Course Ananlysis SI1410 HT 2021

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Description of the course analysis process

Contrary to other years, the course evaluation was based on student interviews after class and throughout the entire period, and on the analysis of the performance rather than on the results of a survey. The reason for this is multifold: the response rate to such surveys has generally been low, the students reporting that they are constantly asked for feedback without necessarily understanding what is done with their answers. In conversations, they have also reported not being very motivated to answer when a course is going well. In addition, conversations allow to have a more in depth understanding of their perspective. The drawback is that I hear only from the students who are comfortable talking.

Course design – changes from previous editions

Given health concerns and recommendation by authorities and by KTH central, the guiding principle was to allow the students to take part in some on-site activities while minimizing congestion in the university buildings as well as during their commute, etc…

We thus offered a hybrid settings. Pre-recorded lectures (divided in ~20 minutes maximum segments) were offered to be watched on demand, with the recommendation to use the hours reserved for lectures early in the week for this. We kept online quizzes with a deadline mid-module, with added matlab questions, and a cool-off period preventing students to repeat the quiz less than five minutes before a failed attempt – giving them time to review the material before re-attempting. The exercise sessions were done live and offered in hybrid form, with an option to be in the classroom or on zoom. Labs were also offered in a hybrid form. We reduced the number of graded labs to one (Lab 4 report was graded) and gave a Matlab short exam during week 2 instead, with the aim to increase focus on the labs early on to increase the student's competency in algorithmic and programming. The exam was a 5-hour in-person exam, with three exercises (the programming part was not examined since) graded A-F.

Students' Results

The lab exam was perceived as difficult, and about 50% of the students had to retake it, eventually resulting in 100% success. This was surprising, as we had designed the exercise to be very simple (in the TAs and the teacher's opinion)

The lab report results was similar to previous years, with many students needing feedback before completing.

The final exam (October session) resulted in ~80% passing rate (grade distribution out of 52 written exams: 13 A, 3 B, 12C, 11D, 2E, 11F), 13 students handed in a reexam in December, resulting in ~75% passing rate (1A, 1B, 4C, 2D, 2E, 3F).

Overall, only 3 students out of 56 who registered for either sessions did not pass the entire course.

Student's Comments over the course of interviews

The recorded lectures, lecture notes and online quizzes are very appreciated, especially to repeat over the course of the class and during the revision sessions.
The workshops and exercise sessions are appreciated. The students reported liking that there were few scheduled hours, making them feel motivated to not miss the few occasions they had to meet together and with the teachers.
They however reported extreme tiredness in weeks 5-7 due presumably to intense workload in the class most of them are taking simultaneously.
The labs are still a problematic aspect of the course for some, while for others, they are the favorite aspect of the course (similarly to previous years). Some report having so much trouble with the programming that they struggle to be able to make the connection with the rest of the course; others report that they have a strong sense of accomplishment, being able to, for the first time of their education, focus on their programming skills and making connection with the rest of the course. The students were also aware of changes made to their curriculum, they were aware that the next generation of students had now introduction to python courses and did not recommend we make major changes to this class given the expectation that the incoming students would be much better prepared for this course. Indeed, we will move the exercises to python in 2022, to keep consistency in the various course of the program. Several students expressed that writing lab reports is a waste of time, since they focus on writing and report structure rather than understanding class material.

Teachers' impressions
The performance this year was very good overall, probably reflecting the fact that the students are able to study given the structure of the course and the quantity and variety of material they are offered in canvas and during scheduled hours.
The hybrid format for exercises and labs is far from optimal. the number of students showing up in person decreased over the course of the class, and motivation went down.
Some changes to the computer exercises format and evaluation is needed to make sure the students can benefit from the labs and connect the knowledge between this part of the course and the rest.

Planned course development
The main changes we will implement are the following:

- If there are no health concerns, we will offer exercise and lab sessions only in person. Otherwise, they will be held exclusively on zoom.
- The main change will be to the labs, which will become 3 hours instead of 2, in half-class groups. We will change the evaluation form too: lab reports and exams will not be carried out. Instead, we will hold mini-oral exams: each student will be questioned spontaneously by the TAs, at least twice during the course of the labs. They will need to pass two oral question sessions to get 2x1.5hp. This makes the lab sessions mandatory until passing.