

**COURSE SYLLABUS FOR SOILS AND HYDROLOGY @ GRIFFIN CAMPUS
CRSS 3060**

Course Objective: is to familiarize the students with the basic concepts of soils and their properties as well as hydrological principles that are important in availability and movement of water in soils.

Instructor: Dr. Mussie Habteselassie
264 Redding Building
Phone: 770-229-3336
Email: mussieh@uga.edu
Office hours: Any time. Please call or send an e-mail before hand to check my presence.

Credit: 4 hours - Lecture: 3 hrs lecture (MWF 10:00 am - 10:50 am)
- Laboratory: 2 hrs lab (Th 2 pm – 4 pm)

Class meeting place: Student Learning Center R-225

Text Book: CRSS 3060 Course Packet by Dr. William Miller: Call Troy Felts @ 706 546 1440 (UGA ProCopies) to order

References: The Nature and Properties of Soils. 2002. Nyle C Brady and Ray R. Weil.

Course requirements:

Exams: 4 one hr exams (mid and final exams) 70%

Lab Hand-ins/Reports: 30%

Short term paper (For graduate students only)

Grading System: 100-90 = A, 89-79 = B, 79-70 = C, 69-60 = D, <60 = F

Missing Exams and Laboratory Reports: No make-ups exams will be given without prior permission from the instructor or medical reasons. Late lab reports are subject to point deductions and will not be accepted three days after the deadline unless one has a good reason.

Attendance: Everyone is expected to attend.

Academic Honesty: All academic work must meet the standards contained in “A culture of Honesty.”- http://www.uga.edu/honesty/ahpd/culture_honesty.htm. Students are responsible to inform themselves about those standards before performing any academic work.

LECTURES

Soil Formation and Classification

- Landscape: soil, water, rock
- Weathering of rocks and minerals
- Soil profile formation
- Soil horizons
- Soil taxonomy system
- Diagnostic horizons
- Soils orders

Soil Physical and Chemical Properties

- Soil Color, Texture and structure
- Soil Density and Porosity
- Managing soil physical properties
- Soil Mineralogy
- pH and ion exchange
- Acidity and Salinity

Plant Nutrient requirements and Fertilization

- Plant nutrition and essential elements
- Nitrogen, Phosphorus and Potassium in soils
- Microelements
- Fertilizers
- Nutrients and soil management
- Sustainability

Soil Biology and Nutrient cycling

- Soil organisms
- Nutrient cycling and role of soil organisms
- Productivity of agricultural and forest soils

Soil Water

- Interaction of water with soil
- Storage capacity of soils and profiles
- Water flow in soils

The Hydrologic cycle

- Global hydrologic cycle
- The soil-plant-atmosphere continuum
- Precipitation, storm events and measurements
- Infiltration, evapotranspiration
- Groundwater/aquifers
- Efficiency of water use
- Irrigation principles and practices

Soil Erosion, Sedimentation and Control

- Significance of erosion and land degradation
- Mechanics of erosion
- Models to predict water induced erosion
- Erosion controls

Soil Quality and contamination

- The concept of soil quality/health
- Sources and kinds of soil contamination
- Movement of contaminants in the landscape
- Soil contamination and water quality
- Management of landscape for water quality

LABORATORY EXERCISES

All lab classes will be held in room 275 at the Redding building.

No.	Laboratory exercise	Date
1	Maps and rocks	Aug 27
2	Soil properties and profiles	Sept 3
3	Field description of soil profiles	Sept 10
4	Bulk density and porosity	Sept 17
5	Soil Texture	Sept 24
6	Soil pH and Salinity (lime requirement)	Oct 1
7	Soil testing – P	Oct 8
8	Soil organic matter	Oct 15
9	Soil water content	Oct 22
10	Soil water movement	Oct 29
11	Universal Soil Loss Equation - exercise	Nov 5
12	Water Quality	Nov 12
13	Guided trip to the soil testing lab – Athens	Nov 19
	Reserved for revision	Dec 3

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Holidays:

Sept. 7- Labor Day

Oct. 30- Fall Break

Nov. 23-27- Thanksgiving break