

Report - DD2481 - 2020-06-24

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):

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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.

The course was evaluated using the Learning Experience Questionnaire (LEQ) created at KTH based on 12 statements and 4 general questions. Thus, all students have been given the possibility to give their opinions on the course. The questionnaire was open for responses from 2020-06-04 to 2020-06-17 and regular reminders were sent by the system.

Aspects regarding gender, and disabled students are investigated using a profile that students fill out in the questionnaire. Students had the possibility to disclose their gender but they didn't have to. They could comment on the course based on this perspective. Students also had the possibility to indicate whether they have some form of disability but they didn't have to. As with gender, students could comment on the course based on the perspective of their disability (if any).

The collected student profiles lead to additional data: the average response to LEQ statements per gender and the average response to LEQ statements per disability. Regarding disability, too few responses were received, so that average responses to LEQ statements per disability are unavailable.

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 course evaluation meeting was arranged after the course (on June 24) when the course evaluation results were available (the questionnaire was open until June 17). The meeting was announced to all students on June 3, and all students were given the possibility to join the meeting as student representatives. See:

https://canvas.kth.se/courses/17628/discussion_topics/115578

There was no student who responded to this call for student representatives; as a result, the participants of the course evaluation meeting consisted of the course responsible and examiner (myself), and all three TAs (Kilian Risse, Mikhail Shcherbakov, Xiaomo Yao).

During the course evaluation meeting the course was reviewed based on the results of the course evaluation questionnaire answers, and based on the experience and feedback of the TAs. During the meeting, notes were collected which form another input to this course analysis.

COURSE DESIGN

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

The course is concerned with the study of fundamental principles of modern programming languages. The course is designed to enable students to transfer theoretical knowledge into practice using lab assignments that are closely aligned with a series of 12 lectures. Another important learning activity is the writing of an individual essay discussing open questions related to an advanced topic in programming languages. Students are free to choose a topic from a list of suggested topics, or, alternatively, suggest a topic of their own, subject to approval by the examiner.

Examination is based on three elements: first, a theory exam (TEN1) with grading scale A-F (2.5 credits); second, lab assignments (LAB1) with grading scale P/F (3.5 credits); third, an essay (UPP1) with grading scale A-F (1.5 credits).

The main changes that have been implemented since the last course offering are:

- (1) Musard Balliu added an introduction to Security Type Checking.
 - (2) The course was converted to distance teaching due to the Covid-19 pandemic. All lectures were held virtually and were live recorded. Instead of whiteboards, tablets with pens were used to capture notes which were provided afterwards as PDF documents. Lab sessions and oral lab presentations were held online via video conferencing.
 - (3) The theory exam was changed to a take-home exam.
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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?

In the course meeting, the teaching assistants and myself agreed that the workload was overall close to the expected workload given the results of the course evaluation.

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?

Many students completed the course with good success. Only very few students did not pass the exam. There were less very good results than for the last iteration. The reason could be that we converted the written exam to a take-home exam which was perceived as slightly more difficult.

STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

The labs worked very well and were much appreciated by the students. ("The labs are very educational and relevant", "I liked the labs as they were really fun and interesting.") The essay appeared to have helped students learn: "I've learnt a lot from writing the essay, probably as much as I learned from other parts of the course." The lectures were also appreciated: "The lectures were clear and generally well-structured.", "The lectures were all very good, especially when they focused on intuition/general understanding rather than formalisms."

Moreover, some students commented that the recording of the lectures was very helpful to focus more on "understanding & asking questions."

Some students suggested to provide "exercises with solutions to make studying for the exam easier." In general, students would have like to see more examples and exercises discussed in the lectures and/or via quizzes.

Some students commented on slow responses to their questions in the online forum.

Some students commented on the take-home exam, pointing out that it was more difficult than previous written exams.

SUMMARY OF STUDENTS' OPINIONS

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

In summary, students were very positive towards the lectures and labs, and the lecture recordings were appreciated. The main opinions that emerged are that (a) students would have liked to see more examples and exercises, that (b) responses to their questions in the online forum were sometimes slow, and that (c) the take-home exam was more difficult than previous exams.

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.

Overall, I am pleased with the fact that students thought that the teachers and TAs handled the distance teaching due to the Covid-19 pandemic very well.

One insight emerging from the students' evaluation and their answers to open questions is that the (new) take-home exam appeared to be more difficult than previous written exams. This is reflected in the evaluation results where point 16 ("The assessment on the course was fair and honest") received a score of 4.6 while for the last iteration (popl19) the score was 6.0. This matches my impression of the students' performance in the exam where there were less very good results than for the last iteration.

The lectures and labs are a clear strength of the course; increasing the number of examples and exercises would be a worthwhile development along with pre-recorded lecture segments for a flipped classroom.

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?

According to the polar diagrams of the evaluation results, stronger areas of the learning environment are: Stimulating tasks ("I worked with interesting issues"), Challenge ("The course was challenging in a stimulating way"), Understanding of subject matter ("Understanding of key concepts had high priority"), and Sufficient background knowledge ("My background knowledge was sufficient to follow the course"). Weaker areas of the learning environment are: Feedback and security ("I could practice and receive feedback without being graded", "The assessment on the course was fair and honest") and Collaboration ("I was able to learn by collaborating and discussing with others").

I think that the Challenge area is stronger due to the labs and also certain theoretical parts of the course. Understanding of subject matter has always been a high priority of the teachers, so it is pleasing to see the confirmation by the students.

The area Feedback and security could be weaker due to (a) the take-home exam that was perceived as more difficult and (b) the demand for more exercises and examples. Furthermore, there are few group activities in the course.

Interestingly, there is a clear difference between male and female students. Male students rated the areas Stimulating tasks and Challenge higher than female students. In contrast, female students rated the area Understanding of subject matter higher than male students. Furthermore, a student commented saying that there "was no discrimination or stereotypes that I could sense."

It is difficult to say why we can see this difference. Given the small total number of responses (12) to the questionnaire, the results are likely influenced by different preferences and personalities of students.

No separate data on students with disabilities was available due to too few responses. Likewise, differences between international/national students are unknown due to too few responses.

PRIORITIZED COURSE DEVELOPMENT

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

Primary aspects to be developed are:

(1) Increasing the number of examples and ungraded exercises to improve the area Feedback and security. In the short term, this can be developed by flipping parts of the course and spending more lecture time on discussing examples and exercises which should be developed. Moreover, newly developed online quizzes could provide additional ways to practice and receive feedback without being graded. In the long term, the entire course could be conducted as a flipped classroom with most of the lecture time spent on discussing examples and exercises with Q&A sessions.

(2) Improve the area Collaboration by creating group activities, including group exercises.

(3) Create more material for asynchronous learning by pre-recording parts of the lectures to enable (1) and (2).