

EESB05H – PRINCIPLES OF SOIL SCIENCE
DEPARTMENT OF PHYSICAL AND ENVIRONMENTAL SCIENCES
UNIVERSITY OF TORONTO SCARBOROUGH
Fall 2021

Instructor: Prof. Marney Isaac
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TA's: Serra Buchanan, Adarshana Thapa
Virtual office hours: Wednesday 10-11am

LECTURES: Fridays: 10am-12pm [synchronous (live) online lecture using zoom via our Quercus course site]

PRACTICALS: Tues: 12-3pm or 3-6pm starting Sept. 28th [synchronous (live) online demonstration]

COURSE DESCRIPTION

A study of the chemical, physical and biological properties of soils, soil formation and development, the classification of soils and the application of soil science to environmental issues and their response to environmental change.

PREREQUISITES

EESA01H - Introduction to Environmental Science **or**
EESA06H - Introduction to Planet Earth

REQUIRED READING

“**Elements of the Nature and Properties of Soils**” by N.C. Brady and R.R. Weil, 2002, Pearson Publishers. This text is available from the UT Scarborough bookstore and from various sources on the internet. It is also on course reserve.

COURSE LAYOUT

Lecture	Date	Lecture topic	Readings
1	Sept. 10	Introduction	Chapter 1
2	Sept. 17	Origin of soils/taxonomy	Chapter 2 & Chapter 3
3	Sept. 24	Soil physical properties	Chapter 4
4	Oct. 1	Soil water	Chapter 5
5	Oct. 8	Soil porosity	Chapter 7

	Oct. 15	Reading week	
6	Oct. 22	Mid-term	Online
7	Oct. 29	Soil chemistry & acidity	Chapter 8 & 9
8	Nov. 5	Guest lecture	
9	Nov. 12	Soil biology & organic matter	Chapter 10 & 11
10	Nov. 19	Soil-plant relationship	Chapter 12 & 13
11	Nov. 26	Tropical soils & soil management	
12	Dec. 3	Review	

PRACTICALS

Practical	Date	Practical topic
1	Sept. 28 th & Oct. 5 th	Soil physical properties – texture, porosity and bulk density
2	Nov. 9 th & Nov. 16 th	Soil chemical properties – cation exchange capacity and pH

COURSE WORK AND EVALUATION

The evaluation scheme is designed to meet the objectives of this course. Comprehension of the lecture material and readings, in both general and specific form, will be evaluated by the mid-term and final exam. Analytical skills will be evaluated with two practicals. Weights are as follows:

Practicals (20% x 2) = 40%
Mid-term = 25%
Final = 35%

Both the midterm and final exam will draw from lecture and practical materials and includes lecture notes and *any* material presented in the classroom that may or may not be posted on blackboard. Information from the textbook and other resources not directly covered in class or in the practicals will not be tested on exams.

Mid-term test

A mid-term test will be held during class time. The test will consist of multiple-choice, short answer questions and calculations and will be worth 25% of your final grade. Make-ups will not be given for the mid-term test. If you miss the test for a verifiable reason, the weight of the mid-term will be added to the weight of your final exam with the permission of the instructor.

Final Exam

A comprehensive final exam will be given during UTSC examination period worth 35% of your final grade.

Practicals

Practicals will be online, with videos and lab demonstrations. Data sets will be provided. Please see the Practical Instruction Sheet, which will be made available before the first practical, for a detailed description of topics and methods.

COURSE POLICIES

Attendance and Penalties for late work

Practical attendance is mandatory. Students who do not attend the practical session online will not be allowed to submit an assignment for grading and automatically will receive a grade of zero. TAs will be making note of absent students. Late assignments will not be accepted and assigned a grade of zero.

Plagiarism

Plagiarism is a serious academic offence. Please read the faculty's guidelines on plagiarism. Do not hesitate to consult with your instructor or TA about strategies that you can use to avoid being accused of plagiarism.

Email contact

I will answer emails concerning this course in a timely manner. Tutorials will not be given over email. I also encourage you to make use of both the instructors and the TA office hours. At times, I may decide to send out important course information by email. All UTSC students are required to have a valid UTSC email address. You are responsible for ensuring that your UTSC email address is set up. Emails originating from accounts other than UTSC or UT will not be answered.

Course website - Quercus

EESB05 uses Quercus for its course website. To access the EESB05 website, go to the U of T portal login page at <http://portal.utoronto.ca> and log in using your UTORid and password. Once you have logged in to the portal using your UTORid and password, look for course modules, where you'll find the link to the EESB05 course website.

RESOURCES

Accessibility statement

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodation, please feel free to approach me and/or AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquires are confidential. The UTSC AccessAbility Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations [416-287-7560 or ability@utsc.utoronto.ca]

The Writing Centre

The Writing Centre is a free service that provides support for teaching and learning through writing for all UTSC students. The Writing Centre provides service such as one-on-one consultation, drop-in hours, English language development and writing clinics. They are located in AC 210, in the Academic Resource Centre.

Health and Wellness Clinic

The Health & Wellness Centre has trained health professionals to provide medical, nursing, counselling, health promotion and education services to University of Toronto Scarborough students. Any student with a current student card and a valid health card can use their services.