and Roy L. Donahue (2004 Prentice Hall). Additional resources supporting course topics will be provided to each student or be available in the Auburn University Library or in Blackboard. The references that will be provided will be distributed near the time of the related lecture topic. The other references will be in the Auburn University Library at the Reserve Desk. (See reserve reference list)


The Auburn University Oath of Honor

“In Accordance with those virtues of Honesty and Truthfulness set forth in the Auburn Creed, I, as a student and fellow member of the Auburn Family, do hereby pledge that all work is my own, achieved through personal merit and without any unauthorized aid. In the promotion of integrity, and for the betterment of Auburn, I give honor to this, my oath and obligation.”
COURSE OUTLINE
AGRN 5080/6080 - SOIL RESOURCES AND CONSERVATION
Fall 2008

Note: Schedule is subject to change depending upon weather and availability of speakers

I. SOIL RESOURCES

8/19 Introduction to Course
   Historical Overview - World & United States
   Worldwide importance of soil resources and conservation

8/21 Land Resource Regions & Major Land Resource Areas
   Land Capability Classification

8/21 Lab 1 - Raindrop Erosion and Site Slope Evaluation Procedures
   (Plant Sciences Research Center - Greenhouse)

II. EROSION AND SEDIMENTATION

8/26 Geologic and Accelerated Erosion and Sedimentation
   Water Erosion and Sedimentation

8/28 Wind Erosion and Sedimentation

8/28 Lab 2 - Inventory of Soil Resources (visit to farm field - Lee Co.)

III. PREDICTING SOIL LOSS

9/2 Film on wind erosion

9/4 Exam 1 - Sections I & II - 10 points.

9/4 Predicting Wind Erosion (during lab period)

9/9 Predicting Soil Loss - Universal Soil Loss Equation

9/11 Water Erosion Prediction Models, Gully Erosion Measurements
IV. EROSION CONTROL MEASURES

9/16  Erosion Control Measures for Agricultural Land

9/18  Erosion Control Measures for Agricultural Land
Requirements for Highly Erodible Land (Conservation Compliance)

9/18  Lab 4 - Using RUSLE2 Erosion Prediction Model to Compare Soil
Erosion Management Strategies (RBD Library computer lab)

9/23  Exam 2 - Sections III & IV - 11 points

V. SOIL QUALITY

9/25  Soil Quality Definitions, Overview and Indicators

9/25  Lab 5 - Planning Erosion Control for Farmer’s Field (Funchess)
Film Earthworms

9/30  Cropping Systems to Improve Soil Quality and for Carbon Sequestration
Film on Conservation Tillage

10/2  Soil Quality Overview - Ben Moore, Conservation Agronomist, USDA -
NRCS, Luverne)

10/2  Lab 6 - Soil Quality Indicators (“Old Rotation” plots with Ben Moore)

10/7  Lab 7 - Planning Cropping Systems; Films on Earthworms and Minimum
tillage farming.

VI. SOIL INTERPRETATION FOR NON-
AGRICULTURAL USES

10/9  Potential of Soils for Residential, Commercial and Industrial Uses
10/9  Lab 8 - Conservation tillage practices and equipment (USDA/ARS Conservation Systems Research Group)

10/14  Potential of Soils for Residential, Commercial and Industrial Uses and Other Considerations (Mined Land and Coastal Dunes).

VII. WETLANDS

10/16  Wetlands Definitions and Classification Systems
10/16  Lab 9 - Evaluate Field for Suitability for Septic Tank Absorption System (with specialist Rick Smith of Lee County Health Department) meet at greenhouse

10/21  Wetlands Determinations/Delineations

10/23  Clean Water Act Requirements (jurisdictional wetlands)
       Wetland Mitigation and Wetlands Reserve Program (WRP)
       Drainage
10/23  Lab 10 - Wetlands - identifying hydric soils and wetland hydrology. (Bob Beaty, NRCS Soil Scientist. Meet at greenhouses)

10/28  Exam 3 - Lecture Topics V - VII (16 points)

VIII. NONPOINT SOURCE POLLUTION

10/30  Definitions, Overview and Pollutants

10/30  Lab 11 - 1:00 - 5:00 p.m. Observe Applied Conservation Management Systems (Mary Olive Thomas Demonstration Forest with Jason Gardner, District Conservationist, Opelika Field Office, USDA -NRCS)

11/4  Best Management Practices (BMP’s) for Agriculture and Forestry

IX. STORMWATER MANAGEMENT

11/6  Stormwater Management
11/6  Lab 12 - Applied Conservation Management Systems On Farm (Visit to farms in Chambers County with Jason Gardner, District Conservationist, Opelika Field Office, USDA -NRCS.  All afternoon trip)

11/11  Clean Water Act (CWA) of 1972 and Amendments  
Requirements for Stormwater Management  
State and Local Regulations Relating to Construction Sites  
Measures for Stormwater Management  
The Surface Mining Control and Reclamation Act of 1977 (PL - 95-87)

11/13  Materials for erosion control in construction and urban environments  
( Earl Norton)

11/13  Lab 13 - Observation of stormwater management and erosion control systems on construction sites around Auburn - Earl Norton

11/18  Eve Brantley on stormwater management, NPS pollution control and water quality

11/20  Lab 14 - Uses of Soil Survey for agricultural and non-agricultural uses

11/20  Lab 15 - Runoff Estimating Procedures (lecture and lab)

11/24-29  Thanksgiving Holidays

12/2  Exam 4 (Lecture topics VIII through IX - 10 Points)

12/4  Class Presentations

12/4  Class Presentations  
Review Session (Topics Requested by Students)

12/??  Final Exam (Lecture topics I through IX)  
TBA