

Soils 101 Introductory Soil Science Syllabus, Fall 2009

Professor: Dr. Richard Stehouwer, Associate Professor of Soil Science
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Office Hours: Any time, by appointment. I do not have regular office hours scheduled. Please call or email to set up an appointment. I welcome the chance to have some individual time with students, so please come and see me any time you have questions about any aspect of the course - or just feel like talking about soils. Optional review sessions will be held Fridays before mid-term exams from 9:05 to 9:55 in room 101 ASI.
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Course Information

Credits 3
Location 101 ASI Bldg.
Times Monday and Wednesday 9:05 - 9:55 AM
Lab Sections Lab sections 001 - 007 meet in room 13 ASI on Wednesdays and Thursdays, 2 hours

Required Texts

M.J. Singer and D.N. Munns, 2006, *Soils: An Introduction*, (6th Ed). Pearson Prentice Hall, Upper Saddle River, NJ
K.L. Butler and R.C. Stehouwer, Fall 2009, *Soils 101: Introduction to Soils Lab Manual*. Penn State University, University Park, PA. Available only at the Penn State Bookstore.

Course Goal

Students will gain an appreciation of soil as a valuable natural resource and as an integral and essential part of terrestrial ecosystems, and will be able to utilize their knowledge of soil science to solve relevant issues confronted in their academic and professional careers.

Course Objectives

Students who complete this course will

1. Be able to describe fundamental soil physical, chemical, and biological properties and processes as well as the interactions among them that
 - a. Govern soil formation, development and differentiation,
 - b. Determine soil suitability and capacity to perform various essential production and ecological functions, and
 - c. Allow for sustained use, conservation, and productivity of soil.
2. Be able to relate those fundamental soil properties and processes to land use and soil management decisions and implications for soil sustainability, function, and degradation.

3. Have gained the ability to retrieve and integrate soils information from a variety of sources and to utilize that information for land use and soil management decisions.

Specific topics covered in the course include the following:

- Soil formation and soil taxonomy
- Soil physical properties, texture and structure
- Behavior and characteristics of water in soil; water movement and storage in soil
- Soil aeration and gas exchange
- Soil colloids (clays and organic matter), cation exchange
- Soil acidity, alkalinity, salinity
- Soil biology and ecology
- Behavior and cycling of macronutrients in soil
- Principles of nutrient management
- Soil pollution/degradation and remediation/reclamation

Grading Policy

There are 500 possible points in this course assigned as follows:

Lab reports, worksheets and exercises (11 @ 15 points each)*	150
Land Use Project	50
Mid-term Exams (3 @ 50 points each)	150
Final Exam	100
Think and Link Exercises	40
Lab participation	10

**Your lowest lab report score will be dropped from the record.*

Lab Reports are prepared during the week following the laboratory exercise and are due at the *beginning* of the following laboratory period. In the laboratory students will work together in teams of 3 or 4. Teams may also work together to prepare their lab reports, however, each student must turn in an individual lab report. There will be 11 lab reports during the semester. Each is worth 15 points and the lowest score of the eleven will be dropped from the student's record. All of the laboratory exercises and lab report requirements are contained in the *Soils 101: Introduction to Soils Lab Manual*.

Land Use Project is a major course project to prepare a development plan for a 500 acre parcel of land that includes natural/recreational areas, agricultural areas, and housing areas. The plan must recognize soil characteristics and limitations. The Land Use Project is a group project and consists of a proposal, maps, and a written report. More details on the Land Use Project are provided in the *Soils 101: Introduction to Soils Lab Manual*.

Mid-term Exams and Final Exam. All exams will be computer based exams given in the [Penn State Testing Center](#) computer lab in Pollack Building. All three mid-term exams are scheduled on Tuesday evenings at 7:00 and 8:00 on September 29, October 27, and November 17. In the week prior to each exam students will receive an email from eTesting Services requesting them to register for either test time. Students who have a documented course conflict with these times

will be offered alternative testing times earlier on the exam date. The final is a comprehensive examination.

Think and Link exercises are short thought questions normally presented near the end of a lecture period. Students write an answer in a bluebook notebook, consult and discuss the question and answer with students around them and modify their answer. Bluebooks are usually collected once per week (10 times during the semester) and 4 points are awarded for any reasonable attempt to answer the question.

Lab participation points are assigned by the lab section instructors at the end of the semester and are based on student attendance and effort during the semester.

Grading Scale

Points	Percent	Grade
≥460	≥92	A
450 – 459	90 – <92	A-
435 – 449	87 – <90	B+
415 – 434	83 – <87	B
400 – 414	80 – <83	B-
380 – 399	76 – <80	C+
350 – 379	70 – <76	C
300 – 349	60 – <70	D
<300	<60	F

There is no opportunity for extra credit work in this course. All grades for the course are recorded in the Angel grade book so students can track their grades throughout the semester.

Attendance Policy

Students are expected to be present at all lectures and labs. If you must miss a lecture, you are responsible for all material presented during lecture and for the assigned textbook reading. Students are expected to arrive on time for lectures. See Professor Stehouwer for truly exceptional situations that are beyond your control and for any situation causing more than three absences. See the Lab Guidelines section for information concerning lab attendance and make-up policies. Students who miss a lab session will not be allowed to turn in a lab report for the missed lab. Students who skip lecture could lose up to 40 *Think and Link* points, and students who skip lab could lose up to 10 attendance points in addition to the 15 points lost for each lab report not completed. A complete schedule of lectures, reading assignments and laboratory exercises is provided at the end of this syllabus.

Academic Integrity

Academic dishonesty includes, but is not limited to: cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Sanctions imposed for acts of academic dishonesty may range from receiving a reduced grade or zero for

an assignment or an exam, an F for the course, or expulsion from the University. (See <http://www.sa.psu.edu/ja/AcademicIntegrity.shtml> for more details on academic integrity).

Examination Policy

Students are required to take all three mid-term exams and the final exam in this course. Make-up exams will only be offered to students who have an excused absence for the missed exam. Excused absences will normally only be granted for *documented* medical reasons. Excused absences can only be given by Professor Stehouwer. Students who have an excused absence for a missed exam must make arrangements with Professor Stehouwer for a make-up exam within 2 weeks of the missed exam. Students may arrange to take a make-up exam or may opt not to take a make-up exam and have their final exam grade serve as the make-up grade for the missed mid-term exam.

Students with Disabilities

Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services, ODS located in room 116 Boucke Building at 814-863-1807(V/TTY). For further information regarding ODS, please visit their web site at www.equity.psu.edu/ods/. Professor Stehouwer and your lab instructor should be notified as early in the semester as possible regarding the need for reasonable academic adjustments.

Special Fall 2009 Flu Protocols

In compliance with Pennsylvania Department of Health and Centers for Disease Control recommendations, students should NOT attend class or any public gatherings while ill with influenza. Students with flu symptoms will be asked to leave campus if possible and to return home during recovery. The illness and self-isolation period will usually be about a week. It is very important that individuals avoid spreading the flu to others.

Most students should be able to complete a successful semester despite a flu-induced absence. Faculty will provide students who are absent because of illness with a reasonable opportunity to make up missed work. Ordinarily, it is inappropriate to substitute for the missed assignment the weighting of a semester's work that does not include the missed assignment or exam. Completion of all assignments and exams assures the greatest chance for students to develop heightened understanding and content mastery that is unavailable through the weighting process. The opportunity to complete all assignments and exams supports the university's desire to enable students to make responsible situational decisions, including the decision to avoid spreading a contagious virus to other students, staff, and faculty, without endangering their academic work.

Students with the flu do not need to provide a physician's certification of illness. However, ill students should inform their teachers (but not through personal contact in which there is a risk of exposing others to the virus) as soon as possible that they are absent because of the flu. Likewise students should contact their instructors as quickly as possible to arrange to make up missed assignments or exams. If you have questions about academic policy-related issues, please call the Associate Dean/Chief Academic Officer of your college. For health-related questions you can email Dr. Margaret Spear, director, University Health Services, at uhsinfo@sa.psu.edu.