

**Introduction to Soils Course Syllabus  
Fall 2010**

**Course Prefix/Number/Title:** Soils 210

**Number of credits:** 3

**Course Description:** Soils 210 has been designed to introduce students to one of the most important resources we have. With the knowledge gained we can manage this slowly renewable resource so that it can serve and provide us with our requirements for life as well as the future.

**Pre-/Co-requisites:** None

**Course Objectives:** The goal of this course is to facilitate student learning about soils and its management so that students better understand the interactions between this valuable resource and human activities. This task is essential to human welfare.

Objectives:

- 1) To learn and retain information essential to understanding soils and managing this valuable resource.
- 2) To understand and utilize scientific methods of inquiry.
- 3) To practice sound, safe, and sensible laboratory techniques.
- 4) To appreciate the historic development of science.
- 5) To apply scientific information and principles to everyday life.
- 6) To recognize the interrelationship among the sciences, technology, and society.

**Instructor:** Angie Bartholomay

**Office:** NSC 113

**Office Hours:** 12:30-2:20 MWF or by arrangement

**Phone:** 228-5471

**Email:** angie.bartholomay@dakotacollege.edu

**Lecture Schedule:** MW 8:00am-8:50am

**Lab Schedule:** T 11:00am-12:50pm

**Textbook(s):** Soils and Introduction; Michael J Singer, Donald N. Munns 6<sup>th</sup> Edition

**Course Requirements:** Grades will be based on total points using the following percentage system: 100-90, A; 89-80, B; 79-70, C; 69-60, D; <60, F. Exams, quizzes, lab reports, and a research paper will be used to determine the final grade. **IMPORTANT!** Any grievances about graded material must be addressed within one week from the time the material is returned to the student.

Exams (4)	100 pts each	400 pts
Lab Reports (13)	15 pts each	200 pts
Final Lab Project	100 pts	100 pts
<u>Quizzes</u>	<u>10 pts each.</u>	<u>100 pts</u>
Total		800pts

Exams: There will be four exams. The last exam will be the final exam. Should a situation arise that dictates a change in this schedule, the change will be announced at least one week in advance of the exam. Exams will have short answer/essay and multiple choice format.

Research: A short 1-2 page research paper analyzing the applications of scientific information and principles in your everyday life. You are expected to use standard research paper formats which includes a reference page and also citations listed in the text of the paper itself. See Dr. Albrightson or Mr. Porter for assistance in using the proper format for your paper

Homework: Throughout the semester end of the chapter questions and will be assigned so you will better comprehend the concepts involved. This homework will not be graded; however quizzes and tests will include questions from assigned homework. Whenever possible we will discuss solutions to the questions in class.

Make-up: Make-ups will not be allowed for missed exams unless you have made prior arrangements. There will be not make-ups for quizzes. If you must be absent for a school related or family event, you are expected to let me know in advance and take the exam prior to the event. I will allow you to make up a maximum of one lab session as long as you make prior arrangements.

Laboratory: The laboratory portion of the course provides an opportunity to integrate lecture concepts with observable activities and is critical to understanding chemical concepts. Attendance in lab is **mandatory** and the instructor must validate that you actually assisted in the collection of data. Borrowed results (dry labs) are not acceptable and all parties involved will receive a zero. There are ***no excused*** absences, you will be allowed to make up one lab if done within a week of the missed lab. Lab reports are due at the beginning of the next lab class. Late lab report reports will not be accepted. Since safety is the top priority, failure to wear goggles or use provided safety equipment will result in reduced lab scores and eventual dismissal from all further labs, if the abuse is continual.

Labs will graded as follows:

- 5 pts. participation
- 2 pts. safety and cleanup procedures followed.
- 5 pts. data and data interpretation (questions)
- 3 pts. Analysis and conclusion questions

Final Lab: A lab activity involving application of the principles of scientific method and knowledge gained in this course will occur the last two lab sessions and are due at the

end of the last scheduled lab day. This will be covered initially in the first lab of the semester and once more as you begin the final project.

### Tentative Course Outline:

	Lecture	Lecture Topic	Lab	reading
8\25	1	Soils , soil ecosystems & morphology	No Lab	p.1-9
8/30	2	Soil formation, classification & management		10-14
9/1	3	Particle size and texture	8/31 soil texture	p. 15-24
9/1	4	Soil minerals		p. 24-39
9/6	5	Labor Day Holiday		p. 40-49
9/8	-	Soil organic matter and pores		
9/13	6	Soil air, porosity & permeability	9/7 porosity & permeability	P 50- 55
9/15	7	Soil water		p. 55-64
9/20	8	Soil physical properties: density & porosity	9/14 soil properties	p. 65-70
9/22	-	Test #1 ( Chapters 1-3)		
9/27	9	Soil Climate		p. 71-86
9/29	10	Quantifying soil water: potential & content	9/21 soil water	p. 87-101
10/4	11	Soil water retention, movement & management		p.101-109
10/6	12	Soil Biology	10/5 soil organisms	p. 111-133
10/11	13	Carbon & nitrogen cycle		p. 135-157
10/13	14	Microbial processes	10/12 soil organisms	p. 158-168
10/18	15	Test #2 (chapters 4-8)		p.168-189
10/20	16	Mineral nutrients in soils and plants	10/19 macronutrients	p.190-198
10/25	17	Nutrients elements in plants		p. 199-211
10/27	-	Managing plant nutrients	10/26 soil analysis	p. 212-239
11/1	18	fertilizers		p. 220-239
11/3	19	Soil acidity	11/2 soil pH	p. 240-248
11/8	20	Soil salinity		p. 249-266
11/10	21	Soil genesis	11/9 soil formation	p.267-280
11/15	22	Organic soils		p. 281-300
11/17	23	Test #3 (chapters 9-12)		
11/22	24	Soil information	11/16 computer lab	
11/24	25	Soil surveys		.p.301-309
11/29	26	soil taxonomy		p. 310-338
12/1	27	Soil degradation	11/30 soils as filters	p.353-372
12/6	28	Degradation control		p.372-383
12/8	29	Non agricultural uses of soil	12/7 final lab project	p. 385-394
12/13	30	Soils and water quality		p.394-405
12/15	30	Final Exam	12/14 final lab project Due	

**General Education Goals and Objectives**

This course meets General Education Goal 1: Explains the interrelationships between humans and their environment and the role of science in their lives. Specific objectives include:

- 1) Demonstrates the application of the scientific method of inquiry (Objective #1).
- 2) Demonstrates an awareness of the role of science in everyday life (Objective #3)

**Relationship to Campus Theme:**

This course addresses the campus theme through the importance of the understanding of soils and the management of this valuable resource for the future of planet Earth.

**Classroom Policies**

- 1) Cell phone and related technology are prohibited in the classroom at all times. It is recommended that you do not bring your cell phone into the classroom or, at the very least, turn it off.
- 2) Food and beverages are permitted in accordance with classroom policy.
- 3) Be respectful of other students, technicians, instructors, and guests.

**Academic Integrity**

All students are expected to adhere to the highest standards of academic integrity. Dishonesty in the classroom or laboratory and with assignments, quizzes and exams is a serious offense and is subject to disciplinary action by the instructor and college administration. For more information, refer to the Student Handbook.

**Disabilities and Special Needs**

If you have a disability for which you need accommodations, you are encouraged to contact your instructor and the Learning Center (228-5479 or 1-888-918-5623) to request disability support services as early as possible during the beginning of the semester.