Agriculture 340 - Spring 2005
Conservation of Agriculture Resources

Course Requirements and Information

Instructor: Dr. Gary Janicke - Room 5 A.B. Carter Building Phone: 622-2231
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Office Hours: I will be available by appointment at office hours other than scheduled class periods.

Reference Materials:

Reference materials will be available on the Agriculture Department Home Page, as handout materials or in the library. Some homework assignments will require a library search for information. A three ring binder is highly suggested to organize the handout materials and lecture notes.

Agriculture Department Attendance Policy
Revised January 2003

Students in Agriculture/Horticulture classes are required to attend all scheduled class meetings. If students have a legitimate reason to be absent (personal illness, critical illness, death in their immediate family or participation in an approved University activity) they are expected to discuss it with the instructor prior to the anticipated absence and make arrangements for any make-up work that must be done. Completion of make-up work is the responsibility of the student. The instructor will judge the validity of the reason for an absence.

In case of an emergency of such nature that the above requirements cannot be met, the student should inform the instructor at the first opportunity after the student's return to the campus and should present adequate and documented reasons. Absences in excess of 20 percent of a class will automatically result in a failing grade unless this is waived by the instructor and department chair.

Students who have unexcused absences forfeit the right to do make-up work especially quizzes, exams and laboratories given that day.

Enforcement of this policy is the responsibility of the instructor. Unexcused absences may be used as a factor in determining a grade for the course.

DISABILITY STATEMENT

If there is any student in this class who is in need of academic accommodations and who is registered with the Office of Services for Students with Disabilities, please make an individual appointment with the course instructor to discuss accommodations. Upon individual request, this syllabus can be made available in alternative forms. If any student who is not registered with the Office of Services for Students with Disabilities has need of academic accommodations, please contact the Office directly either in person at SSB 361 or by telephone at 622-1500.

College of Business and Technology Executive Council

All junior and senior level students in the College of Business and Technology are required to attend the College's Professional Skills Conference on April 1st . More information later.

Evaluation:

The final grade for the course will be determined according to the following:

Two (100) Point Hour Exams	200 points
Comprehensive Final Exam	150 points
Homework Assignments	150 points
Semester Project	100 points
Quizzes	200 points
Total	800 points

Exams will be primarily short answer and essay questions with some logic problems. **All collected assignments will be reduced 10% the first hour and 25% per day when late.**

Grading:

The final letter grade will be based on a percentage of the semester total as follows:
90% = A 80% = B 70% = C 60% = D Below 60% = F

The Final Exam is scheduled for Monday, 2nd 2005 at 8 a.m.- 10 a.m.

Week and Date	Topic
1 - 1/10 - 1/12	Introduction, History of Conservation, and Land Mgt. Ethics
1 - 1/14	Map Reading and Interpretation
2 - 1/17	Holiday - Labor Day
2 - 1/19	Basic Surveying Techniques - Quiz One (Week one)
2 - 1/21 - 24	Pond Design and Surveying - Quiz Two - 1/21 (Surveying) Review for Exam One
3 - 1/26	Exam One
3 - 1/28 - 31	Hydrology - Surface Water Ephemeral Drainage Reclamation
4 - 2/2 - 4	Water Quality - Quiz Three - 2/2 (Drainage & Surface Water) Hydrology - Surface Water - Precipitation, Evaporation, Transpiration, and Runoff (RUSLE)
5 - 2/7 - 9	Hydrology - Surface Water - Flood and Erosion Control Structures and Design, Waterways and Terraces - Quiz Four (Water Quality)
5 - 2/11 - 14	Hydrology - Ground Water and Irrigation - Quiz Five (HYD) Review for Exam Two
6 - 2/16	Exam Two
6 - 2/18 - 21	- Hazardous Waste and Disposal Land Use Planning - Home Site Selection, Channelization Landslides - Quiz
7 - 2/23 - 25	Presentations
8 - 2/28	Closing Remarks and Final Exam Review
8 - 3/2	Final Exam - Comprehensive

Course Objectives:

1. Become aware of the hazards of soil erosion in the past, present and future.

2. Analyze the forces responsible for the deterioration of soil systems by wind and water erosion.

3. Evaluate present day conservation practices that reduce soil deterioration by wind and water.

4. Evaluate various plans for soil and water conservation on farm and urban land.

5. Use the research techniques and resources available in establishing and evaluating soil and water conservation management systems.

6. Become aware of soil, air, and water pollution resulting from human impact and access present pollution control methods.

7. Evaluate pollution control measures on an individual case basis.

Course Topics

1 Conserving Soil Productivity
a. Erosion problems, obstacles to conservation, conservation techniques, choosing conservation practices.

2 Soil Erosion and Civilization
a. Historical Erosion and Solutions in Europe, Asia, Americas, Australia and the Tropics.

3 Geologic Erosion and Sedimentation
a. Landscape development, sedimentary land forms, glacial landscapes.

4 Water Erosion and Sedimentation
a. Types of water erosion, agents active in water erosion, soil properties and soil erodability.

b. Vegetation and water erosion, water erosion and

pollution, water erosion and sedimentation, principles of water erosion control.

5 Wind Erosion and Deposition

a. Types of soil movement, erosiveness of surface wind, initiation of soil movement by wind, wind and the erosion process.

b. Factors affecting wind erosion, principles of wind erosion control.

6 Predicting Soil Loss

a. Soil-loss tolerance, wind-erosion prediction equation, water-erosion prediction equation.

b. Field use of the water-erosion prediction equation, field use of the wind-erosion prediction equation.

7 Soil Surveys and Land Use Planning

a. Soil surveys, soil map unit interpretations, managing land, land use planning.

8 Cropping Systems

a. Role of plant cover and surface residues in decreasing wind and water erosion, plant residue management.

b. Managing monocultures, crop rotations, multiple cropping, strip cropping, evaluating cropping systems.

9 Tillage practices for conservation

a. Objectives for tillage, types of tillage implements, soil properties and tillage, soil properties and crop residue management.

b. Flat versus ridge tillage and planting, conservation tillage, deep tillage, contour cultivation, emergency tillage for wind-erosion control.

10 Conservation Structures

a. Terraces and diversions, terrace outlets and

waterway and gully control structures.

b. Earthen dams, streambank erosion control structures, wind erosion structures.

11 Vegetating mining and construction sites
a. Surface mining legislation, areas disturbed by mining and areas reclaimed.

b. Establishing vegetation on mine spoils, vegetating construction sites.

12 Vegetating other areas of high erosion hazard
a. Waterways, windbreaks and shelterbelts, and dunes

13 Pasture, Range and Forest Management as Related to Soil Erosion

14 Water Conservation
a. Decreasing runoff losses, reducing evaporation losses, reducing deep percolation losses.

b. Storing water in soil, efficient use of stored soil water.

15 Drainage of Cropland
a. Occurrence of wet lands, characteristics of wet soils, limitations resulting from wetness.

b. Surface versus subsurface drainage, methods of removing water, random-regular-interceptor drains and design factors for drainage systems.

16 Irrigation and Reclamation
a. Effects of irrigation, selecting land for irrigation, water for irrigation.

b. Irrigation methods, land reclamation and conservation irrigation.

17 Soil and Water Pollution
a. Sources of pollution - people related wastes - industrial wastes - agricultural wastes - eroded

soil as a pollutant.

18 Economics of Soil Conservation
a. Benefits from soil conservation, costs of conservation practices, paying for soil conservation, conservation incentives.

19 Soil and Water Conservation Agencies - Potential Employers
a. First field research on soil and water conservation, Buchanan Amendment - Civilian Conservation Corps-Soil Erosion Service - Soil Conservation Service - Conservation Districts - Agriculture Stabilization and Conservation Service - Science and Education Administration.

Additional comments on the impact of the expanding population and modern lifestyle on soil, air, and water pollution.