

Course Analysis SF1678 Groups & Rings VT24

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DESCRIPTION OF THE COURSE EVALUATION PROCESS

The course participants had selected 2 student representatives. I have repeatedly encouraged the students to talk to the representatives, both in canvas announcements and during my lectures before the break. During those breaks, I would leave the room and answer possible questions outside so that all students could get a chance to talk to the representatives without my presence.

After the course concluded, the students got to answer a kursvärdering from which the LEQ-report was derived. I had encouraged all students in Canvas announcements to fill out the form so that I can improve the course for the next time, but unfortunately not many responded.

During the course, I have actively checked in with the quiet students, including the few female participants. This encouraged 3 students, who were not official student representatives, to ask for an unofficial meeting outside of class when the term was almost over (see below).

Unfortunately, not enough female students or students with disabilities filled out the form to show up in the LEQ report averages.

DESCRIPTION OF MEETINGS WITH STUDENTS

The course has 2 teaching assistants (TAs): one was helping with grading and teaching the exercise sessions in the first part of the course (on groups) and the other TA took over those responsibilities in the second half of the course (on rings).

After 3 weeks, I asked the student representatives whether they wanted to sit down for an initial meeting soon or whether they wanted to wait for a few weeks. They chose the latter since they did not have any feedback they wanted to share with me at that early time. Thus, the first meeting with the student representatives happened in the 6th week of the course, just a few days after the first homework assignment was due. In that initial meeting, the student representatives met with me and the first TA. We talked about the lectures, the exercise sessions and the first homework assignment.

According to the representatives, the students were happy with my lectures, and those that went to the exercise sessions were also satisfied with those. We were in particular discussing the poor attendance rate of the students during the exercise sessions, that the TA prepared with a lot of passion, but unfortunately the students did not have good suggestions. They said that many students enjoy the possibility of staying at home and studying from there whenever they can.

After the first meeting with the student representatives was not as productive as I had hoped, the TAs and I had individual shorter discussions with the student representatives. The students criticized that we were not providing written solutions to the problems discussed during the exercise sessions. We decided not to provide those solutions to not further decrease the participation rate in the exercise sessions.

Towards the end of the course, I met with 3 other students from the class, and discussed various means on how to make the lectures and the exercise sessions more interactive, to increase the number of students present during class and their learning outcomes.

COURSE DESIGN

The course had 2 lectures per week (90 minutes each) and 1 weekly exercise session (45 minutes each). We also offered office hours that could be scheduled on an individual basis with either the lecturer or one of the TAs. The course went over 2 periods.

In the lectures, I covered the main material on the black board (definitions, theorems, proofs, few examples). Many examples were left for the students to fill in at home; those were part of the weekly “suggested exercises”.

The “suggested exercises” was a collection of exercises, published every week. They consisted of many straight-forward exercises (the examples from the lectures mentioned above), and of some harder problems.

The harder problems were discussed during the exercise session. Some were discussed in groups, with support from the TA. The problems that required a certain trick were discussed at the board by the TA.

The “suggested exercises” were published several days in advance of the exercise session. The students were encouraged to write down a solution to one of the exercises and hand it in at the beginning of the exercise session. That way, they could get feedback on their mathematical proof and writing skills, without being graded.

The course had four sets of homework problems. Solutions were handed in electronically through Canvas. The students were allowed to discuss the problems with other students but needed to write down their own solution.

Each homework set I, II, III, IV corresponded to the problem A1, A2, A3, A4 on the final exam, respectively. Each homework set and the corresponding problem on the exam gave together at most 4 points. The points gained from the homework were valid only through the year 2024.

The final written exam had two parts, A and B. Part A consisted of 16 points and corresponded to the home assignments. Part B consisted of 20 points. The grades E, D,

C, B, A required at least 16, 20, 24, 28, 32 points, respectively. Exactly 15 points gave the intermediate grade Fx.

The main change from the previous course was that we provided many more “suggested exercises” (all of those additional exercises were straightforward and served the purpose to get the students familiar with the main definitions and concepts) and that the students got to hand in 1 problem per week to receive feedback without being graded.

THE STUDENTS' WORKLOAD

The course has 7.5 ECTS. According to the 5 students who had filled out the LEQ report, they spent on average 12.4 hours. This is a little more than would have been expected from them, but the students also indicated (both in the LEQ report and feedback during the course) that the work amount varied a lot. In some weeks, they would focus on other courses and spend 0 hours on my course, and then during the weeks with homework assignments and before the final exam, they spent many hours on my course.

THE STUDENTS' RESULTS

I would say that the students succeeded quite well. 40 students took one of the two final exams and obtained these grades:

A 4

B 5

C 5

D 6

E 7

Fx 4

F 9

These results are essentially comparable with the previous year (just very slightly worse).

STUDENTS' ANSWERS TO OPEN QUESTIONS

See below

SUMMARY OF STUDENTS' OPINIONS

The students found the content to be interesting. Many students found the course challenging in a stimulating way, while some found it difficult. They found the assessment of the course to be fair and honest. Most students felt supported during the course and that they got a chance for feedback without being graded.

The students liked the lectures and the lecture notes.

Some students found the homework assignments interesting and motivating to study.

Some students wished for longer exercise sessions, with simpler problems. Most students felt that they got to learn by collaborating and discussing with others.

Some students found it hard to understand everything that needed to be understood during the exercise sessions. Therefore, they suggested that it would be better to have solutions for the problems discussed during the exercise sessions, so that everyone has a chance to digest the material at their own speed. Apparently, some students ended up not doing the suggested exercises at all, because understanding them by oneself or going to the exercise session took too much time from other courses.

For future participants, the students suggest focusing on the homework assignments, participating in the exercise sessions, and understanding the proofs early during the course before the material becomes more difficult.

OVERALL IMPRESSION

The course was not too big so that one could get to know students and steer the pace of the course according to the students' interests. Overall, the course was successful for the students and the teachers. The students were overall quite interested and so teaching them was very fruitful.

In general, the students who put effort into the home assignments passed the course with good to very good grades.

What irritated me as a lecturer at the beginning of the course was that half of the students had seen most of the group theory that has to be taught in this course in previous classes, but the other half of the students didn't. That let some students to be bored and not following the course as much as they should have when we picked up the pace and talked about Sylow theory.

ANALYSIS

The lectures were well-received and also my hand-written lecture notes. Also, the students felt supported, for instance by the possibility of office hours.

The main criticism of the students was that they had wished for written solutions for the suggested exercise, instead of that those solutions are only presented in the exercise sessions. As mentioned above, the students had indicated that because of that, some students did not do the suggested exercises at all, to focus on other courses instead. That is a very undesirable outcome. I had wished for more students to attend the exercise session instead. However, the students seem very hesitant to do that, as they are already used from previous courses to not attending the exercise sessions. Since the students have the experience from previous courses that they do not have to participate in the exercise sessions to be successful, it is hard to convince them to do

so in this course. In addition, the students are well-adapted to distance studies because of the covid pandemic. Also, for some students, some exercise sessions overlapped with lectures from other courses.

Unfortunately, not enough female students or students with disabilities or international students filled out the form to show up in the LEQ report.

PRIORITIZED COURSE DEVELOPMENT

To even out the workload, next year, the students will have one small homework assignment every week, instead of a big assignment once a month. Some of those homework assignments will be individual, some of them team projects, to foster collaboration skills.

The purpose of the exercise sessions will be different, as the traditional exercise sessions were not so popular in attendance this year. On the one hand, it will be a meeting platform for the team projects, where the students can make use of the TA as a mentor. On the other hand, it will be a peer-review seminar, where the students get to write solutions to simple problems and give feedback on each other's proof writing skills.

To encourage the students' active participation in lectures and exercise sessions, one can introduce bonus points.

In the long-term it will be better if there are not several courses where group theory is taught at Bachelor level, at least not when the programs have such an overlap such that this course has half of the people with a background in group theory and the other half does not. I have already started such a discussion with the responsables of the respective Bachelor programs and other algebra professors at our department, but a consensus has not yet been reached.