Learning Outcomes

- Identify what constitutes a soil, its components and characteristics;
- Learn about the fundamental concepts of soil formation;
- Demonstrate a sound knowledge of the soil forming factors;
- Soil = f(climate, organics, relief, parent material, time and human impact);
- Learn how the soil forming processes create characteristic soil types;
- Understand the basics of soil classification;
- Trained to conduct laboratory and field measurements for unconsolidated materials;
- Perform their own original field research project from project development, field work, and laboratory measurements and analyses;
- Discover how to interpret original laboratory and field data from their project;
• Write a scientific report of your original research soil project.
Geography 329, Geology 329

“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 laboratory work and time of field trip. Review the outline and note the readings that you are responsible for in class. You are encouraged to read ahead to ensure that you are prepared for class, lab and exams. Additional handouts will be available on URCourses.

Week 1
Introduction to Soil Science
Definition of soil, soil components, fundamental concepts.
No lab this week.

Week 2
Identification of horizons, soil texture & colour. Introduction to field and lab techniques in soils
Lab Topics Week 2 Intro to Lab and Field work.

Field Trip Tentative dates Sept 23, 24

Week 3 Properties of Soils and Soil classification
Lab Topics Intro. To Lab and Field work.
Soil profile Assign #1 start. Lab Assignment #1 Due Sept 19

Weeks 4-5 Factors of Soil Formation Parent Material
Lab Topics Soil monolith Lab Assignment #2 Due Oct 3

Weeks 6-7 Factors of Soil Formation Climate
Lab Topics Properties of Soils, Soil Moisture Content/Density Soil structure/porosity
Lab Assignment #3 Due Oct 17

Week 8-9 Factors of Soil Formation Topography and Time
Lab Topics Properties of Soils Chapters 3, 5 Soil Texture
Lab Assignment #4 Due Oct 31

Fall Break Nov 7 to Nov 12

Weeks 9-11 Soils Midterm Nov 20 (tent)
Factors of Soil Formation, Organisms & Soil Forming Cycles
Lab Topics Soil organic matter, soil pH, carbonates
Lab Assignment #5 due Nov 14

Weeks 12-13 Soil forming processes, weathering and degradation

Final Lab Project due Thursday Dec 13 at noon.

Soils Field Research Teams in the Past
A) Qu’Appelle Valley,
B) Duck Mountain Provincial Park