

# Report - SF2822 - 2023-08-30

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

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):

Anders Forsgren, andersf@kth.se

## 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.

We have used an LEQ questionnaire for the course evaluation. We have not specifically addressed aspects regarding gender and disabled students, except following standard KTH practice.

## 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.)

I have met with students during the lectures and stayed in the lecture hall to answer potential questions. I have had regular office hour once a week, and extra office hours on request, to give students the chance to discuss the projects. The teaching assistant Yuexin Cao has also had meetings with students during the course.

## COURSE DESIGN

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

The course covers nonlinear programming. The course is based on projects, where students get training in modeling and analysis of practical problems, in addition to lectures and tutorials, where students get understanding of theory and methods. The second project is optionally an implementation project. This is the same setup as last year.

The group sizes for the project groups were two or three persons and the groups were selected by me. The projects are presented at a particular lecture. This presentations lecture is devoted to discussion between students. First, students having worked on the same project sat together and discussed. As a second part of the lecture, students having worked on different projects sat together and discussed, three persons in each group. In addition, we have the "follow-up" discussions with the groups after the presentation lectures.

As earlier years I used laptop and project as support for the teaching. This gives a "skeleton" of the course material. The slides are written using LaTeX. By the laptop I could also illustrate some example problems by using GAMS and Matlab.

Yuexin Cao was teaching assistant for the second time in this course.

## THE STUDENTS' WORKLOAD

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

Counting for ten weeks and 7.5 credits would give 20 hours per week. The students report slightly less.

## 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 results of the exam were quite good. The first exam, on June 1, had 29 students passing and 4 students failing. The re-exam had 6 student passing and 5 student failing. The level of the students were, however, lower than when I last taught course in the spring of 2019. There was only one A given for the two exams. There was also lower attendance in lectures and less discussions with students regarding projects. I had a feeling that these students are less used to attending lectures and meeting with the instructor, possibly due to having studied during the pandemic.

## STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

The students appreciated the blending of theory and projects. The TA Yuexin got a very positive feedback.

## SUMMARY OF STUDENTS' OPINIONS

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

The questionnaire confirms that the course setup is working and that the students are reasonably satisfied.

## 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.

The students were significantly less active compared to when I last gave the course, in the spring of 2019. The attendance in lectures was lower and the students were less active in coming to office hours and discussing projects. The overall results were also not as good as I am used to in previous course offerings. This may be an effect of students having been used to a different way of working during the pandemic.

## 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 projects get positive comments. The blending of theory and projects is a central part of the course, and the student's work in groups during the projects.

## PRIORITIZED COURSE DEVELOPMENT

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

The interaction between instructor and students should be strengthened. In particular, pointing out to students that interaction regarding projects with instructor and teaching assistant is positive and expected. This can be done by more clearly state expectations in how to study during the course.

**OTHER INFORMATION**

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

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Yuexin Cao did a very good job.

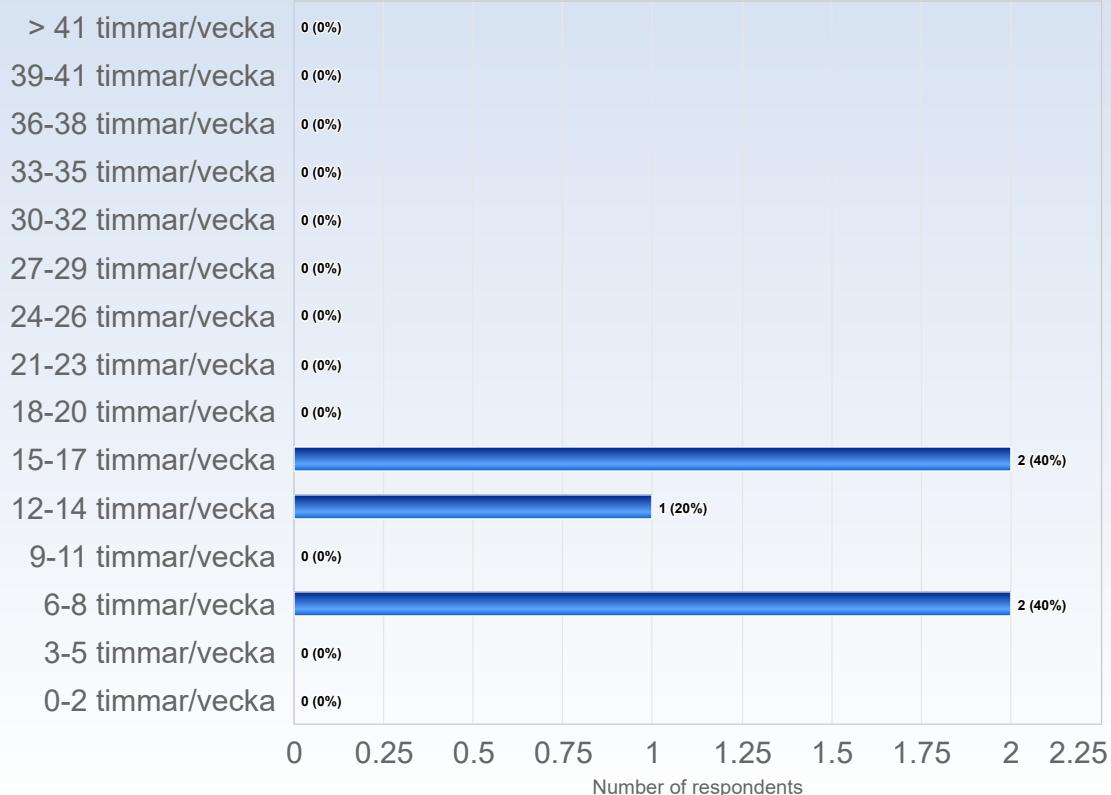
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# SF2822 - 2023-06-09

Antal responderter: 37  
Antal svar: 5  
Svarsfrekvens: 13,51 %

## ESTIMATED WORKLOAD

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



### Comments

Comments (I worked: 12-14 timmar/vecka)

I do not think that I put enough time in to this course. It is pretty theory heavy, and I think doing more work, especially on exercises, would have benefitted me at the exam.

## LEARNING EXPERIENCE

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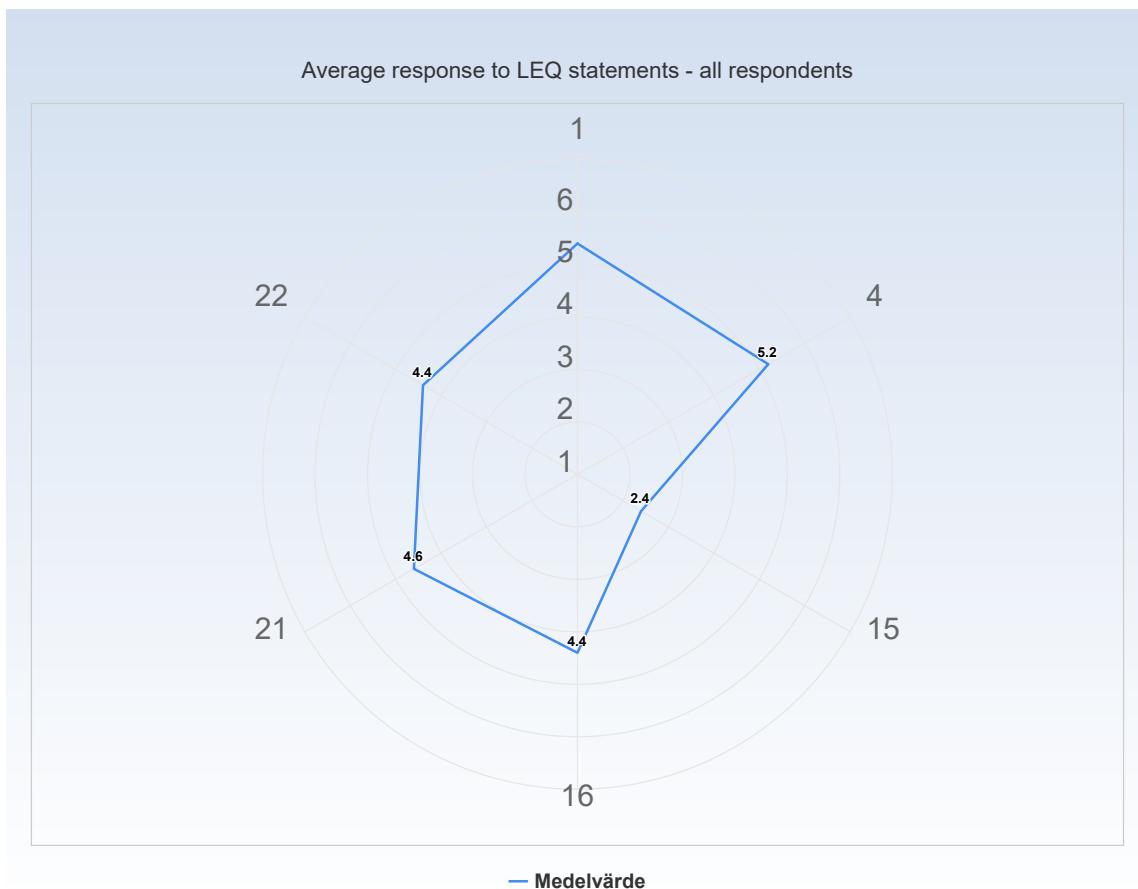
The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

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.



# 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.

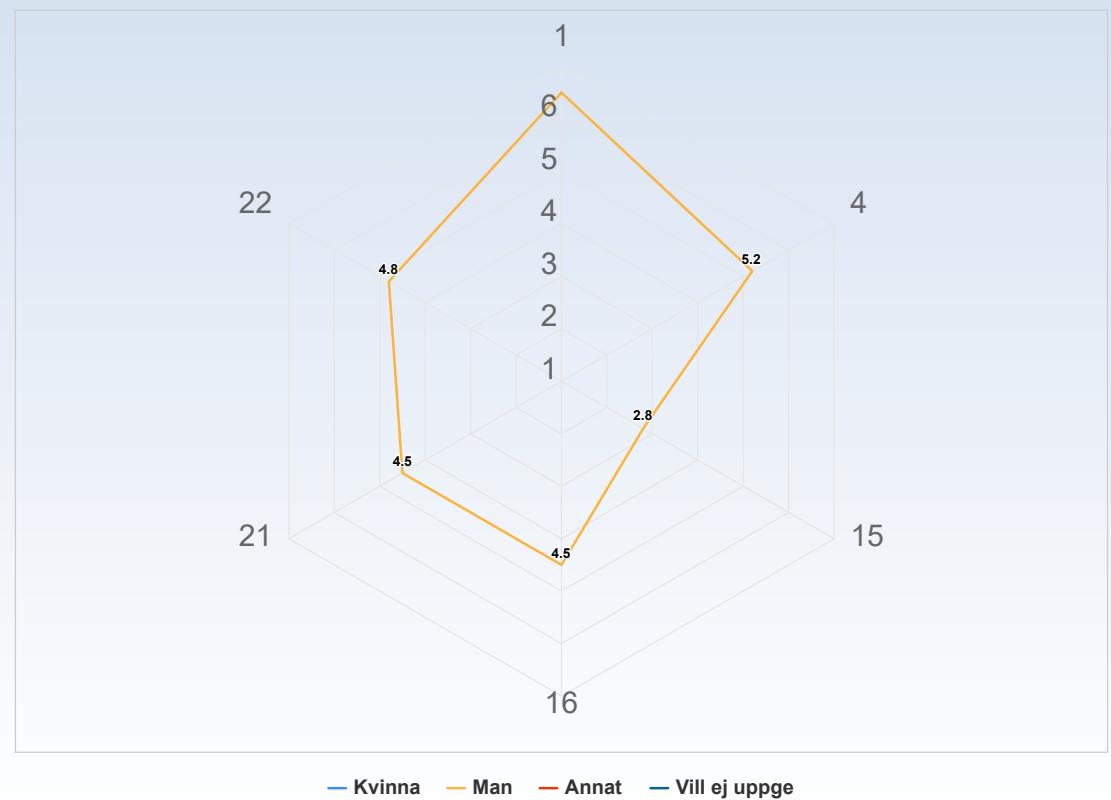
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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

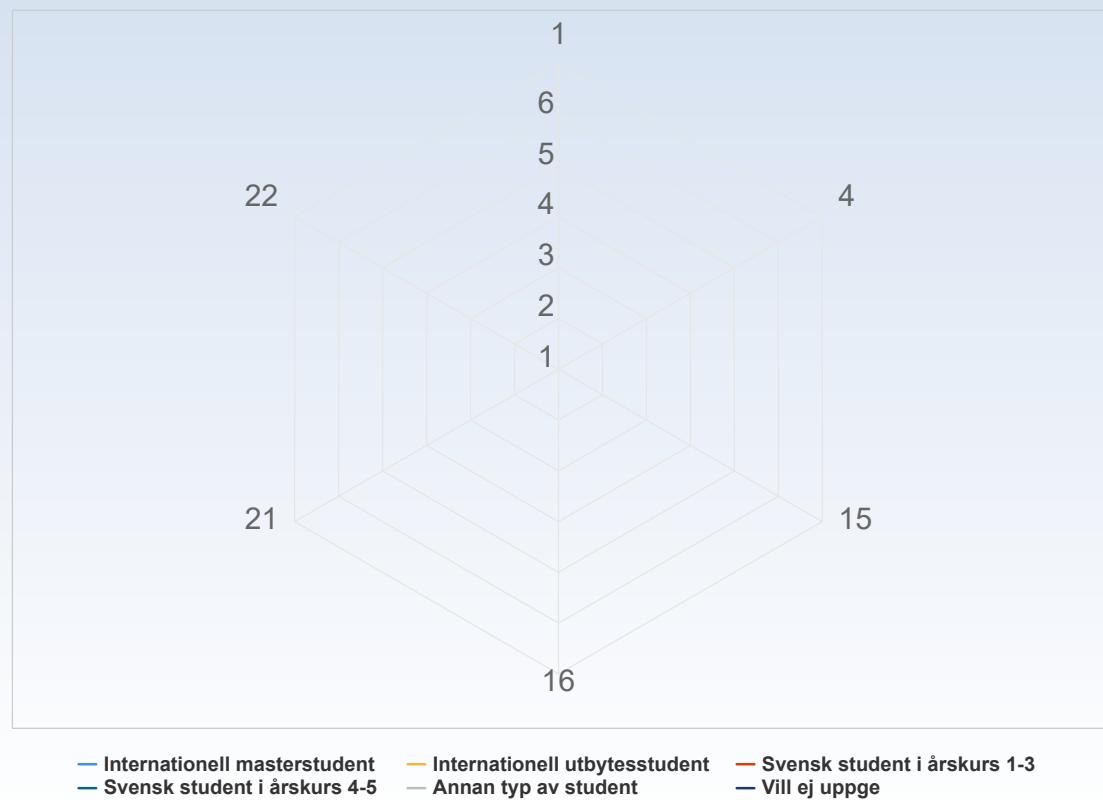
Kember, K. & McNaught, C. (2007). *Enhancing University Teaching: Lessons from Research into Award-Winning Teachers*, Chapter 5, pp. 31-40. Abingdon: Routledge.

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

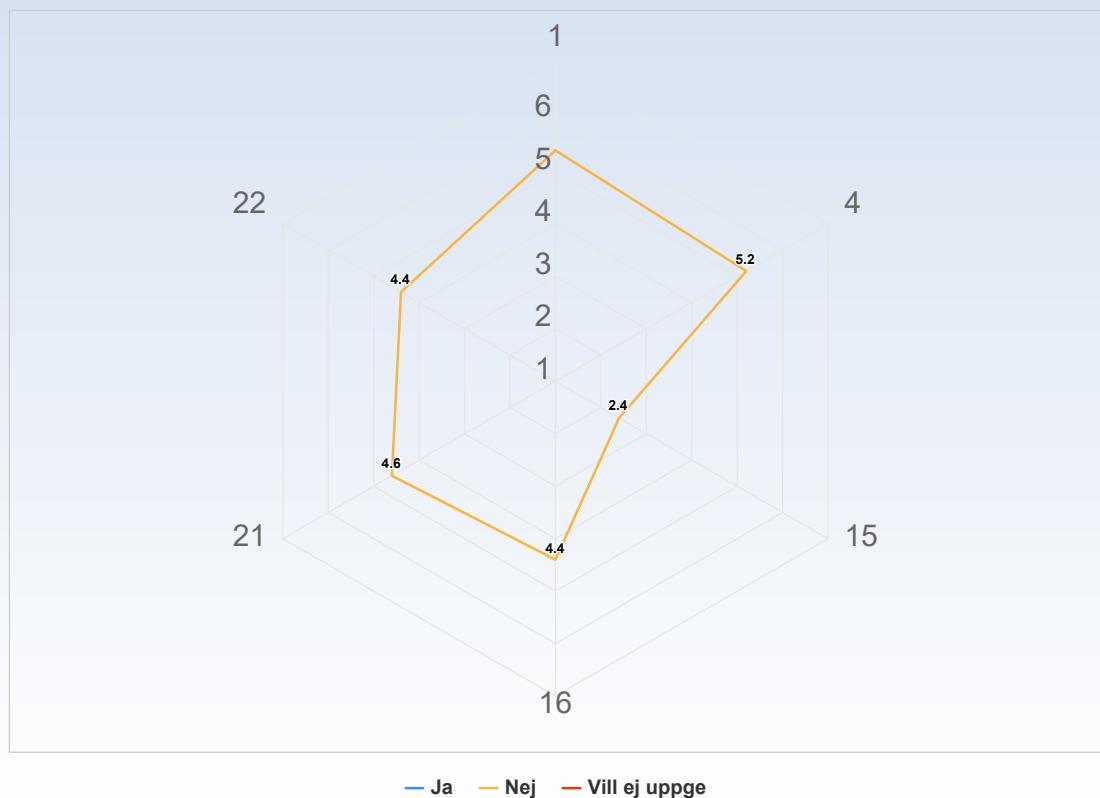
Average response to LEQ statements - per gender



Average response to LEQ statements - per type of student



Average response to LEQ statements - per disability



## GENERAL QUESTIONS

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What was the best aspect of the course?

What was the best aspect of the course? (I worked: 6-8 timmar/vecka)

Regular lectures

The theory was well motivated. The lectures were clear. The format of the assignments was interesting. Yuexin also did a great job in providing additional explanation, motivation and general tips.

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

The projects, especially the algorithm implementation, was very helpful for getting a better handle on theory. I think that the GAMS projects were kind of superfluous, and did not really teach much. Maybe the modeling could be incorporated with having to implement algorithms on your own, and then graded separately. I definitely think more focus on implementation would yield a better understanding of the theory.

What was the best aspect of the course? (I worked: 15-17 timmar/vecka)

The exercise sessions were great, I really appreciated how the teacher assistant summarized the main notions.

What would you suggest to improve?

What would you suggest to improve? (I worked: 6-8 timmar/vecka)

The way of giving feedback

I wish the Optimality\_conditions.pdf would be given in the exam with perhaps a question on proving some of the optimality conditions. The optimality conditions themselves are difficult to memorize, especially their subtle differences. But I didn't have enough time to derive all of them (and without error) during the exam...

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

Not much, I think that much of the course is good. I would recommend dropping the PowerPoints in the lectures. These types of lectures are generally pretty unappealing, and you quickly loose interest in the subject. Writing on the blackboard yields better pacing and interaction with the students, and I definitely think it would boost attendance on the lectures.

I also think that the exam preparations could be improved. This years exam was considerably harder than recent years, and I think handing out a sheet with questions of similar difficulty/content to the exam would make the students better prepared and more aware about what is being asked of them.

What would you suggest to improve? (I worked: 15-17 timmar/vecka)

The slides of the course could be give a better idea of the structure of the course.

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)

Focus on keeping up with theory, and even small details can prove important later in the course.

What advice would you like to give to future participants? (I worked: 15-17 timmar/vecka)

It could be great to read the book.

Is there anything else you would like to add?

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

I think that the course has good potential, and Anders is a good examiner. With some better communication and interaction with the students the course could be very enjoyable. Also, it would not hurt to make the canvas page slightly more verbose.

## SPECIFIC QUESTIONS

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## RESPONSE DATA

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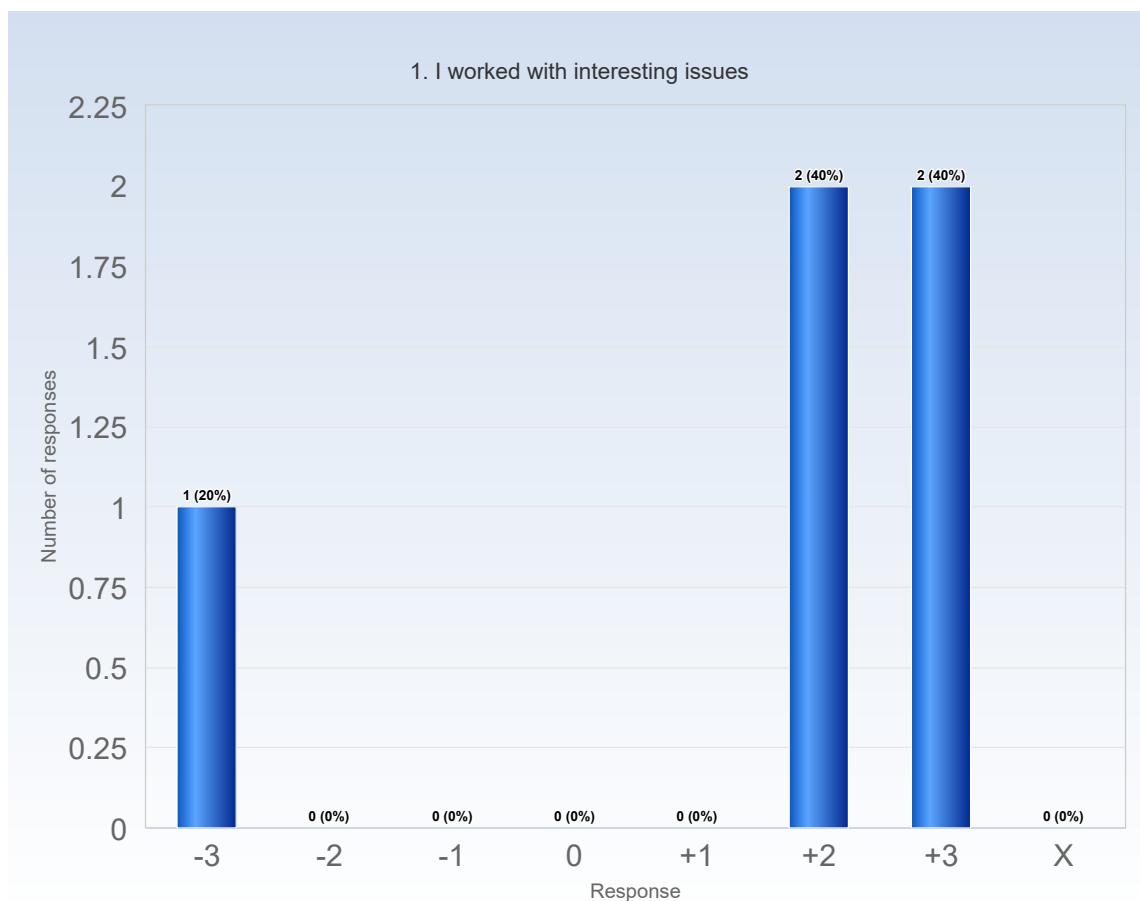
The diagrams below show the detailed response to the LEQ statements.  
The response scale is defined by:

-3 = No, I strongly disagree with the statement

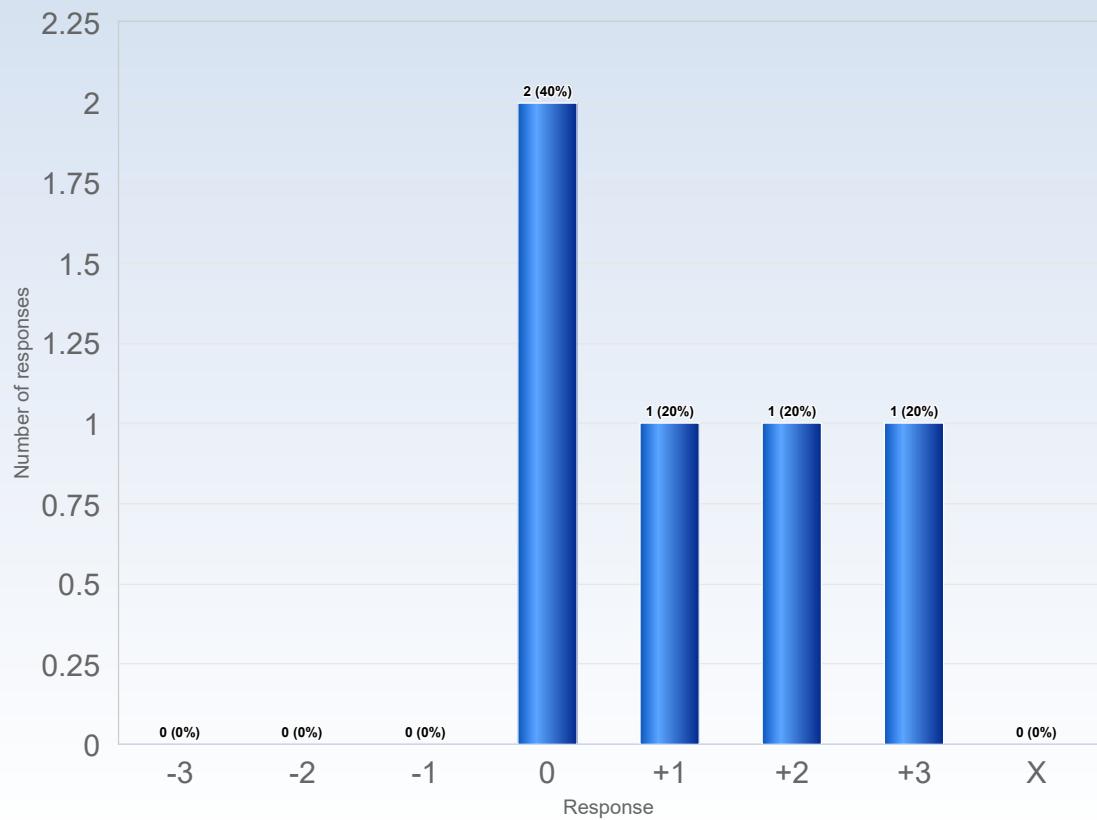
0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

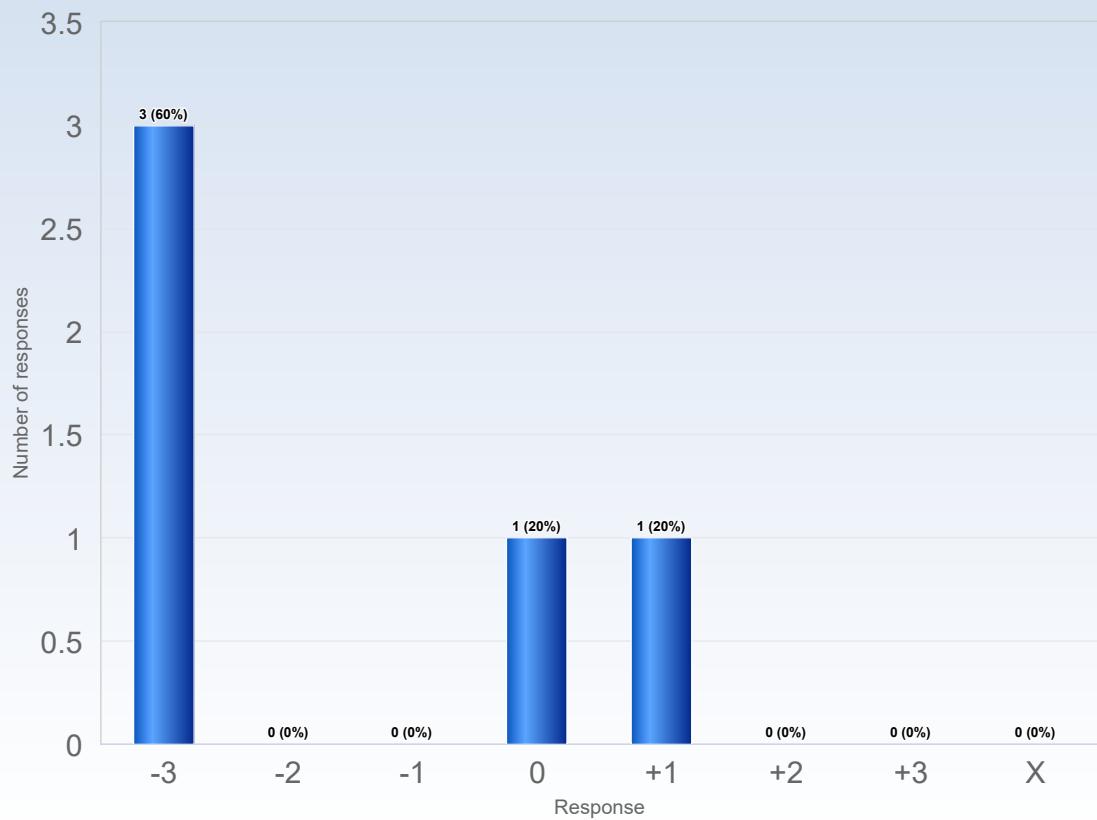
X = I decline to take a position on the statement



4. The course was challenging in a stimulating way



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

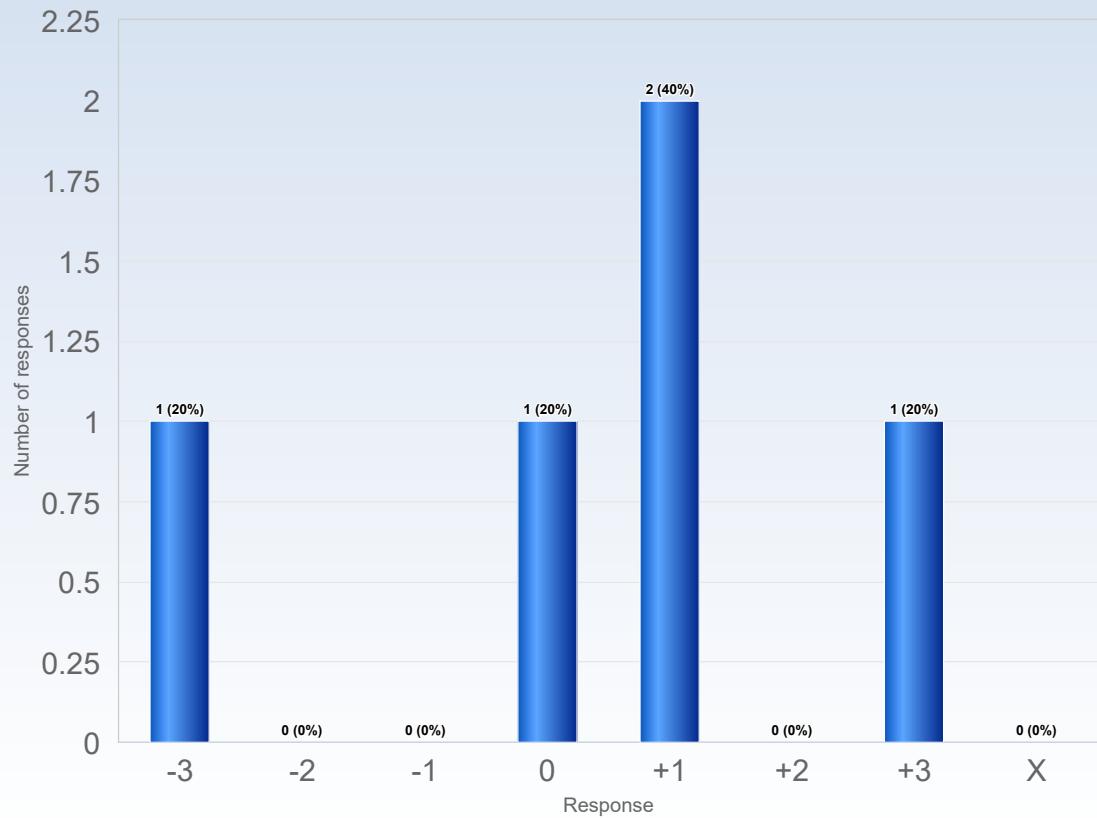


Comments

Comments (My response was: 0)

I did not attend many exercise sessions, so I can't really speak on this point.

16. The assessment on the course was fair and honest

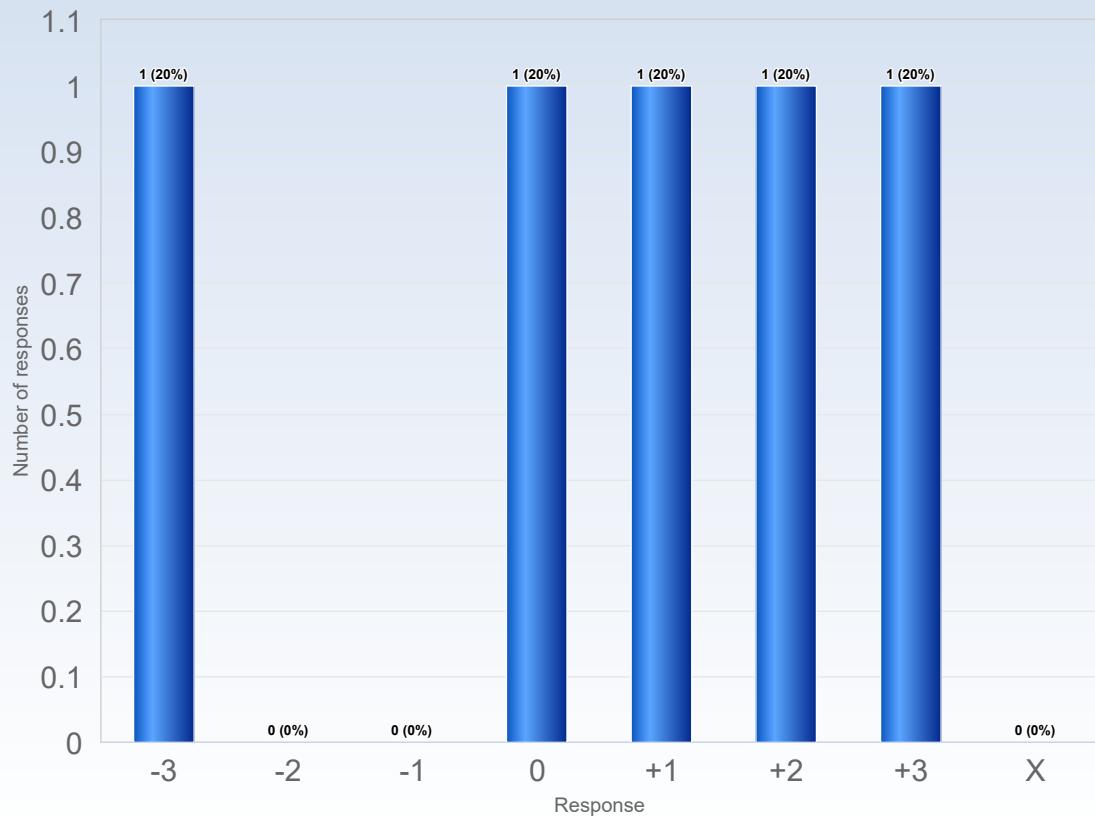


Comments

Comments (My response was: +1)

I thought that in parts, the grading of the exam was a little strict considering it's difficulty, but not unfair. The grading of the projects was good I think.

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

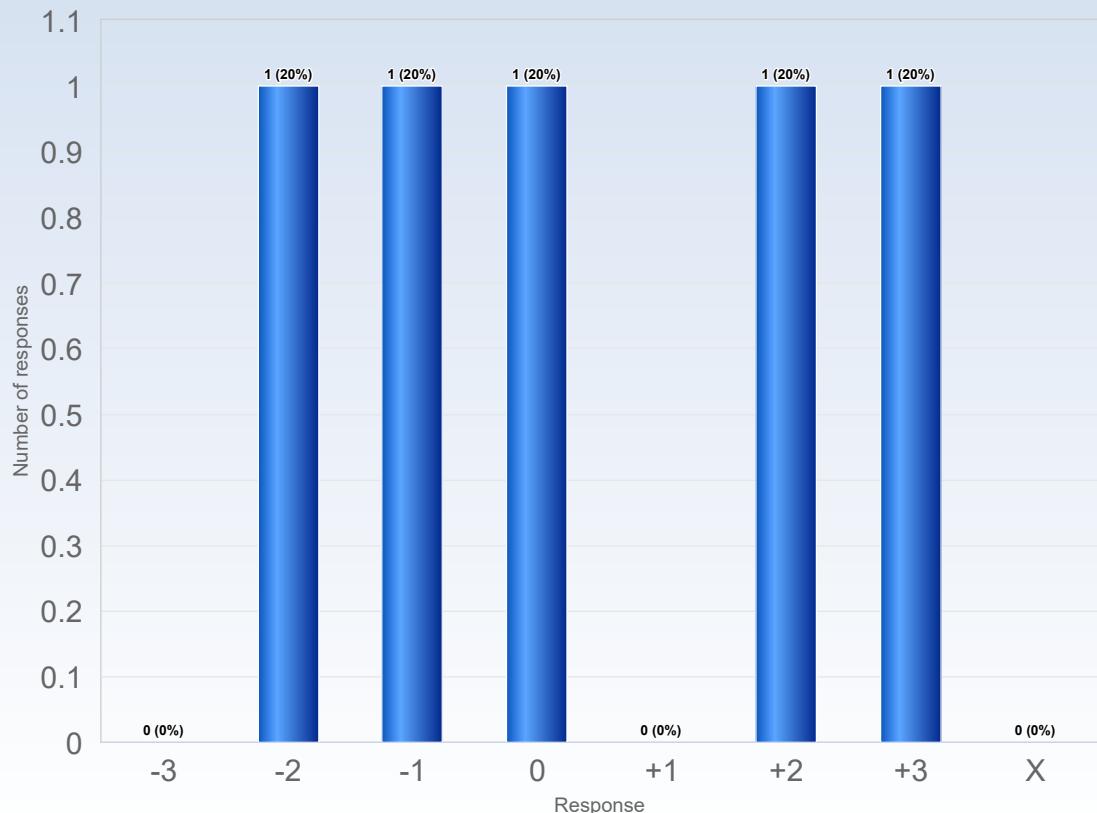


Comments

Comments (My response was: +3)

The projects were a good way of discussing theory and practice practical problems.

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



#### SPECIFIKA FRÅGOR

Hur många föreläsningar deltog du i (av totalt 12)?

#### SPECIFIKA FRÅGOR

Hur många föreläsningar deltog du i (av totalt 12)?

12  
2  
7  
12

Hur många övningar deltog du i (av totalt 8)?

Hur många övningar deltog du i (av totalt 8)?

7  
2  
6  
8