Student Perspectives on Field Experiences Offered in the Geological Engineering Program

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Purpose and Motivation

The purpose of this study is to learn student perspectives on the field experiences offered in the Geological Engineering Program that will be used towards curriculum planning on a course and program level.

The survey was designed to learn about student motivation, level of desire for more field experiences, preferences on how field experiences are the be delivered, and their perspectives on why they chose certain field-based electives over others.

Geological Engineering Program

Geological Engineering is interdisciplinary field of study combining principles from geology, soil and rock mechanics, and hydrogeology to provide engineering solutions to society interactions with the natural environment.

The overall program consists of 151 credits and on average takes four to five years to complete with students opting to enroll in the co-op program for work opportunities. There are currently 98 students enrolled in the program with seventeen (17) in second year, twenty-nine (29) in third year, and fifty-four (54) in fourth year and above.

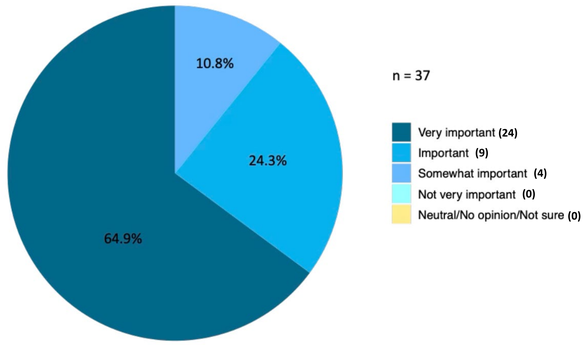
Existing Inventory of Field Experiences

An inventory of all field experiences offered in the program is summarized below:

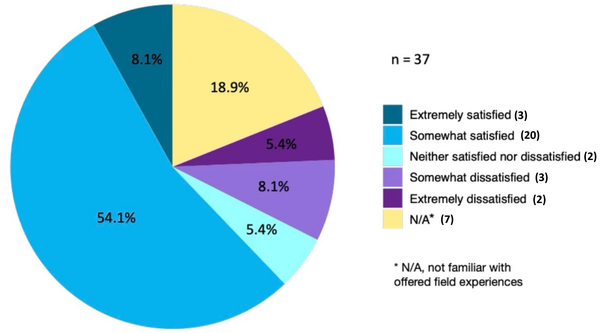
Second Year	Third Year	Fourth Year
• One week-long field school • One course with 3-4 field trips (day trips)	• Two courses that each have one field lab	Geology or hydrogeology field school (either 3 weeks or 10 days)

Results

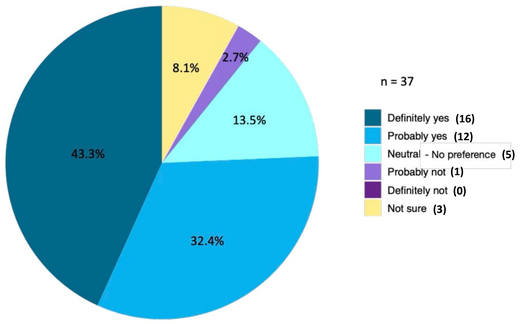
Q2. How important is it for you to have field experiences offered in your undergraduate studies to achieve your desired goals from the Geological Engineering Program?



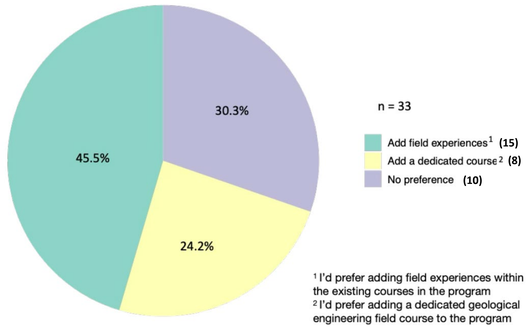
Q3. How satisfied are you with the amount of field experiences offered at the undergraduate level in the Geological Engineering Program?



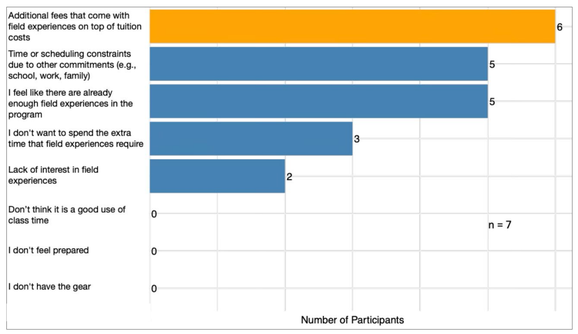
Q4. Would you like more field experiences to be included in the undergraduate geological engineering program than what is currently being offered? (Either in existing courses in the program, or through other avenues in the program)



Q5. Which of the following best describes your preferences with regards to how more field experiences can get added to the geological engineering program?



Q6. What are some reasons why you don't wish to have more field experiences in the program? (you may select multiple reasons)



Q12. Do you have any comments, questions or concerns about current and future field experiences in the Geological Engineering Program?

A selection of responses are shown below:

*"I think that additional field experience **more than the current amount should be optional**"*

*"I think there should be a greater **focus on design experience**. It's one thing to collect data, but trying to get people to start thinking about what it means in the larger scheme of things. This seems to **be missing from all courses until fourth year**. For example, in EOSC 240, site investigation, it would be good to try and bring in some thinking about what the data means after the field trips."*

*"**Co-Op is the most important field experience that every student should gain**. I also think that **Oliver field school is a good model for any future programs because the field experience is guided, but the product is self motivated.** I felt I took away a lot from the field school because I tried to figure things out myself and then got hints from the professors to keep me on track.*

*"After EOSC 240, No course felt like your ideal geo eng / geotech experience…. **A course on drilling investigation, core logging, introduction to design analysis (like we will be doing in the future) will be helpful**"*

*"I think there should be some field days in third year surrounding **data collection and getting students to think what the data means in the broader scope of engineering**. Then, **in fourth year**, it would be good to have a **design-focused field school**, where we learn the analysis process and mitigation techniques.*
*For example, this year with GeoRox we did a site visit to North Besch Slide, where the engineers walked us through from **investigation --> modelling --> mitigation** and showed the challenges faced. We then got to go out and see failure planes, rock bolts etc. This was **good for seeing an overview of the entire geological engineering design process.**"*

Survey Method

Students were asked to respond to a survey using Qualtrics to administer and collect data. The survey was administered though the following channels:

- EOSC 240 – a core course in second year
- EOSC 445 – a core course in fourth/fifth year
- An e-mail to all students in third-year, and fourth year and beyond not currently enrolled in EOSC 445)

Behavioural Research Ethics Board (BREB)

A certificate of approval was received from the Behavioural Research Ethics Board for this study.

Summary

The results of the survey indicate that majority students (76% of participants) are generally in favour of having more field experiences offered in the program and feel that they are important in order achieve their undergraduate goals. Out of the participants in favour of more field experience, forty-six percent (46%) preferred them offered in existing courses, thirty percent (30%) had no preference, and twenty-four percent (24%) preferred a dedicated geological engineering field school.

Future Work

Faculty in the Geological Engineering program are working together in developing more field experiences and scaffolding experiences in existing courses across different years in the program. The development of a dedicated field school will not be prioritized until a clearer vision of learning goals gaps and required teaching resources are identified.

Examples of additional field experiences offered in the 24W year includes EOSC 240 Site Investigation, EOSC 445 Engineering Design Project, and EOSC 330 Principles of Geomorphology.

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