Geography 3313/ ENST 3314/ Geology 3313
Introduction to Soil Science
Fall Term, 2020

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Lectures: Tuesdays, Thursdays 8:30 – 9:30 by Zoom

Labs: Mondays 11:30 - 2:30 by Zoom

Course Description:

This course is an introduction to the principles of soil science (pedology). As a substance, soil is almost unmatched in its significance to the growth of civilization and humanity as a whole. Biosphere, lithosphere, hydrosphere and atmosphere are all represented in the soil. It can be seen as an organized natural body, composed of unconsolidated solid material, living material, gasses and water. It is a product of changes to the original parent material brought about by climate and living organisms, affected by geomorphology and time (pedogenesis). All the factors involved result in a highly heterogeneous appearance and function of all the world's soils. Soils can also be seen as a medium for plant growth, where the living and the dead matter interact to act as a source of food for almost all terrestrial fauna.

Course Objectives:

Students will be expected to show thorough understanding of the following soil science concepts:

Soil Definitions
Pedogenesis
Principles of Soil Physics
Principles of Soil Chemistry
Soil - Climate interaction
Soil Moisture
Soil Organisms
Soil Erosion
Soil Classification/Taxonomy

Practical exercises in form of labs and field work are a fundamental part of this course. However, due to special circumstances of COVID pandemic, we will need to restrict most of the lab related exercises to limit physical contact. This may preclude physical

presence in the lab and may be limited to virtual presence.

Textbook:

Optional: Singer, M.J. and Munns, D.N. (2002). Soils, An Introduction. (6th Ed.) Pearson Education Inc. 446 pp.

Optional: Weil, R.R. and Brady, N.C. (2016). The Nature and Properties of Soil. (15th Ed.) Pearson Education 1104 pp.

Lab Assignment Topics:

Field sampling techniques
Soil – Water relationships
Soil texture measurements
Physical characteristics of soils
Soil Chemistry
Soil Plasticity

Course Grading:

Lab Assignments	30%	
Midterm Exam*	30%	(Oct. 19)
Final Exam*	40%	

*To pass the course, students are required to have at least 35 of the 70 marks allocated to both tests.

Course Policies

The following course policies are consistent with those of the Geography Department and Lakehead University.

1. Regular attendance is expected in lectures.

2. Any absence due to illness, disability, or domestic affliction should be reported to the instructor. Absence due to extracurricular activities (e.g. athletics) should be discussed with the instructor **PRIOR** to the absence. If you miss a class, it is your responsibility to obtain the notes from a classmate. I can provide you with any handouts, but will not provide you a repeat of the lecture or my lecture notes.

3. Students with special needs should talk to me at the beginning of the course and register with the Student Success Centre.

4. Tardiness is frowned upon. Be late at your own risk.

5. Assigned readings, when provided, are to be read prior to the next lecture. This will allow you to get the most out of the lectures and ask informed questions.

6. Questions may be asked **anytime** during lectures. I won't be offended.

7. No make-up exams will be given without a medical excuse backed by a medical certificate. No one will be allowed to write the tests or the final exam **prior** to the scheduled date.

8. Lab assignments are to be handed in before the specified due date. Material submitted after the deadline will be accepted but will be penalized 10% per day.

9. Lab assignments will be graded for **content, legibility, structure, spelling** and **grammar**.