

Course analysis for SF2521 Numerical Solutions of Differential Equations, VT24

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 students have been provided with a course evaluation at the end of the course. A meeting was held with student representatives after the end of the course discussing the result of the course evaluation and any additional comments. During the course there has not been any formal course evaluation meetings, but since there were only around 30 students taking the course I have continuously asked the students for input during and after lectures and this has been very informative.

COURSE DESIGN

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

The course structure was based on weekly lectures where the theoretical material was presented. Office hours have been offered every week for help with homework assignments and understanding the material from lectures. Examinations were written reports for four sets of homeworks throughout the course (for LABA 1,5 hp and LABB 3,0 hp), where the students worked in groups of two, and an individually written exam at the end of the course (TEN1 3,0 hp). The homeworks assessed both theoretical content, but mainly implementation of numerical methods. The exam assessed the theoretical content of the course. The final course grade was given by a combination of the exam grade and the performance of the homeworks.

This was the first time I held the course and the last time it was given, so I mainly kept the previous course structure and content. I posted both slides and notes derived from the lectures online on the course page, slides were posted some time before the lectures so that the students could prepare by going through the material themselves. Slides with derivations/notes written on iPad during the lectures were uploaded after the lecture. The students were allowed to follow the lectures from the classroom or via Zoom if they wanted.

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?

Some students reported a relatively high workload, in particular during the work with the homeworks. Students reported that it would be helpful with learning activities (in addition to office hours) that help them get started with the homeworks, as the homework assignments were considered challenging and rather extensive. This could be in the form of exercise sessions or suggested easier problems for students to solve.

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?

Out of 22 students taking the original exam the results were

A: 6
B: 6
C: 5
D: 0
E: 1
F: 4

Out of 18 students that got a course grade (including after the re-exam) the results for the whole course was

A: 6
B: 8
C: 2
D: 0
E: 2

SUMMARY OF STUDENTS' OPINIONS

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

The homework assignments were considered extensive and challenging. The exam was considered fair. The students reported that it would be helpful with learning activities (in addition to office hours) that help them get started with the homeworks, and also a stronger connection between the lectures and the homeworks. The course dealt mainly with numerical methods for hyperbolic conservation laws in 1D. Some suggestions for improvement were to include some implementation of problems in higher dimensions as well as other types of equations. From the final course meeting the students reported that they appreciated the combination of derivations on the iPad and slides, both that they were presented clearly and that the material was made available online. They also appreciated the office hours. The course structure with four homeworks followed by an exam was good.

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 performance of the homeworks and the performance on the exam had a strong correlation. This indicates that although the homeworks were considered challenging they also served as a learning activity for the exam. The students reported in the course evaluation that they did learn a lot from solving the homework assignments. I agree with the students' assessment that it would be good with exercise sessions or similar for

them to practice on more basic problems than the homework assignment. I also think it would be good to have a broader approach to the course content and cover more types of equations and numerical solution methods. This will be taken into account in the new course SF2528 (that will replace SF2521 and SF2561). SF2528 will be developed and given the first time in VT25.