



Geology 329, Geography 329

Fall 2019

Soils and Sediment Analyses

Lectures:	TR	1:00–14:15 p.m.	CL 410	
Laboratory:	F	14:30 – 17:15	CL 312/315/322	
Instructor:	Dr. Janis Dale		CW 234.5	Email: janis.dale@uregina.ca
Office Hours:	W	9:30-11:30 or make appt.		
Lab Instructors:	Monica Cliveti		CW 237.2	Email: monica.cliveti@uregina.ca
	Hossein Narimani		CW 234.11	Email: TBA
Office Hours:	TBA			

Textbooks: Soils Lab Booklet and Materials: Available in lab from Lab instructor \$TBA

Agriculture Canada Expert Committee on Soil Survey. 1998. The Canadian System of Soil Classification 3rd Ed. Agri. Can. Publ. 1646. (Access on line, 1 copy available in map library)
http://sis.agr.gc.ca/cansis/publications/manuals/1998-cssc-ed3/cssc3_manual.pdf

Materials and information on **UR Courses Geog 329** for both Geol 329 and Geog 329

Eash, Neal S., Sauer, Thomas, O'Dell, Deb and Odoi, Evah. 2016. **Soil Science Simplified, 6th Ed.** Hoboken, New Jersey, US: John Wiley and Sons, Blackwell. (Copies on reserve)

<u>Grading:</u>	1 Midterm (selected lecture/lab materials)	30%
	Laboratory Assignments (5 @ 5%)	25%
	Field & Lab Effort & Competency	5%
	Final Soils Project (due Thursday Dec 12, 17:00)	40%

Course Information:

The midterm, labs and Final Soils Project are considered to be absolute requirements for the course and students will receive an NP if not completed. The Final Soils Project is due on Monday December 12 17:00 and is designed to cover the breadth of the course while providing experiential learning in soil science. **There will be a 1 or 2 day field trip planned for the weekend of Sept 20, 21 or 22 2019**, weather permitting and will be discussed further in class. Alternative arrangements can be made for students who absolutely cannot attend the field trip.

Course Rationale:

Soils 329 is an introduction to the formation and classification of soil and analysis of unconsolidated materials by measuring the properties of soils. Students will learn about the fundamental concepts and major factors of soil formation, climate, water, organics, geology, and environmental change. The student will conduct field measurements and laboratory exercises that address the practical and empirical aspects of soil and sediment analyses. All assignments and projects are designed for experiential learning.

Learning Outcomes:

The learner will:

1. Identify what constitutes a soil and sediment, soils components and characteristics;
2. Learn about the fundamental concepts of soil formation;
3. Demonstrate a sound knowledge of the soil forming factors, Soil = f(climate, organics, relief, parent material, time and human impact);
4. Learn how the soil forming processes create characteristic soil types;
5. Understand the basics of soil classification;
6. Trained to conduct laboratory and field measurements for unconsolidated materials;
7. Perform their own original field research project from project development, field work, and laboratory measurements and analyses;
8. Discover how to interpret original laboratory and field data from their project;
9. Write a scientific report of your original research soil project.



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"I hear and I forget, I see and I remember. I do and I understand." Chinese proverb

Tentative Outline of Lectures

Note to students: Lecture materials will follow this general outline, but may vary due to timing and results from the field trip and requirements of laboratory work. Review the outline and note the materials that you are responsible for in class. You are encouraged to read ahead to ensure that you are prepared for class, lab and exam. Additional handouts will be available on UR Courses.

Week 1 Introduction to Soil Science

Definition of soil, soil components, fundamental concepts.

Lab Topics No lab this week.

Week 2 Identification of horizons, soil texture & colour. Introduction to field and lab techniques in soils

Lab Topics Sept 13, First Lab Intro to Lab and Field work.

Soil Lab Assignment #1 due Sept 27

Field Trip Tentative dates Sept 21, 22, 23

Week 3 Properties of Soils and Soil classification

Lab Topics Sept 20, Intro. To Lab and Field work lecture and prep.

Weeks 4-5 Factors of Soil Formation Parent Material

Lab Topics Sept 27, Soil monolith Lab Assignment #2 Due Oct 11

Weeks 6-7 Factors of Soil Formation Climate

Lab Topics Oct 11, Properties of Soils, Soil Moisture Content/Density Soil structure/porosity

Lab Assignment #3 due Oct 25

Week 8-9 Factors of Soil Formation Topography and Time

Lab Topics Oct 25, Properties of Soils Chapters 3, 5 Soil Texture Lab Assignment #4 due Nov 15

Fall Break Nov 6 to Nov 11

Weeks 9-11 **Soils Midterm Tuesday Nov 5 (tent)**

Factors of Soil Formation, Organisms & Soil Forming Cycles

Lab Topics Nov 15 Soil organic matter, soil pH, carbonates, Lab Assignment #5 due Nov 29

Weeks 12-13 Soil forming processes, weathering and degradation

Final Lab Project due Thursday Dec 12, 17:00.

The University of Regina promotes a learning environment that is free from all forms of harassment and discrimination. If there is any student in this course who because of a disability may have need for accommodations, please come and discuss this with me as well as contacting the **Co-ordinator for Special Needs Services** at 585-4631. Students are responsible for understanding and following the academic regulations for the university, this includes dates for dropping courses, plagiarism etc. Please consult your calendar or you can consult with me if you have any additional questions.

Information for Students Health, Safety & Emergency Preparedness on UR courses Geog 329

By the end of the course you will be able to determine the climate and conditions where these soil profiles came from.

