

Fundamentals of Soil Morphology for Interpretations

Soil Science 4001/7001

Offered through MU Direct

Course Syllabus: Summer 2010

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Office Hours: by Appointment

Class Meetings: 0800-1700 Hours on five specific weekends (See course outline below)

Required Text: Soil Survey Staff. 1993. Soil survey manual. Agriculture Handbook No. 18. U.S. Govt. Printing Office, Washington, D.C. (<http://soils.usda.gov/technical/manual/>).

Soil Survey Staff. 2006. Keys to Soil Taxonomy. 10th edition. U.S. Govt. Printing Office, Washington, D.C. (http://soils.usda.gov/technical/classification/tax_keys/).

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson. 2002. Field book for describing and sampling soils. Version 2.0. Natural Resources Conservation Service, National Soil survey Center, Lincoln, NE. (<http://soils.usda.gov/technical/fieldbook/>).

Required Field Materials: Soil Munsell Color Chart, hand digging instrument, clipboard, measuring tape, clinometer or similar device to determine slope. Optional: 10X hand lens.

Prerequisites: Soil 2100 or consent of instructor for 4001 enrollees. Soils 4320 or equivalent or consent of instructor for 7001 enrollees.

Overview: This class provides an opportunity for students to refine field skills necessary to describe and classify soils in the landscape. Emphasis will be placed on coupling soil morphological properties with interpretations for land use and soil formation applications.

Reading Assignments and Class Assignments: Assigned readings and field activities are an integral component of the course. In addition to attending the initial lecture and participating in field trips, students are expected to read the required portions of the text and any supplementary materials, and complete class assignments.

The materials have been written by soil scientists and field practitioners to instruct soil scientists on proper terminologies, abbreviations, and techniques used to describe and classify soils.

Quizzes and Final Exam: Laboratory and field exercises and quizzes will be administered. A final field exam will also be administered.

Class Participation: Particular class activities will require your participation and instructor assessment of student participation will be used for grading purposes.

Class Paper (Soils 7100 students): Students must write a paper centered around soil morphological properties and/or landscape attributes which influence land use applications (i.e onsite wastewater treatment and dispersal, stormwater abatement, engineering applications, etc). The paper will be 5 to 8 pages with the use of 10-15 refereed or peer-reviewed publications.

Grading: Soils 4100

Assignments: 25%
Field Quizzes : 25%
Field Exercises: 25%
Final FieldExam: 25%

Grading: Soils 7100

Assignments: 20%
Field Quizzes : 20%
Field Exercises: 20%
Final FieldExam: 20%
Paper: 20%

Academic Dishonesty (Office of the Provost, April 11, 1994): Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.

Academic Dishonesty includes but is not necessarily limited to the following:

- Cheating or knowingly assisting another student in committing an act of cheating or other academic dishonesty.
- Plagiarism which includes but is not necessarily limited to submitting examinations, themes, reports, drawings, laboratory notes, or other material as one's own work when such work has been prepared by another person or copied from another person.
- Unauthorized possession of examinations or reserve library materials, or laboratory materials or experiments, or any other similar actions.
- Unauthorized changing of grades or markings on an examination or in an instructor's grade book or such change of any grade report.

The University has specific academic dishonesty administrative procedures. Although policy states that cases of academic dishonesty must be reported to the Office of the Provost for possible action, the instructor may assign a failing grade for the assignment or a failing grade for the course, or may adjust the grade as deemed appropriate. The instructor also may require the student to repeat the assignment or to perform additional assignments.

University of Missouri-Columbia Notice of Nondiscrimination: The University of Missouri-Columbia does not discriminate on the basis of race, color, religion, national origin, ancestry, sex,

sexual orientation, age, disability, or veteran status. For more information, please visit <http://www.missouri.edu/eo-aa.htm>.

ADA Statement: If you have special needs as addressed by the Americans with Disabilities Act (ADA) and need assistance, please notify, immediately, the Office of Disability Services at 573-882-4696. More information is available at <http://etatmo.missouri.edu/resources/teachtool/adastatement.htm>. Reasonable efforts will be made to accommodate your special needs.

Grievance Policy: Information concerning student grade appeal procedures and non-academic grievances and appeals may be found in the Student Handbook.

Course Outline: Soil Science 4001/7001

(Schedule subject to change primarily due to weather)

<u>Week and Date</u>	<u>Lecture Topic</u>
Session 1-June 5 & 6 (Columbia area)	<u>Soil Morphology Fundamentals Lecture and Lab:</u> (Horizon designation, boundary, texture, color, structure, consistence, soil features); Field trip to HARC and/or Baskett Wildlife area for morphological descriptions. Emphasis will be on the deep loess and Ozark Borders areas.
Session 2-June 26 & 27 (Clinton/Warsaw area)	<u>Soil Profile Characteristics:</u> Emphasis will be on stratified parent materials and associated soil properties of the Osage Plains. Discussion of water movement in soil landscapes.
Session 3-July 17 & 18 (Columbia)	<u>Site Characteristics:</u> Emphasis will be on the till plains and Claypan Till Plains of Central Missouri.
Session 4- August 7 & 8 (Poplar Bluff-University Forest)	<u>Soil Profile Characteristics:</u> Emphasis will be on soils, parent materials and landscapes of the Interior Ozarks Highlands. Discussion of water movement in soil landscapes.
Session 5- August 21 & 22 (Mt. Vernon)	<u>Soil Profile Characteristics:</u> Emphasis on soils, parent materials, and landscapes of the Springfield Plateau. Discussion of water movement in soil landscapes.
August 27	Soil Science 7001 graduate paper due.

Note: Since a majority of the class activities are field oriented students should dress appropriately and have access to drinking water at all times.