

(NR 702) Soil and Soil Moisture Management

Jordan University of Science and Technology

Faculty : Agriculture

Department : Natural Resources and the Environment

Semester : Spring 2006/2007

Place : C5020

Time : 3.15-4.45 mon, wed

Instructor : Dr. Nabil Eltaif

General Course Objectives:

Introduce student to the vital components in soil productivity maintenance and enhancement. Students will be able to deal with problems associated with soil and water conservation, salinity management, fertility management, and soil moisture management.

What are you expected to learn from this course:

1. Planning for the best management of soil resources.
2. Controlling soil erosion by water and wind.
3. Managing salt-affected soils and lessening the constraints to plant production.
4. Encouraging water storage by using proper management.
5. Maintaining the soil capacity to supply the nutritional needs of plants.
6. Evaluating the consequences of different tillage practices.

Course content:

<u>Weeks</u>	<u>Subject</u>
1-2	Introduction. Why managing soil. Soil Quality. Soil and water conservation engineering.
3-6	Water protection. Soil erosion control. USLE. RUSLE. Land capability classification. Crop residue management and tillage systems.

- 7-9** Wind erosion. Controlling wind erosion. Calculating wind erosion. Planning for soil and water management.
- 10-12** Water, soil and plant management to control salinity. Evaluation of irrigation water quality. Salinity and irrigation. Water toxicity. Leaching requirements. Soil management. Plant management.
- 13-14** Fertility management. Important factors in fertilizer selection. Time of fertilizer application. Use of sewage.
- 15-16** Soil moisture management. SPAC. Water conservation. Control of surface evaporation.

List of Textbook References:

1. Soil and Water Conservation Engineering. Schwab G.O. *et. al.* 1993. 4th edition. John Wiley & Sons, Inc., NY, USA.
2. The Nature and Properties of Soils. Brady and Weil. 1999. Prentice Hall, New Jersey, USA.
3. Soil and Water Management Systems. Schab G.O. Fangmeirer, and W.J. Elliot. 1996. 4th edition. John Wiley & Sons, Inc., NY, USA.
4. SSSAJ — S.6 Soil and Water Management.

Grading:

1 st Exam	20%
2 nd Exam	20%
Quizzes and home works	10%
Final Exam	50%