

Soil Management

CSEM/PSAS 443

Class: Tuesday & Thursday 10:00-10:50 am, Room 152

Lab: 2:00-3:50 pm, Room 167

Prerequisite: CSEM 240

Instructor: Dr. Rachel Cook, Office: Agriculture Building Room 161E,
Phone: 453-1795, Email: rachel.cook@siu.edu

Office Hours: Tues/Thurs 11am-12pm or by appointment

Required Text: “Soil Management, Problems and Solutions” (2004) by Michael Fullen and John Catt.
“Building Soils for Better Crops” by Fred Magdoff and Harold Van Es (2009). Available at www.sare.org for FREE download.

Course Objective: Students will become familiarized with the complex factors important in the maintenance and enhancement of long-term productivity and sustainability of soil. Management strategies for agricultural and non-agricultural soils will be introduced. Vital components in soil productivity, maintenance, and enhancement will be a focus of this course, such as soil and water conservation, organic matter management, water management, and amendments.

Lecture Topics:

1. *Introduction* – Global, nation, local significance and challenges of soil management.
2. *Soil Erosion and Conservation* – Factors affecting soil erosion. Agronomic and other practices to stabilize soils.
3. *Desertification and Salinization* – Global significance, human influence, and potential reclamation
4. *Soil Water Management* - Basics of soil water, irrigation, and drainage and techniques to protect water quality.
5. *Pollution and Remediation of Soils* – Common inorganic and organic contaminants and some remediation techniques, such as phytoremediation. Special considerations for urban soils.
6. *Soil Acidification* – Soil pH effects on soil properties and management.
7. *Soil Compaction and Reclamation* – Causes, symptoms, remedies, and prevention of compaction.
8. *Soil Organic Matter and Amendments; Soil Quality* – Importance of organic matter and ways to increase organic matter in soils to improve production and resilience. Role of soil biota and practices that improve soil biology.
9. *Soils and Climate Change* – Land-use change, management techniques to improve soil carbon sequestration and reduce methane and nitrous oxide emissions.

Course Requirements:

Lectures:

1. Students are expected to attend all lectures and are responsible for all reading assignments. Material covered in assigned readings, but not covered in class may be covered in an exam.
2. Students missing any class should make arrangements with other students to obtain lecture notes.

Exams:

There will be no make-up exams unless arrangements have been made PRIOR to the exam for permissible absences. Valid reasons may include: serious illness (with a doctor's note), death of an immediate family member, and university-sanctioned extracurricular activities (with valid documentation).

Exam I: Tues., Sept. 17th, 2013

Exam II: Tues., Oct 22nd, 2013

Exam III: Thurs., Nov 21st, 2013

The Final Exam will be Thurs. Dec 12th from 10:10 am – 12:10 pm

Laboratory:

Students will work on small group projects that address a crop production problem using soil management strategies. Specifics will be addressed at the first meeting of the lab period. Final projects will include a scientific term paper and a class presentation. Field trips will be a required part of the curriculum. Material covered during a field trip may appear on exams.

Grading:

3 Hourly Exams	300 pts
2 Assignments	200 pts
Special Project with Presentation	300 pts
Comprehensive Final Exam	<u>200 pts</u>
Total	1000 pts

Grades will be based upon a 90% - 80% - 70% - 60% grading scale

Turning in assignments after the due date will result in declining credit of 5% (1/2 letter grade) for *every day* that they are late.

Note: Changes to syllabus may be made at the instructor's discretion.

The Academic Honesty Policy will follow the Student Conduct Code, Section II, Article A:

Article A. Acts of Academic Dishonesty

In keeping with the principles and values of the University, students shall not:

- Plagiarize or represent the work of another as ones own work;
- Prepare work for another that is to be used as that persons own work;
- Cheat by any method or means;
- Knowingly or willfully falsify or manufacture scientific or educational data and represent the same to be the result of scientific or scholarly experiment or research;
- Knowingly furnish false information to a university official relative to academic matters;
- Solicit, aid, abet, conceal, or attempt acts of academic dishonesty.

Emergency Procedures:

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT's website at www.bert.siu.edu, Department of Public Safety's website at www.dps.siu.edu (Disaster Drop Down), and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Americans with Disabilities (ADA) Statement:

Southern Illinois University Carbondale encourages all persons with disabilities requiring special accommodations to meet the expectations of this course to bring this to the attention of the instructor as soon as possible. Written documentation of the disability should be submitted during the first week of the semester along with a request for special accommodations. Please contact the SIU Disability Support Services (DSS) to facilitate requests:

SIU Disability Support Services
Woody Hall, B-150
Mail Code 4705
Carbondale, Illinois 62901
DSSsiu@siu.edu
Phone 618-453-5738
Fax 618-453-5700
TTY 618-453-2293