

## SOILS 421/521 Course Information 2009

Instructor: Jim Harsh  
245 Johnson Hall Phone: 335-3650 E-mail: harsh@wsu.edu

Text: *The Chemistry of Soils* by Garrison Sposito

Recommended Text: *Environmental Chemistry of Soils* by Murray McBride (on reserve; Ag Sci)

Office hours: Tu/Th 10-11 or by appointment.

### Grading:

#### **421:**

Quizzes/Midterms	= 40%
Problem Sets	= 35%
Final Exam (~2 hr)	= 25%

#### **521:**

Quizzes/Midterms	= 25%
Problem Sets	= 25%
Final	= 25%
Project	= 25%

### Objective:

The purpose of this course is to present the fundamental concepts in soil chemistry that are currently applied to both agricultural and environmental problems. You should learn the major chemical reactions that govern soil chemical processes, be able to apply chemical principles to specific soil problems, know the major characteristics of inorganic and organic soil constituents, and become familiar with the reactions and materials that are associated with particular types of soils such as acid or salt-affected soils. You should be able to analyze a case study involving the addition of a specific element or compound to a particular soil.

### Reading:

There are three main sources of material to supplement the lectures. The main text is Sposito's *The Chemistry of Soils*. This will be the source of many of the problems and is a well-written, if terse, introduction to soil chemistry. McBride's text, the second source, is also very good and more comprehensive; unfortunately, it is out of print. I have put a copy on reserve in Ag. Sci. Finally, I have some lecture notes that can be posted electronically and are suitable for public consumption. Others are hand-written and not distributed.

### Exams:

Midterm exams and/or quizzes will emphasize the material covered since the previous exam but will often require the use of concepts from earlier course material. Short, quantitative problems will be included as well as essay and short-answer questions. You are responsible for all material covered in lectures, text, discussion sections (521), and problem sets. The final exam will be comprehensive and will test your ability to synthesize concepts from the entire course. The 521 students may be given different exam questions than the 421 students.

### Problem Sets:

These will often test your ability to solve analytical problems in soil chemistry. Some questions will be designed to prepare you for exams but the problem sets will usually cover problems that are too time-consuming for a one-hour exam. Problems will sometimes differ between the 421 and 521 courses. The problem sets make up a significant portion of your grade, so don't ignore them. **Problem sets are required.** Failure to do problem sets at all will result in a failing grade.

### Grade Distribution:

The course will be graded on separate curves for 421 and 521 students. The mean grade will be a B. It is possible to receive a D or F if you ignore problem sets, skip lectures, and/or otherwise indicate to me that you are not making a serious effort in the course. If you are having trouble with the lectures or text or are struggling due to a poor background in chemistry or soils come see me as early in the course as possible. Very few problems are insurmountable if you see me early on.

### Class Discussion:

You are encouraged to ask questions in class. I also appreciate any feedback regarding type of material covered, clarity of lectures, and amount of material covered. If you respond early there is a greater probability that I can adjust to the class interests and backgrounds and to your suggestions.

### 521 Assignments:

If 421 and 521 are taught conjointly, there may be assignments for 521 students in addition to the project, including on-line discussions, journal articles, and/or problems.

### Final Project:

The final project should result in a proposal designed for submission to a granting agency. Occasionally, students will meet out of class with me to discuss progress on the project. The topic must be mutually agreed upon between instructor and student. The project may be related to your thesis or dissertation topic, but it must involve some aspect of soil chemistry. If time permits, we will conduct a panel review of the proposals.

### Students with Disabilities

Reasonable accommodations are available for students who have a documented disability. Please notify me during the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to be unavailable. All accommodations must be approved through the Disability Resource Center (DRC) in Administration Annex 206, 335-1566.