Report - ID2214 - 2021-02-24

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 evaluation was conducted using KTH Learning Experience Questionnaire v3.1.4, using the LEQ12 template. The average responses have been analyzed with respect to gender (the group of responding students with a disability was too small for a separate analysis to be conducted).

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.)

The course took place completely online. The students were given the opportunity to raise questions and discuss the course in conjunction with lectures and seminars.

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

The examination consists of four mandatory (group) assignments and a written exam. The third assignment was changed from requiring the students to implement the decision tree learning algorithm, to use an implementation in the scikit learn package. The written exam was given as a home exam with an oral (online) follow up session, in which some selected students had to explain their answers.

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?

There is a large spread in the number of hours spent on the course, with some students spending up to 50% more than the expected number of hours, while a few students reportedly spent about 25% of the expected number of hours. These large differences are mainly attributed to large differences in previous knowledge and skills, e.g., programming in Python.

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 have succeeded quite well on the course, however again with quite some spread in the final grades. A fairly large group of students (about a third) received the highest grade on the exam, while six out of 38 received an F. In addition, three cases of suspected plagiarism were reported to the disciplinary board. The latter may be a direct consequence of this year's exam taking place online and not in class room. The distribution of grades is not significantly different from previous course rounds.

STUDENTS´ANSWERS TO OPEN QUESTIONS
What does students say in response to the open questions?

The students were generally quite enthusiastic about the course, with comments such as "Extremely practical and useful", "Being clearly and carefully explained", "Great choice of topics both for the theory and the practical part of the course", and "Very interesting subject. The labs were a lot of fun and gave a lot of knowledge". The impression from reading the course evaluations is that the students this year were even more positive than students on previous course rounds.

SUMMARY OF STUDENTS' OPINIONS
Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

The enthusiasm of the students was reflected also in the average scores of the LEQs; they all fall between 6.1 and 6.5 (on a scale from 1 to 7), except for LEQ 15 (asking if the student could practice and receive feedback without being graded) which received an average score of 4.7. The scores have clearly improved for all LEQs since the last course round, except for LEQ 15 and 17 (asking if the background knowledge was sufficient to follow the course) which are on the same level as last year.

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 format of the lectures, which this year were given online instead of in class room, together with that they were recorded, seems to have been received very positively by the students. This new format allowed some of the lectures to consume more than the originally planned two hours, hence allowing them to take the time needed.

The change of the third assignment, which in previous course rounds has been considered very difficult by many students, is also assumed to have contributed positively.

Also the additional material provided, such as Jupyter notebooks, was appreciated by the students.

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 responses from students identifying themselves as female were marginally less positive than from students identifying themselves as males. The other categorizations of the students did not allow for separate analysis.

An identified area of improvement concerns LEQ 15, i.e., giving the students the possibility to practice and receive feedback without being graded.

PRIORITIZED COURSE DEVELOPMENT
What aspects of the course should be developed primaily? How can these aspects be developed in short and long term?

As pointed out above, the students should be given the possibility to practice and receive feedback without being graded. One option here is to introduce (ungraded) quizzes that tests basic theoretical and programming skills. Another option would be to introduce a first basic assignment for which the students will receive feedback but not any grades. Also the option of letting the students provide feedback on their submissions should be investigated.

The employed text books do not extensively cover data science methodology, which is an important part of the course. Additional material to cover this should be provided.