



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF GEOSCIENCE  
COURSE OUTLINE

1. **Course:** GLGY 571, Engineering Geology -- Fall 2018

Instructor Name	Email	Phone	Office	Hours
L01: ( MWF 13:00 - 13:50 in SB 146)				
Brandon Karchewski	brandon.karchewski@ucalgary.ca	403-220-6678	ES 108	By appt

**Note:** Lecture room has changed to SB-146.

**Teaching Assistants:**

Jason Abboud, *Email:* jabboud@ucalgary.ca  
Neil Fleming, *Email:* naflemin@ucalgary.ca

**Course Site:**

D2L: GLGY 571 L01-(Fall 2018)-Engineering Geology

**Department of Geoscience:**

Office: ES 118  
Phone: 403 220-5841  
Email: geoscience@ucalgary.ca

**Note:**

Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

**Prerequisite(s):** Geology 353 and 445.

**Calendar Description:**

The role of geology in engineering problems. Characterization of rock, rock masses and soil. Mechanical behaviour of geologic material. Investigation methods and case histories.

**Course Learning Objectives:**

By the end of this course, students should be able to:

1. *Describe* the physical and mechanical properties of soils and rock relevant to engineering classification of these materials.
2. *Explain* the concept of effective stress and its importance to the deformation and strength of soil and rock.
3. *Compare and contrast* criteria used to describe the strength of soil and rock, with particular regard to the influence of fabric and rock mass characteristics.
4. *Describe and perform* laboratory tests for physical and mechanical properties of soil and rock.
5. *Describe* in situ methods of evaluating the properties of soil and rock.
6. *Communicate* the results of geotechnical calculations and laboratory investigations to peers in the geoscience and geotechnical engineering community.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
Assignments	20%	
Labs	20%	
Quizzes	20%	
Project/Presentation	10%	
Final Exam	30%	

In calculating the grade for the assignments component, the lowest grade will be dropped provided that all assignments are submitted; assignments not submitted will receive a mark of zero (0). The lowest quiz mark will be dropped, including a maximum of one (1) absence from a quiz. Additional unexcused absences from quizzes will receive a mark of zero (0); additional quiz absences with sufficient notice and valid reason will have the weight re-distributed to the other quiz marks.

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
<b>Minimum % Required</b>	95 %	90 %	85 %	80%	75%	70 %	65 %	62%	60%	55 %	50 %

This course has a registrar scheduled final exam.

#### 4. **Missed Components of Term Work:**

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself/themself with these regulations. See also [Section E.3](#) of the University Calendar.

#### 5. **Scheduled out-of-class activities:**

There are no scheduled out of class activities for this course.

#### 6. **Course Materials:**

Recommended Textbook(s):

Luis Gonzalez de Vallejo, Mercedes Ferrer, *Geological Engineering*: CRC Press, 2011 .

#### 7. **Examination Policy:**

All exams and quizzes are "open book". During an exam or quiz, you may consult any course materials including notes and previous exams or quizzes *which you have made yourself*. You may not consult exams or quizzes from previous years during a quiz or exam. You *may* access the internet, but you *may not* use email or other forms of communication (written, verbal, electronic) except to communicate with the course instructor or TAs during an examination. The use of calculators or computers for computation is encouraged; a scientific calculator such as the Casio fx-991 or one with similar functionality is recommended and use of spreadsheet tools such as MS Excel is allowed.

Students should also read the Calendar, [Section G](#), on Examinations.

#### 8. **Approved Mandatory and Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

#### 9. **Writing across the Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also [Section E.2](#) of the University Calendar.

## 10. Human studies statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

## 11. Reappraisal of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

1. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. See sections [I.1](#) and [I.2](#) of the University Calendar
2. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

## 12. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at [403-220-2208](tel:403-220-2208).
- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. **These are only examples.**
- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Sr. Instructor of the Department of Geoscience, Dr. Rudi Meyer by email [rmeyer@ucalgary.ca](mailto:rmeyer@ucalgary.ca) or phone [403-210-7848](tel:403-210-7848). Religious accommodation requests relating to class, test or exam scheduling or absences must

be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-220-5333](#) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](#) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](#) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). Student Ombudsman, Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- k. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

**Department Approval:**

Electronically Approved

**Date:** 2018-09-12 11:56

## Course Outcomes

- Students should be able to classify soils
- Students should be able to describe rock masses in an engineering geology context.
- Students should be able to apply the concepts of pore pressure and effective stress to engineering geology problems
- Students should be able to apply the Mohr circle and Mohr Coulomb failure envelope to stress and failure problems
- Students should be able to outline the steps in a site investigation
- Students should be able to select appropriate measurement and analytical technique for engineering geology studies.