

SOILS 210 Introduction to Soil Science and Soil Resources

3 credits. 3 hours lecture and 3 hours lab per week

An examination of the elementary aspects of soil formation, soil occurrence in natural landscapes, soil classification, soil resource inventory, basic morphological, biological, chemical and physical characteristics employed in the identification of soils and predictions of their performance in both managed and natural landscapes

Must have completed a university-level course in life or natural sciences. A university-level chemistry course is strongly recommended.

Instructor

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Office Hours

Monday	9:00 – 9:50 AM; 3:00 – 3:50 PM
Wednesday	2:00 – 3:50 AM
Thursday	3:00 – 3:50 PM

Hours of Instruction

<u>Lecture:</u>	Monday, Thursday, Friday	2:00 PM – 2:50 PM
<u>Laboratory:</u>	Wednesday	9:00 AM – 11:50 PM

Required Resources

Brady and Weil. 2018. Elements of the Nature and Properties of Soils, 4th Edition, Pearson. ISBN 978-0-13-501433-2

Thien and Graveel. Laboratory manual for Soil Science. Kendall/Hunt. ISBN 978-0-7575-5010-2

Full outdoor apparel for fall and winter weather including suitable footwear**Course Outcomes**

Upon successful completion of this course, the student will be able to:

- Recognize physical properties and functions of soils in relation to other components of the environment.
- Analyze the factors of soil formation and processes of soil development that lead to differences in soils in our environment.
- Use techniques of soil sampling, identification and measurement of soil properties
- Classify soils using the Canadian System of Soil Classification.
- Apply the knowledge gained in sustainable soil management.

Evaluation

Assignments -	25% (5 × 5%) due one week after each lab
Written Report & Oral Presentation	15% (10% + 5%) due on November 30
Midterm Exam -	25% (12.5% - October 7, 12.5% - Nov 4)
Final Exam -	35% between December 10 and December 18
Total	100%

A grade of C- is required for progression or transfer.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory Progression	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor Minimum Pass	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Topics**LECTURES, SOILS 210, FALL 2019**

Chapter 1: Introduction	Sept. 5 & 6
Chapter 2: Soil Formation	Sept. 9, 12, 13
Chapter 3: Soil Classification	Sept. 16, 19, 20
Chapter 4: Soil Architecture	Sept. 23, 26, & 27
Chapter 5: Soil Water	Sept. 30 & Oct. 3, 4
Midterm	Oct. 7
Chapter 6: Hydrological Cycle	Oct. 10 & 11
Chapter 7: Soil Aeration & Temperature	Oct. 17 & 18
Chapter 8: Soil Colloids	Oct. 21, 24, & 25
Chapter 9: Soil Chemistry	Oct. 28, 31 & Nov. 1
Midterm	Nov. 4
Chapter 10: Soil Ecology	Nov. 14, 15
Chapter 11: Soil Organic Matter	Nov. 18, 21
Chapter 12: Nutrient Cycles and Soil Fertility	Nov. 22, 25
Chapter 14: Soil Erosion	Nov. 28, 29
Chapter 15: Soils and Chemical Pollution	Dec. 2, 5

LABORATORIES, SOILS 210, FALL 2019**All lab assignments will be due 1 week after the lab**

Week 1: Sept. 4	NO LABS (the first week of school)
Week 2: Sept. 11	LAB 1: Introduction, Soil as a Natural Resource
Week 3: Sept. 18	Field Lab: Regosolic Soil Order
Week 4: Sept. 25	Field Lab: Luvisolic Soil Order
Week 5: Oct. 2	Field Lab: Brunisolic Soil Order
Week 6: Oct. 9	Field Lab: Organic Soil Order
Week 7: Oct. 16	NO LABS
Week 8: Oct. 23	LAB 2: Sample grinding, Sieving & Soil Texture
Week 9: Oct. 30	NO LABS (Faculty PD)
Week 10: Nov. 6	LAB 3: Particle Size Distribution
Week 11: Nov. 13	LAB 4: Bulk Density & Soil Porosity
Week 12: Nov. 20	LAB 5: Soil Water Content
Week 13: Nov. 27	Oral Presentations / Written reports due

Please Note:

Date and time allotted to each topic is subject to change.

Performance Requirements**Student Responsibilities**

It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College credit calendar.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

Laboratory Safety

In the science laboratories, safety is important.

Students must complete the *WHMIS for Students* online training course on Moodle before entering the science laboratories.

Students must comply with the mandatory laboratory safety rules for this course as provided in the laboratory manual. Failure to do so will result in progressive discipline such as a verbal warning, refused entry into the laboratory, or suspension from the College.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a students' learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports

The Student Academic Support Services (SASS) department: Accessibility Services, Skill Centre, Wellness Services and Student Life Department work together to support student success at Keyano College.

Accessibility Services (CC167) supports student success through group and individualized instruction of learning, study and test taking strategies, and adaptive technologies. Students with documented disabilities, or who suspect a disability, can meet with the Learning Strategists to discuss accommodation of the learning barriers that they may be experiencing. Students who have accessed accommodations in the past are encouraged to visit our office at their earliest opportunity to discuss the availability of accommodations in their current courses. Individual appointments can be made by calling 780-791-8934.

Skill Centre (CC119) provides a learning space where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff. Students visiting the centre have access to one-to-one or group tutoring, facilitated study groups, and assistance in academic writing. The Skill Centre's Peer Tutor program provides paid employment opportunities for students who have demonstrated academic success and want to share what they have learned. Tutoring is available free to any students registered at Keyano College on a drop in basis, from 8:30 am to 5:00 pm Monday through Friday. Additional evening hours are subject to tutor availability and are posted in the Skill Centre.

Wellness Services (CC260) offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators offer a safe and confidential environment to seek help with personal concerns. The Mindfulness Room in CC260 is available as a quiet space for students to relax during regular office hours. Wellness Service welcomes students to participate in any of the group sessions offered throughout the academic year addressing such topics as Mindfulness and Test Anxiety. Individual appointments can be made by calling 780-791-8934.

Student Life Department (CC210) is a place for students to go when they don't know who else can answer their questions. The staff will help students navigate barriers to success and if they don't know the answer, they will find it out. Student success is directly affected by how connected a student feels to their college. The student life department is there to help students get connected.

Please watch your Keyano email for workshop announcements from our Student Academic Support Services team.