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## Report - AE2401 - 2020-11-04

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Respondents: 1  
Answer Count: 1  
Answer Frequency: 100.00%

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Please note that there is only one respondent to this form: the person that performs the course analysis.

**Course analysis carried out by (name, e-mail):**

Johan Spross, spross@kth.se

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**DESCRIPTION OF THE COURSE EVALUATION PROCESS**

**Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.**

Two student representatives were appointed by the students at the beginning of the course. A course survey was sent out. A meeting with student representatives was arranged after the course.

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**DESCRIPTION OF MEETINGS WITH STUDENTS**

**Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)**

A meeting with student representatives was arranged after the course.

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**COURSE DESIGN**

**Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.**

A new teacher has taken over the course since last year. Some adjustments were made with respect to COVID-19. 95% of the course was online, with the exception of a visit to a laboratory. See course PM for course design.

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**THE STUDENTS' WORKLOAD**

**Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?**

The students report around 20 hours per week for this 50%-speed course.

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**THE STUDENTS' RESULTS**

**How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?**

The students succeeded well with both exam and project. Among this year's students, only 5% failed the exam. The students seem to have studied well, despite the change to an online course.

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**STUDENTS' ANSWERS TO OPEN QUESTIONS**

**What does students say in response to the open questions?**

The comments were generally positive, with some constructive comments on possible improvements.

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#### **SUMMARY OF STUDENTS' OPINIONS**

**Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.**

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The comments were generally positive, with some constructive comments on possible improvements. Only 8 students responded to the survey, however (38%).

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#### **OVERALL IMPRESSION**

**Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.**

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The new course activities seem to have worked well, with some room for minor improvements of details for next year. See below.

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#### **ANALYSIS**

**Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason for these be? Are there significant difference in experience between:**

- students identifying as female and male?
  - international and national students?
  - students with or without disabilities?
- 

The number of students in the survey is too small for this analysis.

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#### **PRIORITIZED COURSE DEVELOPMENT**

**What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?**

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- Zoom-based workshops need a better queuing system.
  - Some more time for project workshops.
  - Guest lectures should be 2 hours each.
  - Clarify expectations of exercise submissions in terms of structure.
  - Introduce the project in more detail. "Who are the students in the project and for how long has the project been going on?"
  - The site visit could do with a written short summary of machinery and purpose. More focus on aggregates is wanted, less bitumen.
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## AE2401 - 2020-10-15

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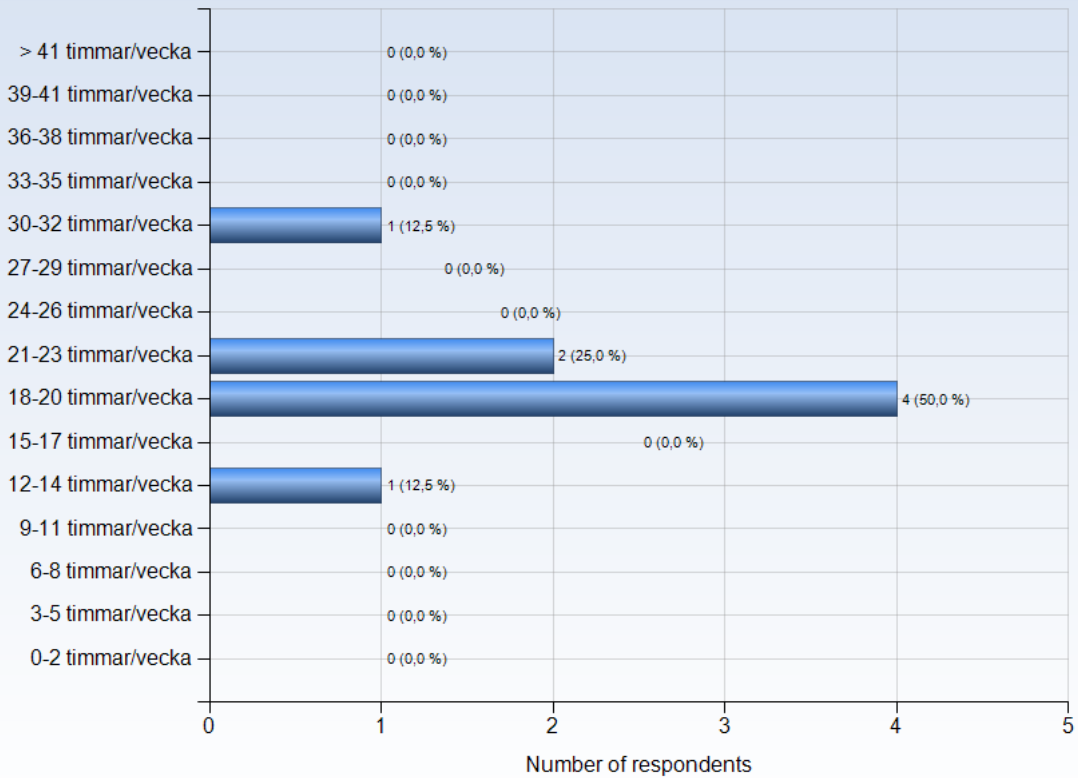
Antal respondenter: 21  
Antal svar: 8  
Svarsfrekvens: 38,10 %

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## ESTIMATED WORKLOAD

On average, how many hours/week did you work with the course (including scheduled hours)?



### Comments

Comments (I worked: 18-20 timmar/vecka)

I think it was reasonable.

The weekly reading assignments and the excersises forced me to have an even workload during the course, which I think is really good. Otherwise it is easy to be lazy at the start and then do all the work during the last 2 weeks (which often gets very stressful).

Comments (I worked: 21-23 timmar/vecka)

The course took more time than my other courses and was quite stressful at times. However, the spread of the work load was decent.



## LEARNING EXPERIENCE

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The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

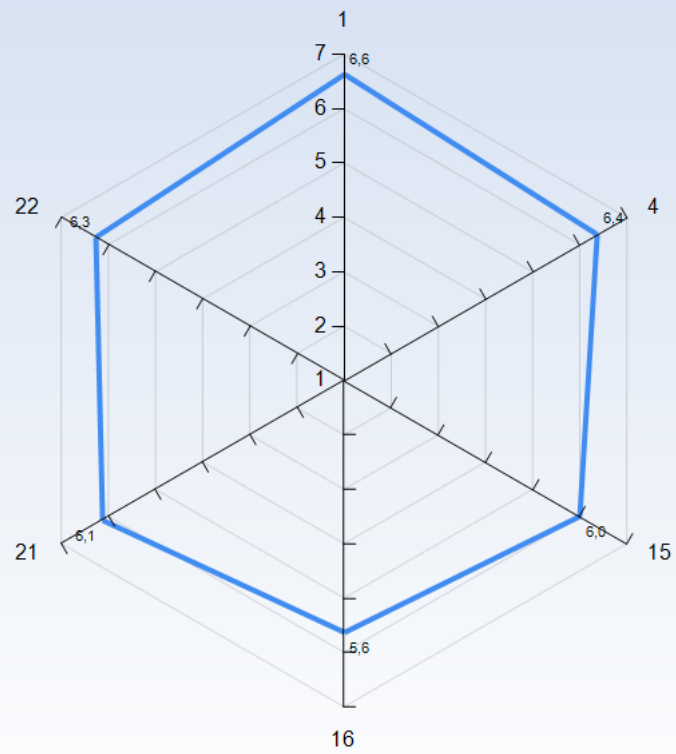
1 = No, I strongly disagree with the statement

4 = I am neutral to the statement

7 = Yes, I strongly agree with the statement

**Note! A group has to include at least 3 respondents in order to appear in a diagram.**

### Average response to LEQ statements - all respondents



— Medelvärde



## **KTH Learning Experience Questionnaire v3.1.4**

### **Meaningfulness - emotional level**

#### *Stimulating tasks*

1. I worked with interesting issues (a)

#### *Exploration and own experience*

2. I explored parts of the subject on my own (a)

3. I was able to learn by trying out my own ideas (b)

#### *Challenge*

4. The course was challenging in a stimulating way (c)

#### *Belonging*

5. I felt togetherness with others on the course (d)

6. The atmosphere on the course was open and inclusive (d)

### **Comprehensibility - cognitive level**

#### *Clear goals and organization*

7. The intended learning outcomes helped me to understand what I was expected to achieve (e)

8. The course was organized in a way that supported my learning (e)

#### *Understanding of subject matter*

9. I understood what the teachers were talking about (f)

10. I was able to learn from concrete examples that I could relate to (g)

11. Understanding of key concepts had high priority (h)



### *Constructive alignment*

- 12. The course activities helped me to achieve the intended learning outcomes efficiently (i)
- 13. I understood what I was expected to learn in order to obtain a certain grade (i)

### *Feedback and security*

- 14. I received regular feedback that helped me to see my progress (j)
- 15. I could practice and receive feedback without being graded (j)
- 16. The assessment on the course was fair and honest (k)

## **Manageability - instrumental level**

### *Sufficient background knowledge*

- 17. My background knowledge was sufficient to follow the course (f)

### *Time to reflect*

- 18. I regularly spent time to reflect on what I learned (l)

### *Variation and participation*

- 19. The course activities enabled me to learn in different ways (m)
- 20. I had opportunities to influence the course activities (m)

### *Collaboration*

- 21. I was able to learn by collaborating and discussing with others (n)

### *Support*

- 22. I was able to get support if I needed it (c)





## **Learning factors from the literature that LEQ intends to examine**

We tend to learn most effectively (in ways that make a sustained, substantial, and positive influence on the way we think, reflect, act or feel) when:

- a) We are trying to answer questions, solve problems or acquire skills that we find interesting, exciting or important
- b) We are able to speculate, test ideas (intellectually or practically) and learn from experience, even before we know much about the subject
- c) We are able to do so in a challenging and at the same time supportive environment
- d) We feel that we are part of a community and believe that other people have confidence in our ability to learn
- e) We understand the meaning of the intended learning outcomes, how the environment is organized, and what is expected of us
- f) We have adequate prior knowledge to deal with the current learning situation
- g) We are able to learn inductively by moving from concrete examples and experiences to general principles, rather than the reverse
- h) We are challenged to develop a true understanding of key concepts and gradually create a coherent whole from the content
- i) We believe that the work we are expected to do will help us to achieve the intended learning outcomes
- j) We are able to try, fail, and receive feedback before, and separate from, each summative assessment of our efforts
- k) We believe that our work will be considered in an honest and fair way
- l) We have sufficient time for learning and devote the time needed to do so



m) We believe that we have control over our own learning, and not that we are being manipulated

n) We are able to collaborate with other learners struggling with the same problems

## Literature

Bain, K. (2004). *What the Best College Teachers Do*, Chapter 5, pp. 98-134. Cambridge: Harvard University Press.

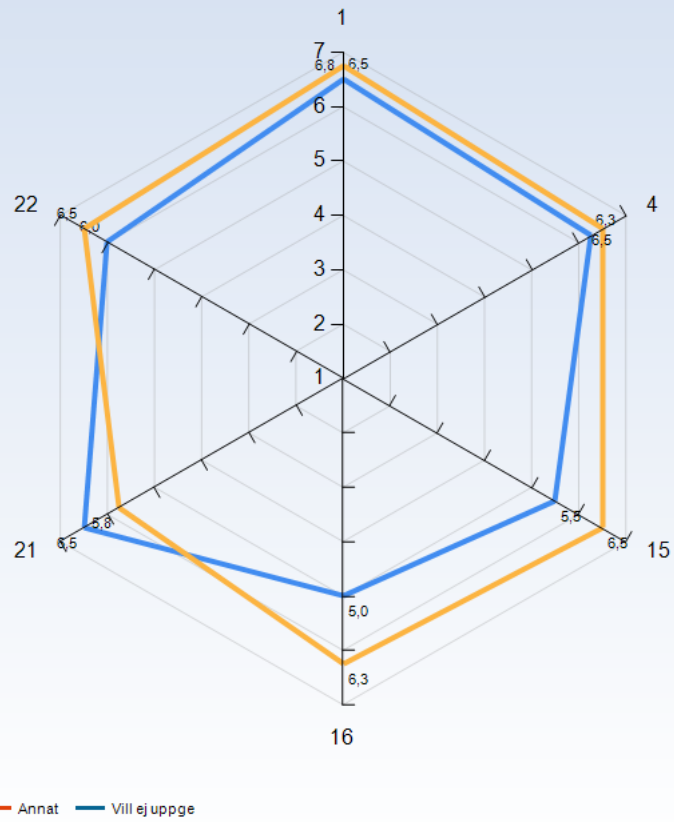
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

Elmgren, M. & Henriksson, A-S. (2014). *Academic Teaching*, Chapter 3, pp. 57-72. Lund: Studentlitteratur.

Kember, K. & McNaught, C. (2007). *Enhancing University Teaching: Lessons from Research into Award-Winning Teachers*, Chapter 5, pp. 31-40. Abingdon: Routledge.

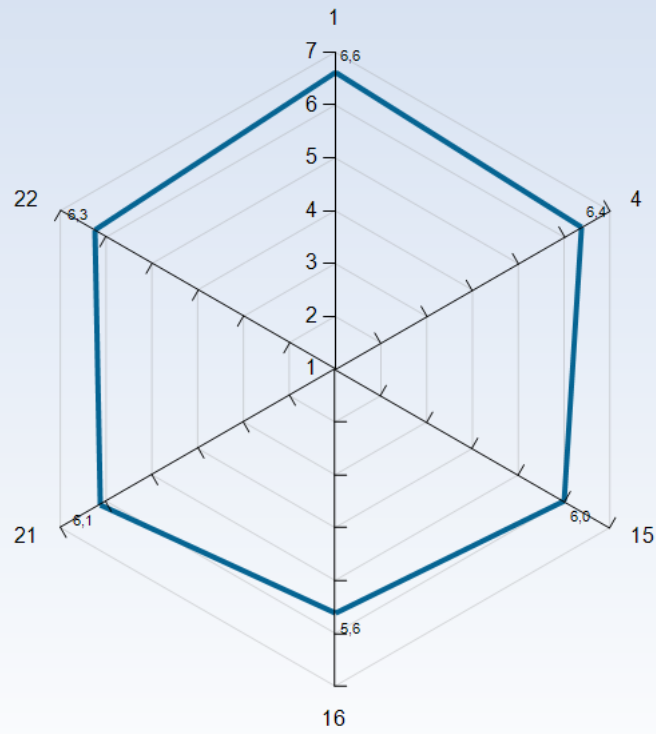
Ramsden, P. (2003). *Learning to Teach in Higher Education*, Chapter 6, pp. 84-105. New York: RoutledgeFalmer.

### Average response to LEQ statements - per gender



Comments

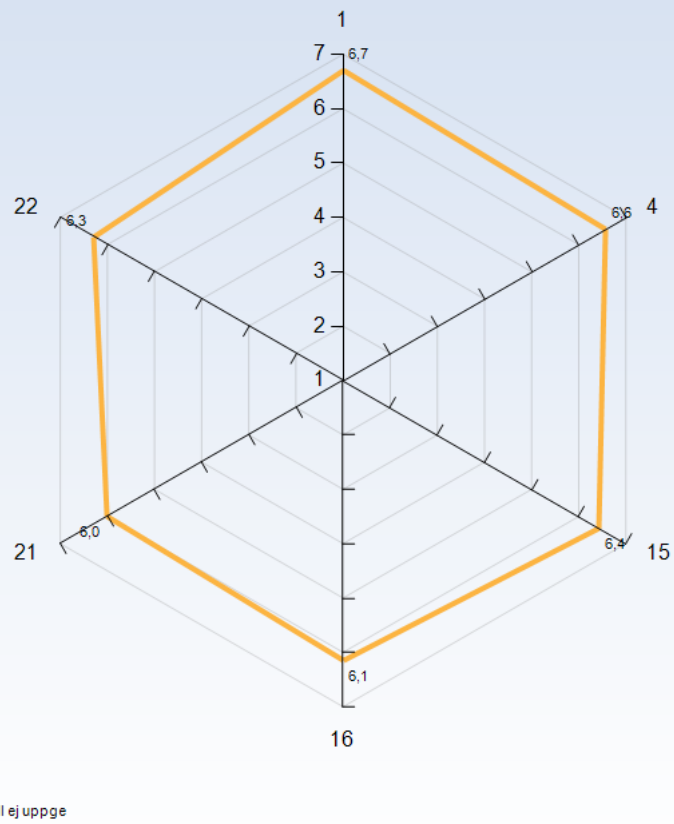
### Average response to LEQ statements - per type of student



— Internationell masterstudent   
 — Svensk student i årskurs 1-3   
 — Svensk student i årskurs 4-5   
 — Annan typ av student   
 — Vill ej uppge

Comments

### Average response to LEQ statements - per disability



Comments



## GENERAL QUESTIONS

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### What was the best aspect of the course?

What was the best aspect of the course? (I worked: 12-14 timmar/vecka)

It felt close to reality and the exercises felt relevant because they were actually needed to understand the course and the exam. I really liked the project! I also feel that we were really spoiled with the weekly list of what we were supposed to do.

What was the best aspect of the course? (I worked: 18-20 timmar/vecka)

- The good structure! Easy to plan your own work.
- Video lectures to look at.
- Nice to write your own questions of course book content.

The recorded lectures by Joanne was really good and informative. Nice to have it in smaller sections than the traditional 2 hr lectures that we usually have.

The exercises was a good way to be prepared to the project.

The Excursions were really good both of them.

Good structure! I liked the weekly updates on the Canvas page. It was a lot of minor tasks every week which could have felt messy without the structured canvas page.

Fun to have a site visit.

Interesting project at the end of the course.

The quizzes made me keep up with the reading which was good.

What was the best aspect of the course? (I worked: 21-23 timmar/vecka)

The exercises enables a good learning curve and helped to understand important topics along the way.

The lectures with Joanne was useful (especially when I turned up the speed).

I am a bit divided in regards of the reading assignments. They were useful but I did not really like the format of the quiz.

What was the best aspect of the course? (I worked: 30-32 timmar/vecka)

The exercises and lectures was good.

The structure on canvas is easy to understand! Good info from teacher regarding what is expected each week. The videolecture is very appreciated that is recorded by joanne. The quiz was good to have each week.



### What would you suggest to improve?

What would you suggest to improve? (I worked: 12-14 timmar/vecka)

Nothing big in particular, but I did feel a bit confused over how faults affected the geological maps when drawing. Would be nice to have some explanation of it.

What would you suggest to improve? (I worked: 18-20 timmar/vecka)

- Would have been nice to have gotten a good/correct solution for the exercises, especially when it comes to the engineering questions. We got some feedback on how we could have improved it, but it would have been nice to get an example of what a "good" answer could look like. If not on the exercises, maybe on some similar questions.

- More scheduled workshop time to get help from teachers the last week of the project. I know Mohammad was available during the "own work" 7/10 (I think), but it would have been nice to have had this in the schedule since before.

Have clear information on what you expect with the exercises from the start.

Not have lectures near the final date to submit the project. Due to its extensive workload the lecture is not prioritised.

Be more specific on what is expected for the excersises. My group did not understand it was reports, and from that perspective we could have made a much better work from the beginning.

What would you suggest to improve? (I worked: 21-23 timmar/vecka)

The assessment of the exercises felt quite arbitrary, and while I understand many (but not all) of the comments we got, I felt the instructions was quite unclear in what was expected. For example, for field exercise 1 the instructions explicitly said that the report was not very important, only the results. Based on this, we focused on the results and then got the feedback that the setup of the report was bad.

Also, while it of course is always obligatory with good referencing in reports, I don't think any other course has required that we reference the course literature in exercises.

For next year, I suggest that you change the quiz with students questions to quizzes with teacher questions based on the student questions. It often felt like the questions were extremely specific and did not at all test our general understanding of the area. Also, as some parts of the literature was hard to understand, taking the quiz was sometimes mostly interpreting bad interpretations of the literature (like the blind leading the blind). I think the quizzes would be more useful if you wrote the questions.

What would you suggest to improve? (I worked: 30-32 timmar/vecka)

The instructions for the exercises! We understood it as it was expected to hand in answers, but the expectations was a full report. If we knew in beforehand we could have made an imrad-structure in the beginning. Just clarify in the beginning what is expected in the excercise hand ins.

The project was interesting but the instructions was very bad here as well. There was difficult to know what should be handed in. The project was also to close to the exam. I think it would be better to start earlier in the course with all excersises so that you can hand in the project earlier and focus on the exam. For the project, we got new instructions three days before deadline, which is very stressfull.

## Finns exempel på vad som var svårt i projektet? Lättare att åtgärda då.

### What advice would you like to give to future participants?

What advice would you like to give to future participants? (I worked: 12-14 timmar/vecka)

Understand the exercises and watch all the pre-recorded videos.

What advice would you like to give to future participants? (I worked: 18-20 timmar/vecka)

Keep continuity with the exercises and take time to really understand the concepts.

Do the excersises at once since they build on each other.

Practice on the map excersises and make sure you understand them, this will help you before the exam.

What advice would you like to give to future participants? (I worked: 21-23 timmar/vecka)

Spread out the workload during the week, it is quite many "small" assignments weekly that does take a lot of time but is not really difficult.

What advice would you like to give to future participants? (I worked: 30-32 timmar/vecka)

Work on the exercises, they are helpful for the exam.



### Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 12-14 timmar/vecka)

It would have been nice to have more lectures with Johan. Joannes lectures were nice, but it's nice to be able to interact with the lecturer. Thanks for a great course!

Is there anything else you would like to add? (I worked: 18-20 timmar/vecka)

- I thought it was hard to know what from the course book that was important to know. I felt it was a lot of information and a lot that I didn't understand entirely. I didn't know how much effort I should put on understanding all the concepts in the book.

Is there anything else you would like to add? (I worked: 21-23 timmar/vecka)

Is there anything else you would like to add? (I worked: 30-32 timmar/vecka)

interesting course!

## SPECIFIC QUESTIONS

**The field excursion in your neighbourhood was a new exercise in the course. Did this exercise feel relevant and useful to understand the course concepts? If not, please explain. Please suggest ways to improve the assignment, if we keep it next year (extent of work, guidelines, etc).**

The field excursion in your neighbourhood was a new exercise in the course. Did this exercise feel relevant and useful to understand the course concepts? If not, please explain. Please suggest ways to improve the assignment, if we keep it next year (extent of work, guidelines, etc).

I think it was nice. But questions regarding e.g calibration of the app that arose during field was hard to get an answer on.

It was interesting but i think you learn more if there is a real excursion, if that is possible.

I think it was very relevant to understand the concepts of Strike, Dip, Joint sets etc. It was fun to go out investigate in the actual nature, not only sit in the "school bench". A few more photos of outcrops as examples would have been good so it became easier to know what to look for.

It was a bit unclear if we were supposed to measure one outcrop with joints or several outcrops with joints. Otherwise it was really fun!

It was a good solution during the pandemic

I really liked it. It was fun to have to use our new experiences to find the outcrop. I felt like a real geologist :-)

See improvement suggestions for the guidelines. The exercise itself was good.





**The responsible for the visit to the lab would like to hear your feedback. Can this part of the course be improved in any way (including content of NCC's guest lecture)?**

The responsible for the visit to the lab would like to hear your feedback. Can this part of the course be improved in any way (including content of NCC's guest lecture)?

I think it would have been nice to have kind of a checklist of the methods they used and were about to show us. I think it would have been more easy to follow and to distinguish all methods from each other if they, throughout the visit, could refer to the checklist. E.g "Now we move forward to the next method on the checklist". As it was now, there was a lot of information and it was hard sorting it.

It was very good! I learned a lot. Maybe to have more like a "lecture" in one of their rooms where they explain some things, and then go on the tour, it can be difficult to just stand and listen the whole time.

I sadly missed the lecture from NCC. With that said, I think that the laboratory visit was really helpful and interesting. It was mainly focusing on asphalt which I can understand if some people aren't that interested in, but I think it was good to grasp the concepts of testing aggregate.

It was very interesting, which I did not expect asphalt to be! However, I don't think it was very useful overall, maybe it could be connected to some exercise with focus on aggregates? The exercises were already keeping one occupied so maybe it could be an extra assignment for the ones interested in earning a few bonus points for the exam or such?

The study visit was really good! Interesting and a proper length (long enough to feel useful and not too long).

Interesting, and always fun with site visits.

Like always it is difficult to keep the time during these visits, but they should try to keep it a bit shorter since it is difficult to keep the focus for too long. Perhaps they could have had a small introduction in the kitchen (while drinking coffee) before going out in the lab.

**The project theme was new for the year. Please comment on the amount of work and how easy it was to understand the instructions. (Too easy, too much, too difficult, or just right?) What can be improved in the project??**

The project theme was new for the year. Please comment on the amount of work and how easy it was to understand the instructions. (Too easy, too much, too difficult, or just right?) What can be improved in the project??

I think it was hard with the RMR rating. Would have been nice to get an example on how to handle it in a similar case. How to give ratings depending on different parameters etc.

It required a lot of work, which was reasonable, but I think it was too much work so close to the exam. We got a map that was on the rock profile where the tunnel was planned, but it was not correct, it was confusing.

The workload for us was "lagom", but it felt like it was different in between groups. With a lot of joint sets and more random characteristics it instantly became more time consuming.

To work with something real was exciting.

The instructions can be improved but I wouldn't say that they were bad.

The instructions were mostly clear, the only part that was confusing was the drawing of joint sets. Overall, the workload wasn't much greater than the exercises (of course this depends on the amount of time you want to invest) but it was very fun to work with.

Hard to answer since I do not know the grading (if what we have done is correct or not)

I think it worked just fine. For the exercises I misunderstood the level of the report, we could have made a better effort from the beginning if we understood how you wanted us to present our answers.

I think the instructions were clear but I thought that for the exercises as well and then we failed every single one because you requested details that was not in the instructions. The workload was fine.

**The recurring quizzes were new for this year. Did they help you in the studying? (Both authoring and answering)**

The recurring quizzes were new for this year. Did they help you in the studying? (Both authoring and answering)

Mostly authoring helped me. I think it was nice with the quizzes as well. Maybe I would have learned more if all questions along with the answers were available as well.

I think the making of a question was very good, but I think there were too many to answer. There is work with that as well that takes a lot of time. Maybe hand out 5 questions or so!

I used them a lot while studying to the exam.

I probably would have read the course literature anyway, but I believe that it was helpful for several students to sit down and read. It was nice to have a quiz to test the knowledge afterwards, but the questions were often very similar.

I liked it. However, the part where you were supposed to write an own question was a bit weird. Some weeks, when there was a lot of work these did only contribute stress and instead of reading, I "searched read" to find a question to send in. I would suggest you to make the questions and have the quizzes on canvas for practise.

I liked authoring them. I did re-do some of the quizzes before the exam to find the gaps I had, but honestly I worked more with re-watching lectures and practicing on old exams.

Yes, and I think you should keep the part of writing questions even though I have some improvement suggestions (see further up).



**The guest lecturers Annika and Marie would like some feedback. Any comments for next year's course to them? (Interesting, difficult to follow, too general, too little...?)**

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I thought it was interesting to get a more applied approach of the subject. And to get to know about their background.

It was interesting.

Give them full 2 hr lectures, but have them earlier in the course. At least not in the same week as the project should be finished. Missed the water dam-lecture because of that. The lecture about tailing dams was interesting, but quite hard to understand as it was something that I hadn't heard about before.

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It's always interesting. The interesting part with the tailing dam lecture was that we couldn't find most of that info anywhere else. The one on dams pretty much covered the chapter in the book.

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I always think it's fun when lecturers talks about examples from projects and connects it with what they talked about. This is the kind of stuff we won't find in the book and which makes the lecture format a good complement to reading on our own.

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## RESPONSE DATA

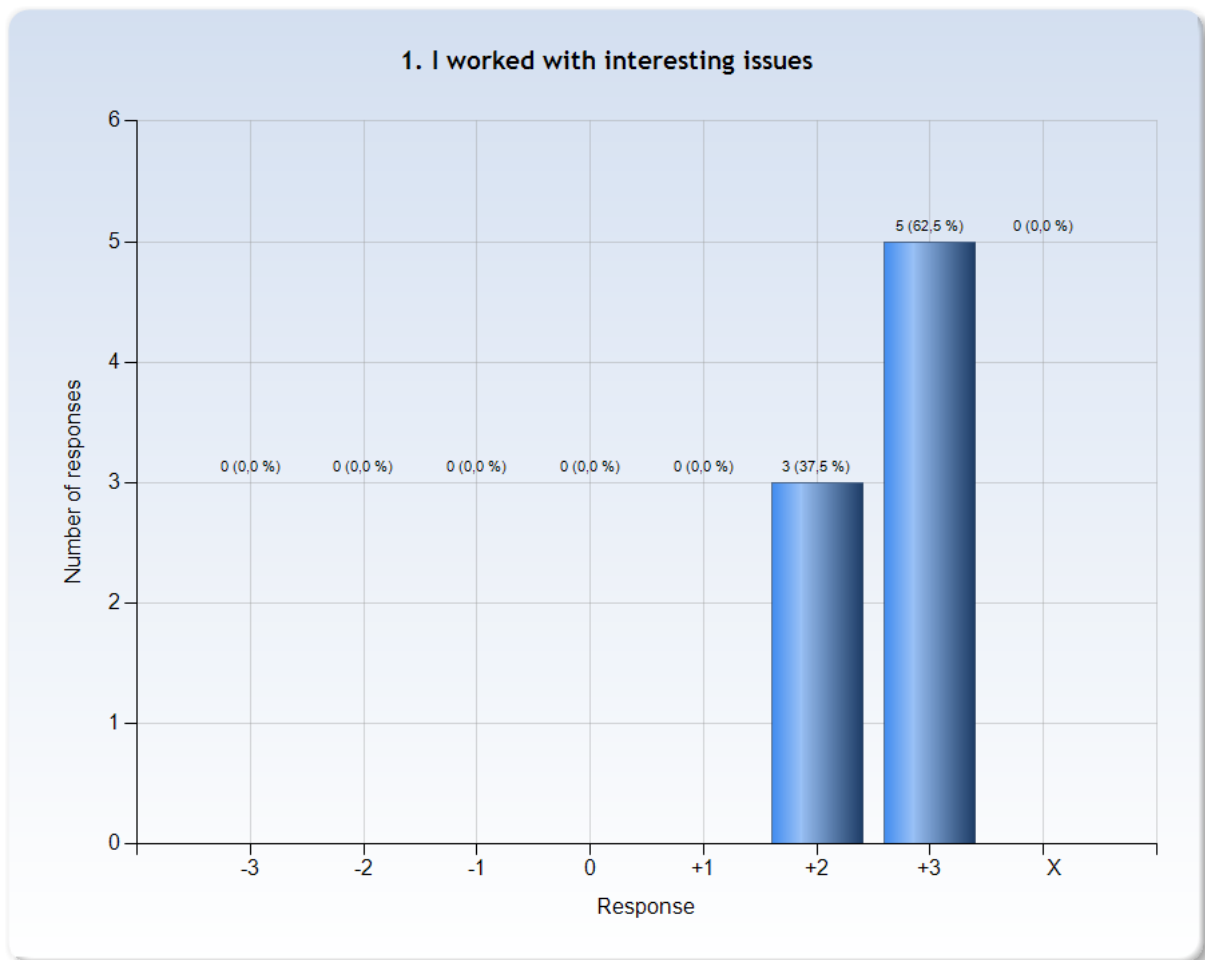
The diagrams below show the detailed response to the LEQ statements. The response scale is defined by:

-3 = No, I strongly disagree with the statement

0 = I am neutral to the statement

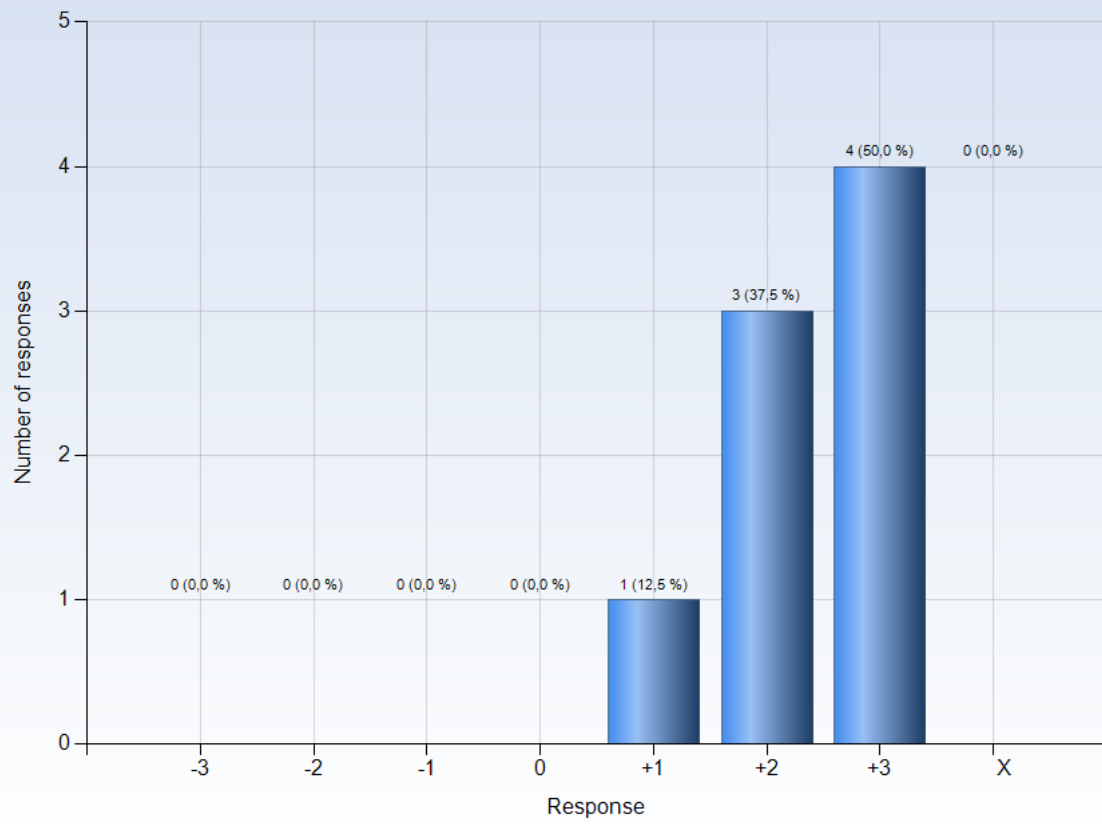
+3 = Yes, I strongly agree with the statement

X = I decline to take a position on the statement



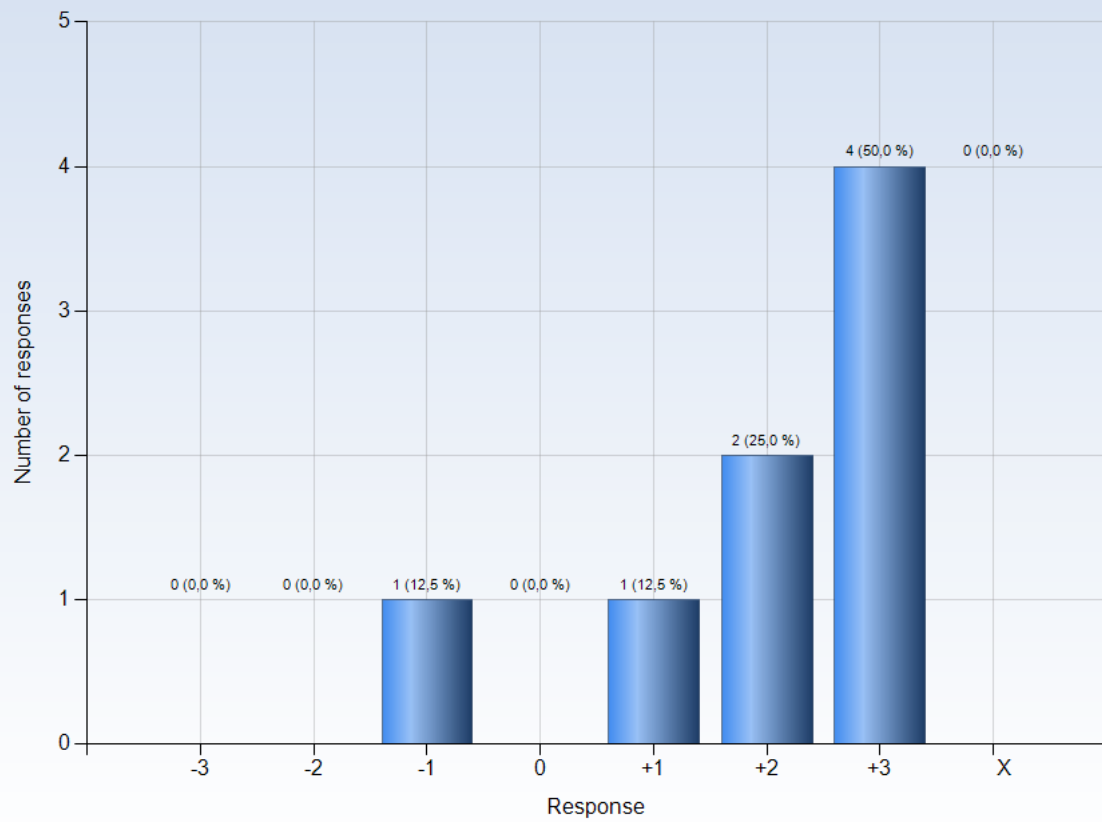
Comments

#### 4. The course was challenging in a stimulating way



Comments

### 15. I was able to practice and receive feedback without being graded

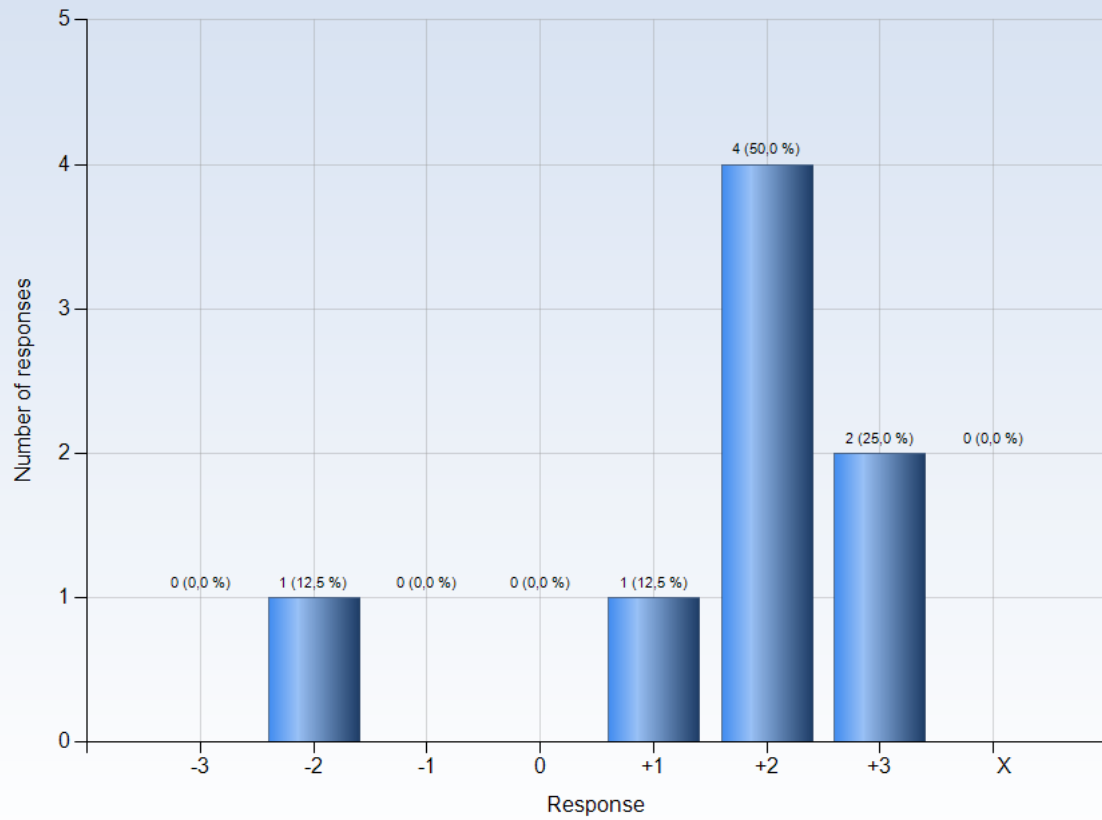


#### Comments

Comments (My response was: +3)

Good helo during workshops.

### 16. The assessment on the course was fair and honest



#### Comments

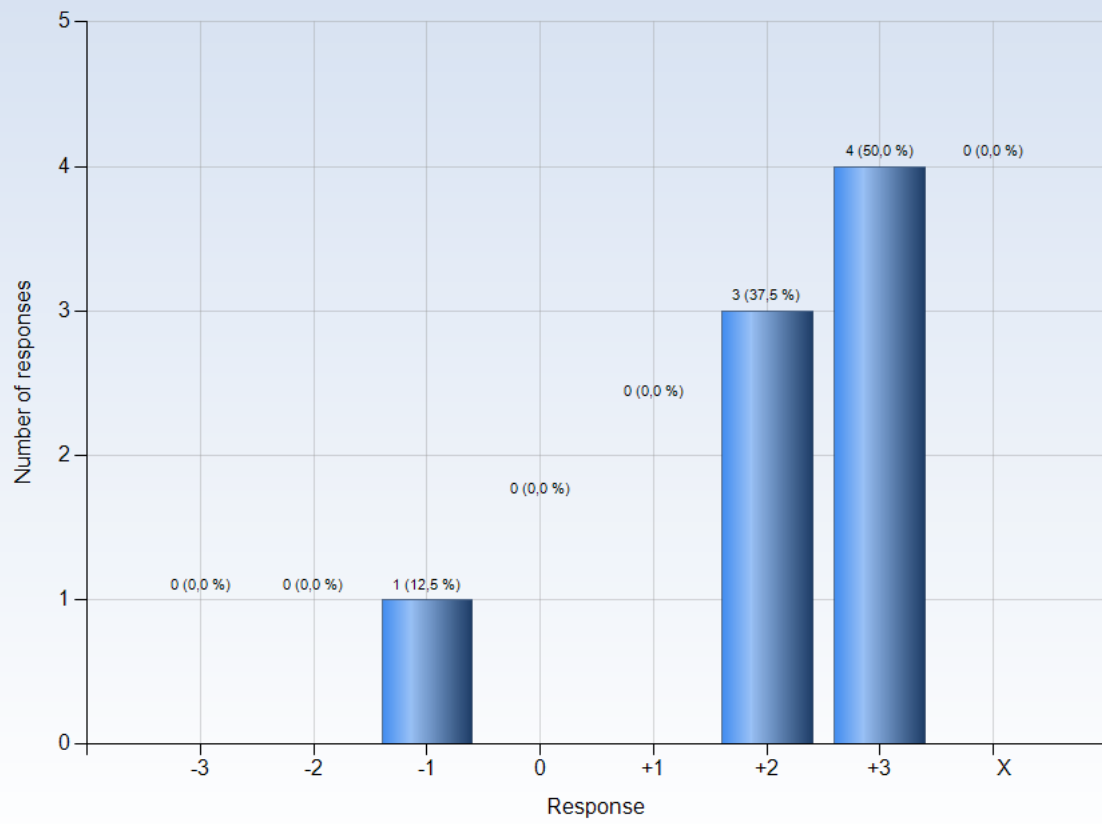
Comments (My response was: -2)

The assessment of the exercises felt really arbitrary.

Comments (My response was: +1)

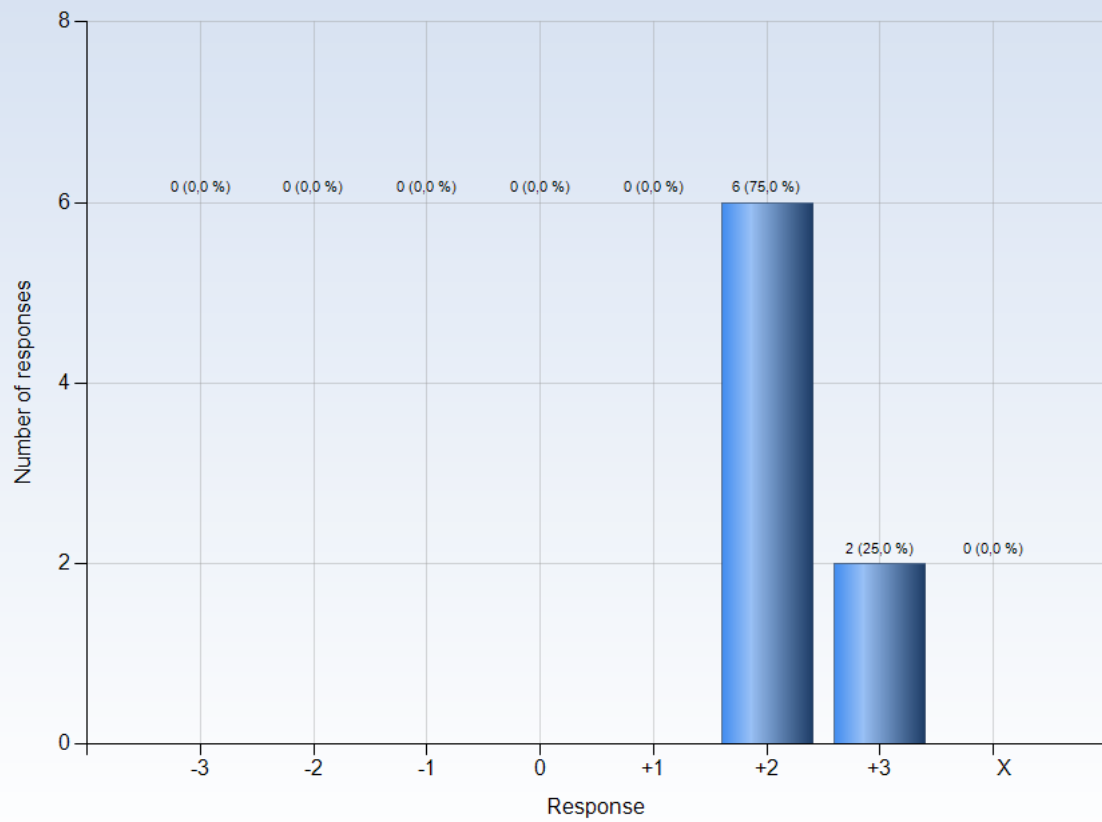
The geological map on the exam was very different from what we have learned, and previous exams. Otherwise, yes.

### 21. I was able to learn by collaborating and discussing with others



Comments

## 22. I was able to get support if I needed it



### Comments

Comments (My response was: +2)

The workshops was good but the sound was so bad so it was very difficult to hear what the teacher said.

More difficult than "normal" since it is online, but ok.