Course Analysis for NUMN20 Numerical Methods for Differential Equations, Autumn 2021

Course Information

Lecturer: Tony Stillfjord, Monika Eisenmann
Teaching assistants: Vilmer Dahlberg, Monika Eisenmann, Emil Engström, Lea Versbach, Måns Williamson
Number of students:
12 newly registered and 0 re-registered.
2 students answered the course evaluation survey, 2 of them are enrolled in the Master's program in Mathematics.

Examination

Project: 10 students passed.
Written examination: 4 students passed.

- Ordinary examination 11/01 2022: 5 students participated and 4 of them passed.

Final grades
In all, 5 students have got their final grade.
3 passed with distinction.
1 passed.

Course Evaluation

Summary of student's answers:
The course is a shared course between NF and LTH where the majority of students come from LTH. Separate course evaluation surveys are sent to the LTH and NF students. The NF version was sent out the day after the final examination and was open for ten days. Only two out of the twelve NF students answered the survey, and the LTH survey had not closed at the time of this writing. Thus, it is difficult to draw any conclusions from the results. Overall, it seems that one student was quite content in general while the other one was neither very happy nor very unhappy. Overall, it seems like the students appreciated the changes we did to the computer project presentation (described further below).
Teachers' comments: The course contains three lectures a week plus an extra lecture in the first week where the course content and some organizational aspects are explained. Last year the course was fully remote, but this year all teaching took place on campus. (With the exception of one Zoom lecture because of a cold.) A major change to previous years is that there are now two lecturers. The lectures were split among us by topic such that we switched roughly every other week.

The lectures are mainly based on Beamer slides, which are provided to the students. They contain the information that is passed along in the lectures. Moreover, we make an early-stage version of a book available to the students. This book contains the first part of the lectures in more detail. This is in addition to the main course book, which covers all aspects of the course but in a slightly different style.

Since this year was still affected by the COVID-19 pandemic to a certain extent, the students were urged to not attend the lectures if they felt sick. To help them read up on what they missed, we recorded the audio of the lectures at the beginning of the term. The idea was to be able to follow along with the already provided slides. It did not turn out to be as helpful as hoped. Therefore, we made the recordings from the previous remote-teaching version of the course accessible to the students. This seemed to be appreciated, though we did notice a decrease in attendance. Overall, the majority of the students attended the lectures.

The course contains three mandatory computer projects. In the projects, the students have to implement the introduced methods, apply them to simple problems and interpret the results. We provide a Matlab repetition in the first week and one to two exercise sessions every week where the students can ask the teaching assistants for help with their code. These projects are then presented to a teaching assistant who provides some feedback and a pass/fail grade. In the case of a fail, they get the opportunity to update their project and hand in a revised version. This year, like most years, almost everyone passed every project at the first opportunity. All the NF students participating actively in the course had finished all the projects at the end of the course. We also note that the exercise classes were full close to a project deadline and more quiet at other times, even though it was reiterated often that the students should start programming as early as possible.

For the more theoretical part of the course, we provide a sheet with study questions every week. Quite a few of these are discussed implicitly during the lectures, but the students are encouraged to work out their own solutions. If they need help, they can ask for feedback in the exercise sessions but there are also hints and partial solutions published on the course webpage.

Last year, only one NF student signed up for the main written exam and none passed. It was speculated that this might be related to the fact that it was held remotely with the accompanying extra stress. This year, the exam took place on campus again, and the results were normal again. Five students attended the exam, four students passed and three out of those students passed with distinction. We are quite happy with this result.

Changes from the previous course realization:

This year, we experimented with the presentation of the computer projects. In previous years, students had to submit a written report on each project. This year, only the second project kept this format. For the others, the students instead presented their conclusions in discussion with a teaching assistant. For this, they were supposed to prepare some supporting written documentation, but in less detail than the written report. The general sentiment that we gath-

ered from talking to both students and teaching assistants seems to be that this alternative format was appreciated. The two survey responses from the NF students indicate that they found it less stressful and easier to integrate into their workload.

Moreover, we provided further written hints and partial solutions for the non-mandatory study questions. These seemed to help, but we received feedback during the semester that some students would appreciate more support. However, the students expressing these concerns never provided any concrete questions on topics they found difficult when offered help by the lecturers.

To help the students to get back on track with their programming skills, we provided a Matlab repetition exercise in the first week. In the mid-term CEQ meeting with the LTH student representatives, we received positive feedback for that. Altogether, the transition back into a programming routine seemed rather unproblematic this year.

Suggestions for the next course realisation:

We plan to replace also the one remaining written report with an oral presentation, since this format seems to work better in all aspects for both students and teachers. Moreover, we received the feedback that some students would prefer more material to be presented on the blackboard rather than on slides. However, other students have expressed appreciation for the slides, and a full transition from slides to the blackboard significantly reduces the amount of material that can be covered. We therefore plan to carefully examine the topics covered and make adjustments to better merge these two styles.

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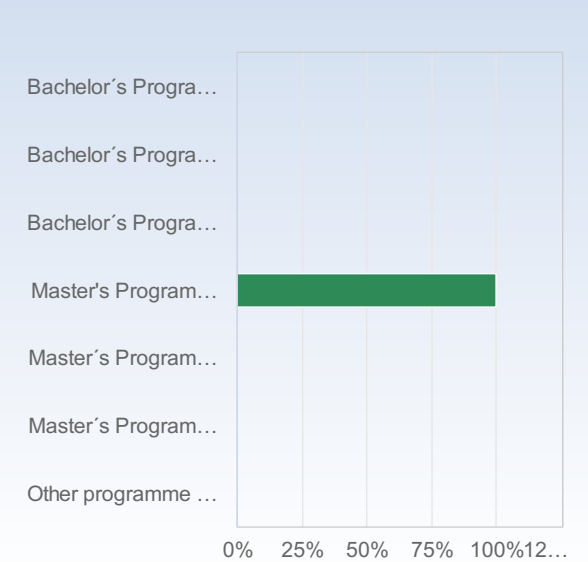
Respondents: 12
Answer Count: 2
Answer Frequency: 16,67 %

I have studied this course as part of

I have studied this course as part of	Number of responses
Bachelor´s Programme in Mathematics	0 (0,0%)
Bachelor´s Programme in Physics, Theoretical Physics, Astronomy	0 (0,0%)
Bachelor´s Programme, other specialization	0 (0,0%)
Master's Programme in Mathematics	2 (100,0%)
Master´s Programme in Mathematical Statistics	0 (0,0%)
Master´s Programme, other specialization	0 (0,0%)
Other programme or as stand alone course	0 (0,0%)
Total	2 (100,0%)

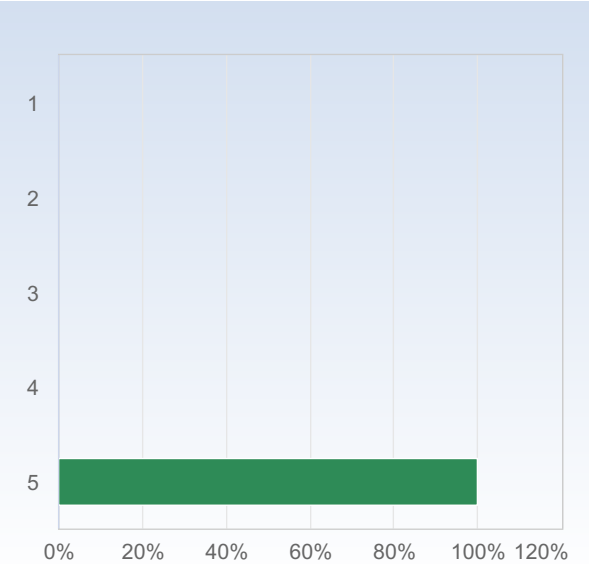


	Mean	Standard Deviation
I have studied this course as part of	4,0	0,0

On the scale 1-5 select the option that best matches your opinion: 1= disagree completely → 3= partly agree → 5= agree completely

2. My prior knowledge has been sufficient to assimilate the contents of this course.

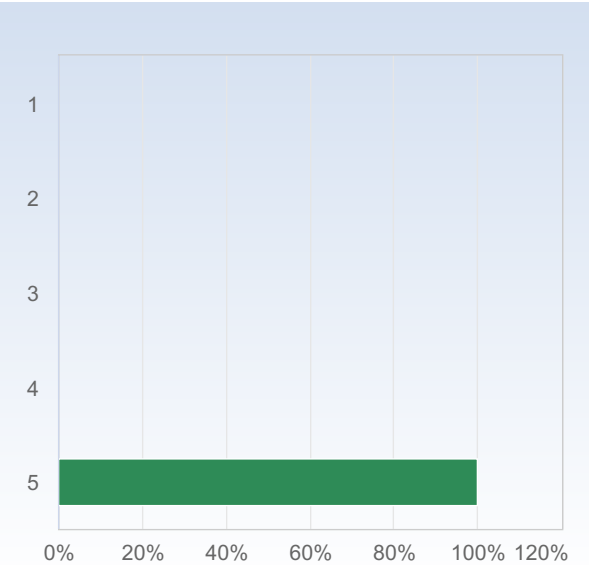
2. My prior knowledge has been sufficient to assimilate the contents of this course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
2. My prior knowledge has been sufficient to assimilate the contents of this course.	5,0	0,0

3. I have participated actively in the course.

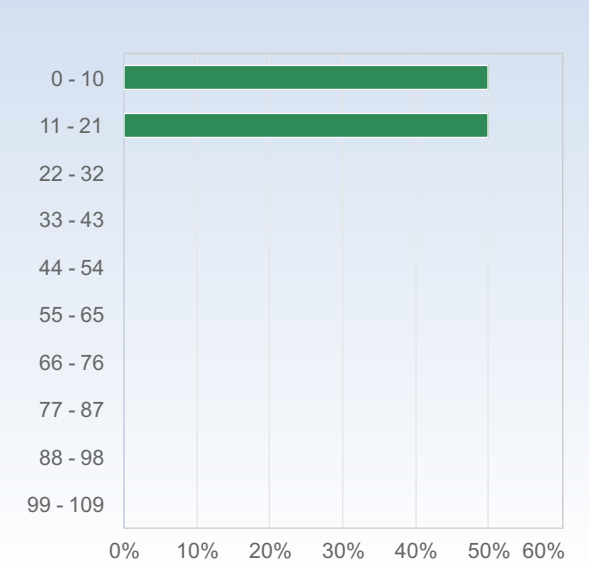
3. I have participated actively in the course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
3. I have participated actively in the course.	5,0	0,0

Average number of hours spent in total on the course per week (including scheduled activities):

Average number of hours spent in total on the course per week (including scheduled activities):	Number of responses
0 - 10	1 (50,0%)
11 - 21	1 (50,0%)
22 - 32	0 (0,0%)
33 - 43	0 (0,0%)
44 - 54	0 (0,0%)
55 - 65	0 (0,0%)
66 - 76	0 (0,0%)
77 - 87	0 (0,0%)
88 - 98	0 (0,0%)
99 - 109	0 (0,0%)
Total	2 (100,0%)



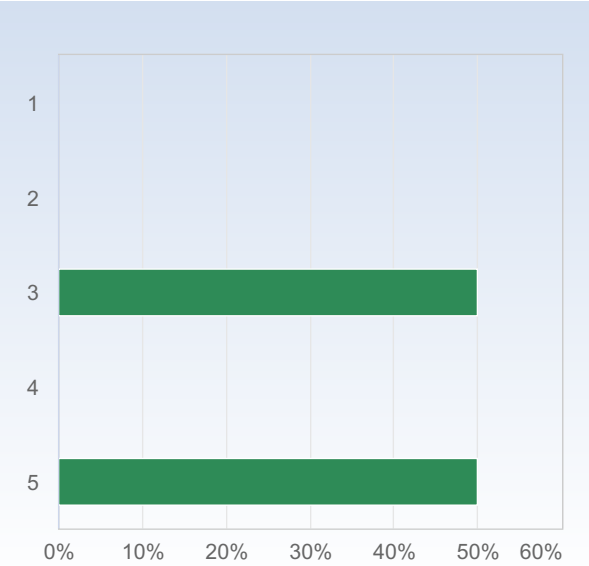
	Mean	Standard Deviation
Average number of hours spent in total on the course per week (including scheduled activities):	10,0	2,8

The course in general

On the scale 1-5 select the option that best matches your opinion: 1= disagree completely → 3= partly agree → 5= agree completely

The way the course was taught and organised suited me.

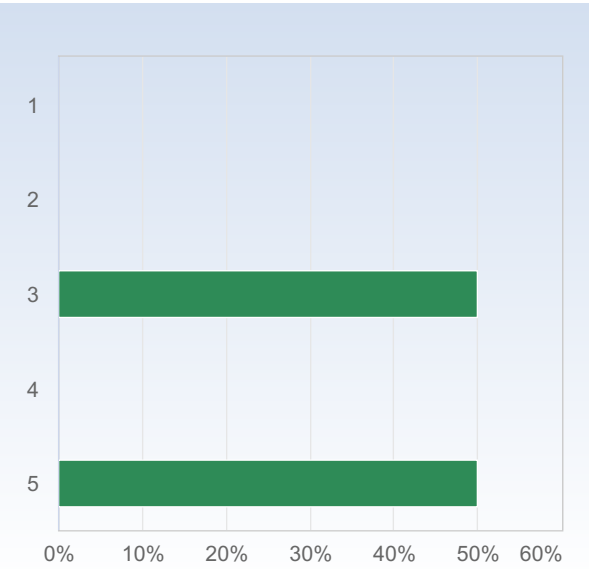
The way the course was taught and organised suited me.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The way the course was taught and organised suited me.	4,0	1,4

The number of teacher lead activities (lectures, computer exercises etc.) has been satisfactory.

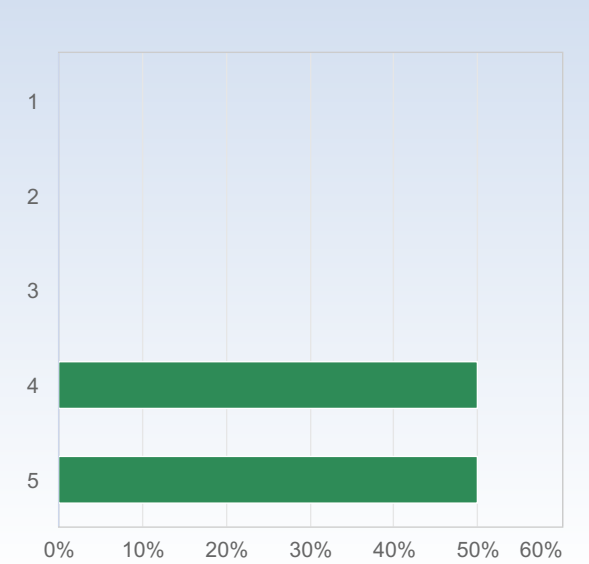
The number of teacher lead activities (lectures, computer exercises etc.) has been satisfactory.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The number of teacher lead activities (lectures, computer exercises etc.) has been satisfactory.	4,0	1,4

The lectures were valuable for my learning.

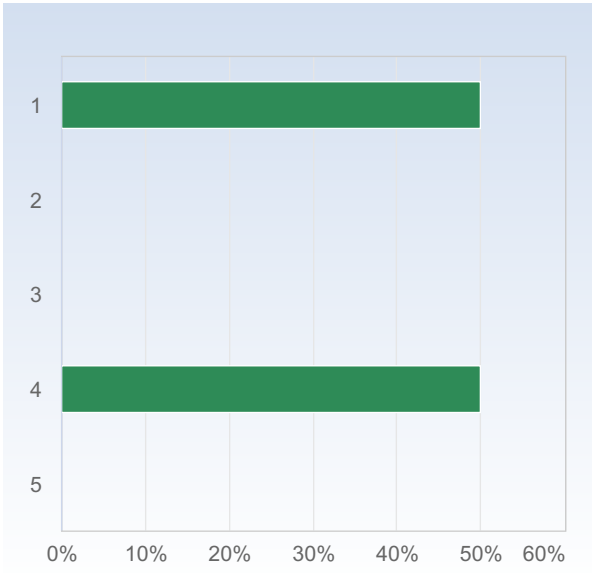
The lectures were valuable for my learning.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (50,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The lectures were valuable for my learning.	4,5	0,7

The computer exercises were valuable for my learning.

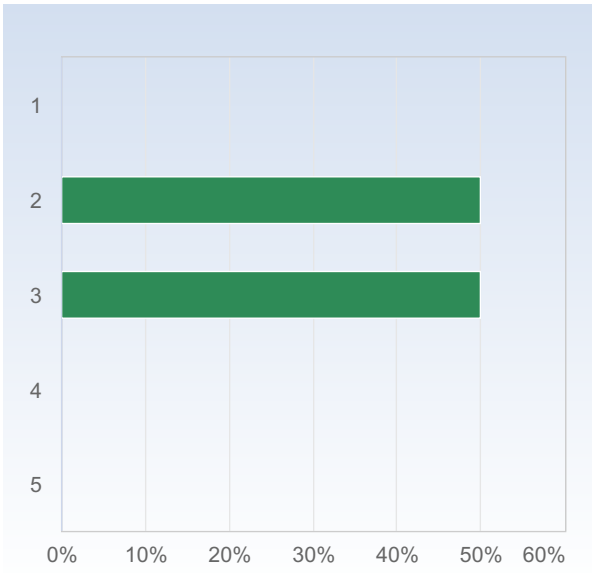
The computer exercises were valuable for my learning.	Number of responses
1	1 (50,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The computer exercises were valuable for my learning.	2,5	2,1

Studying on my own was valuable for my learning.

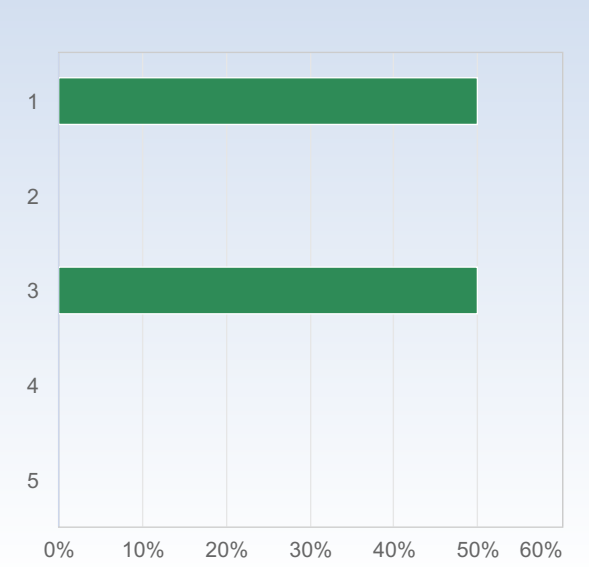
Studying on my own was valuable for my learning.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	1 (50,0%)
4	0 (0,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
Studying on my own was valuable for my learning.	2,5	0,7

The course literature/material was a valuable learning resource.

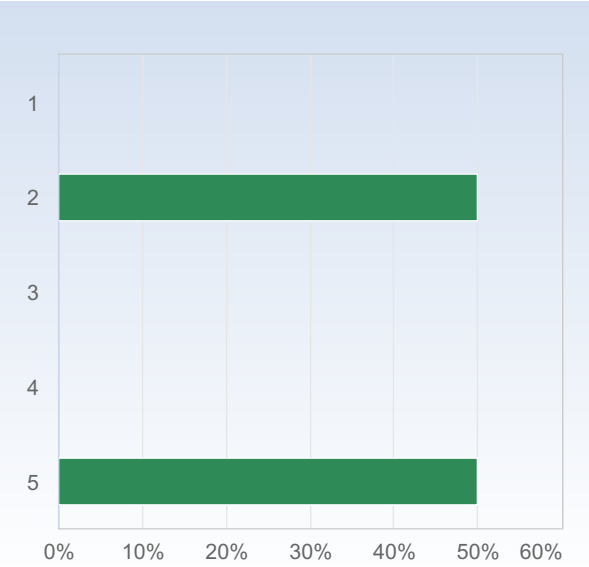
The course literature/material was a valuable learning resource.	Number of responses
1	1 (50,0%)
2	0 (0,0%)
3	1 (50,0%)
4	0 (0,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	2,0	1,4

The information I received before the course start was satisfactory.

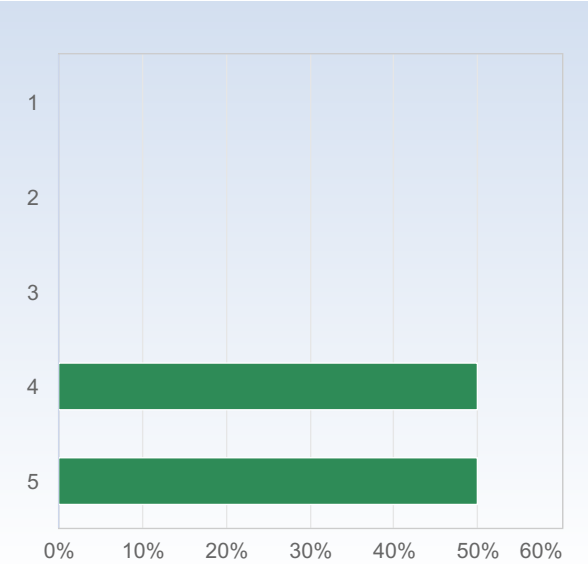
The information I received before the course start was satisfactory.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The information I received before the course start was satisfactory.	3,5	2,1

The communication with the teaching staff during the course was good.

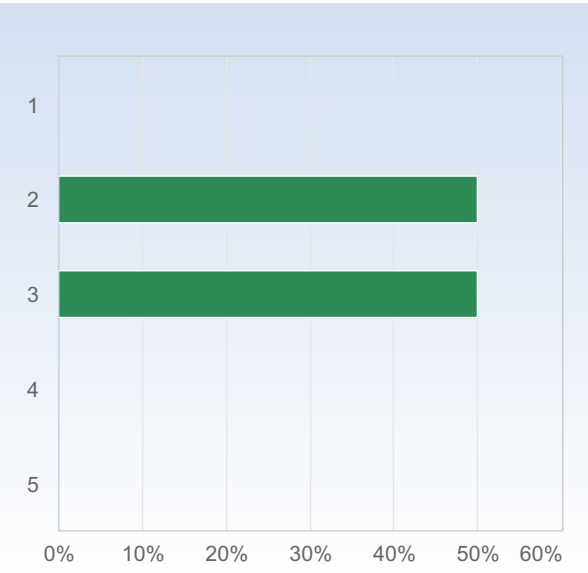
The communication with the teaching staff during the course was good.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (50,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The communication with the teaching staff during the course was good.	4,5	0,7

It was clear throughout the course what was expected of me.

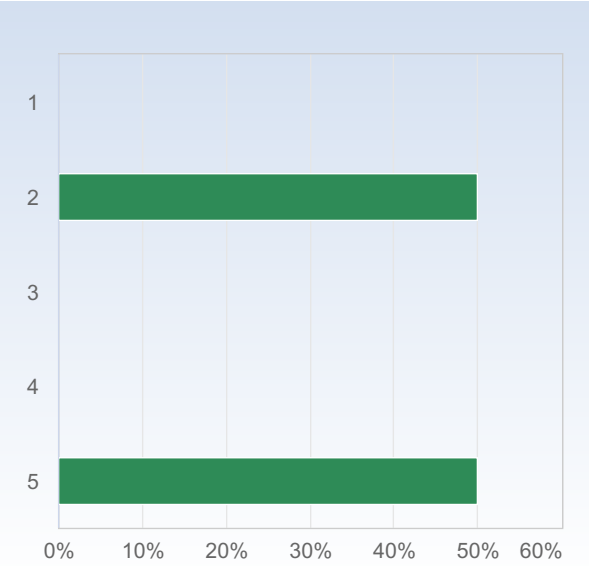
It was clear throughout the course what was expected of me.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	1 (50,0%)
4	0 (0,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	2,5	0,7

I have received valuable feedback from my teacher/teachers during the course.

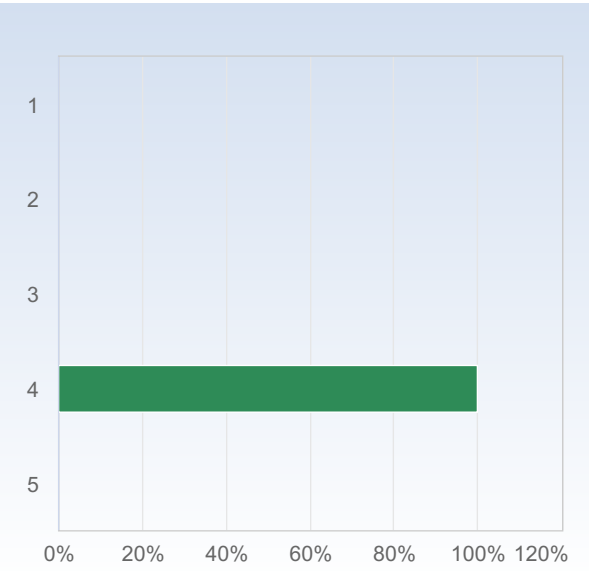
I have received valuable feedback from my teacher/teachers during the course.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
I have received valuable feedback from my teacher/teachers during the course.	3,5	2,1

The course had a reasonable workload.

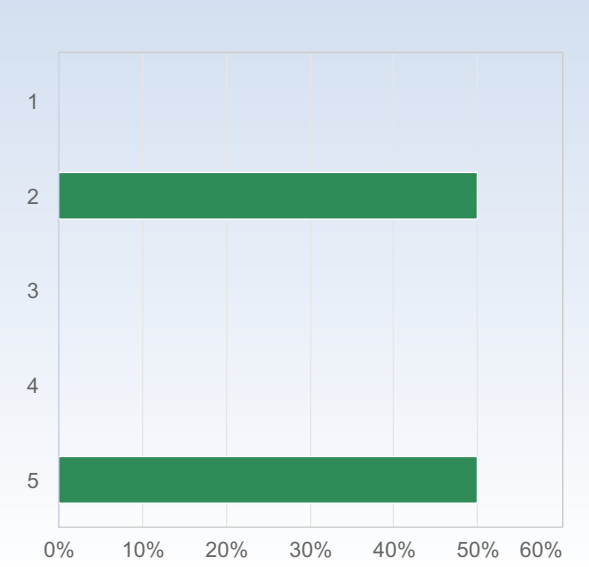
The course had a reasonable workload.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	2 (100,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course had a reasonable workload.	4,0	0,0

The workload was evenly distributed throughout the course.

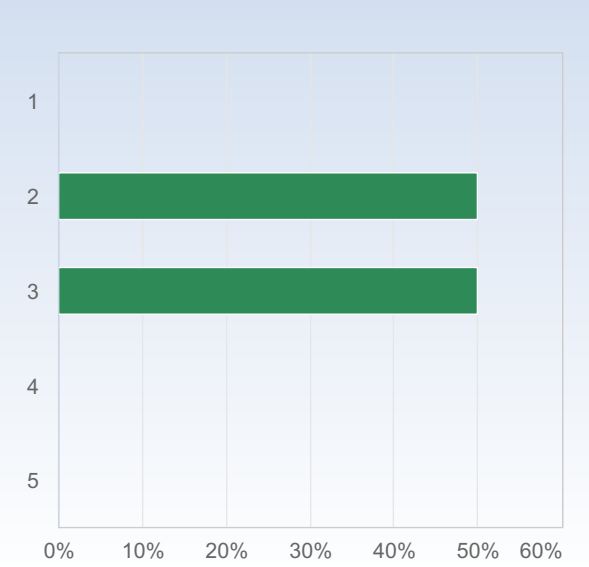
The workload was evenly distributed throughout the course.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The workload was evenly distributed throughout the course.	3,5	2,1

The examination matched the contents and level of the course.

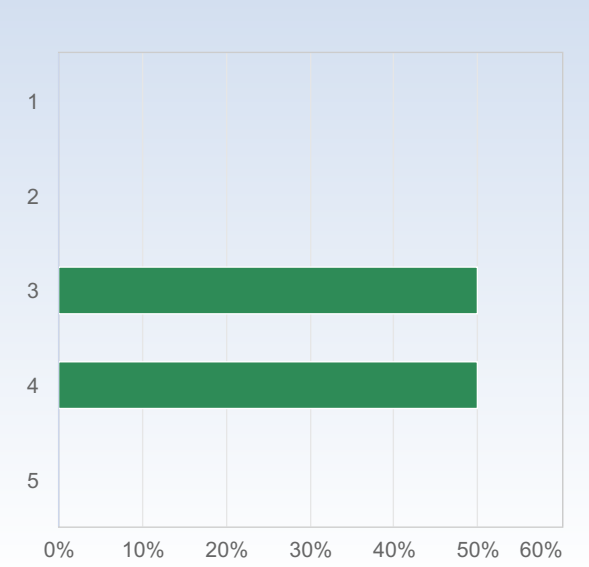
The examination matched the contents and level of the course.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	1 (50,0%)
4	0 (0,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The examination matched the contents and level of the course.	2,5	0,7

Overall, I am satisfied with the course.

Overall, I am satisfied with the course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



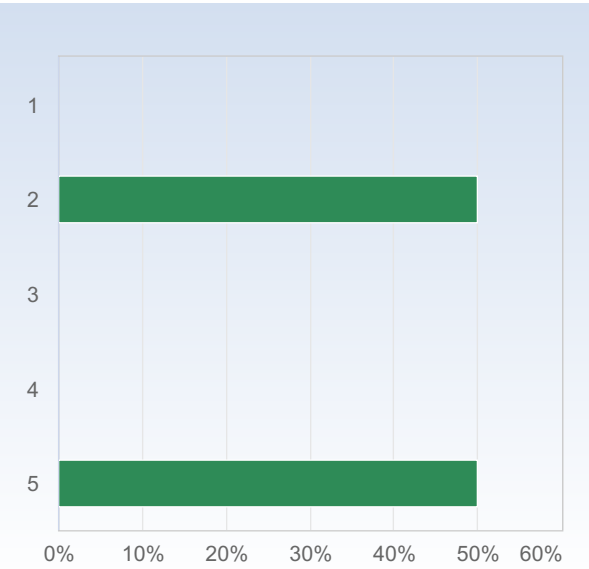
	Mean	Standard Deviation
Overall, I am satisfied with the course.	3,5	0,7

On the development of generic skills

On a scale 1-5 select the option that best matches your opinion: 1= disagree completely → 3= partly agree → 5= agree completely

The course has increased my ability to read a mathematical text.

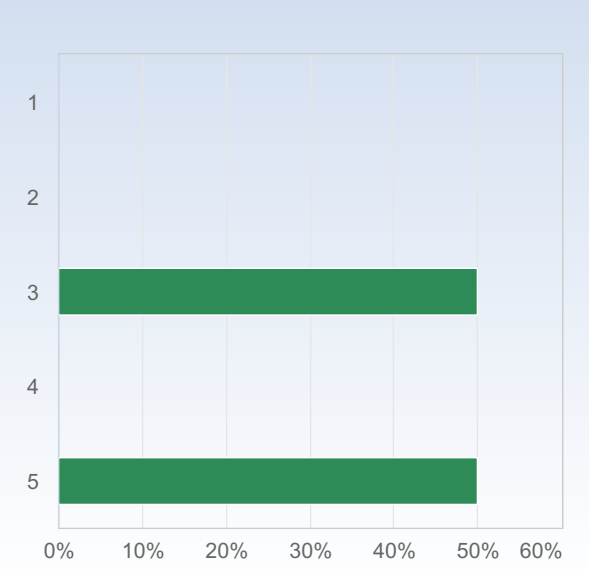
The course has increased my ability to read a mathematical text.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	3,5	2,1

The course has increased my ability to communicate the subject in writing.

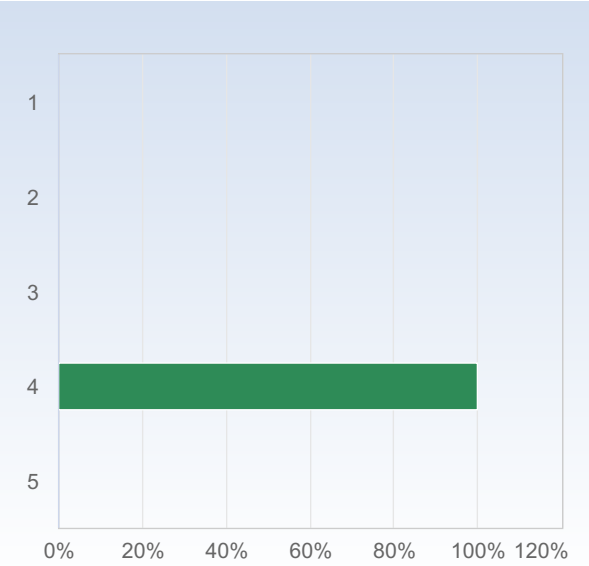
The course has increased my ability to communicate the subject in writing.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject in writing.	4,0	1,4

The course has increased my ability to communicate the subject orally.

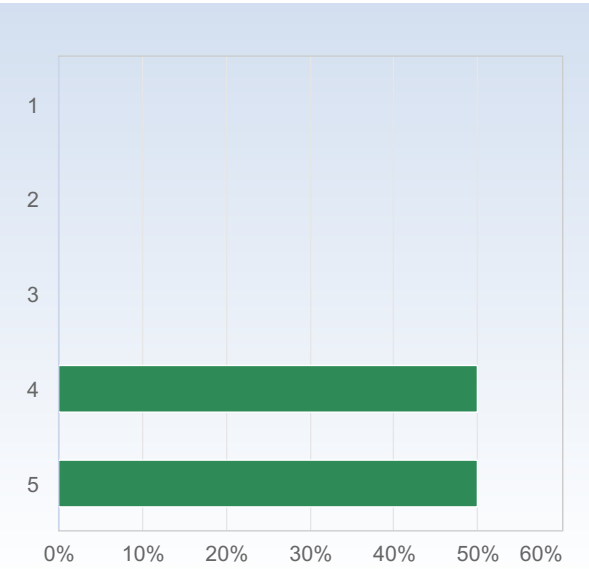
The course has increased my ability to communicate the subject orally.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	2 (100,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject orally.	4,0	0,0

The course has increased my ability to cooperate.

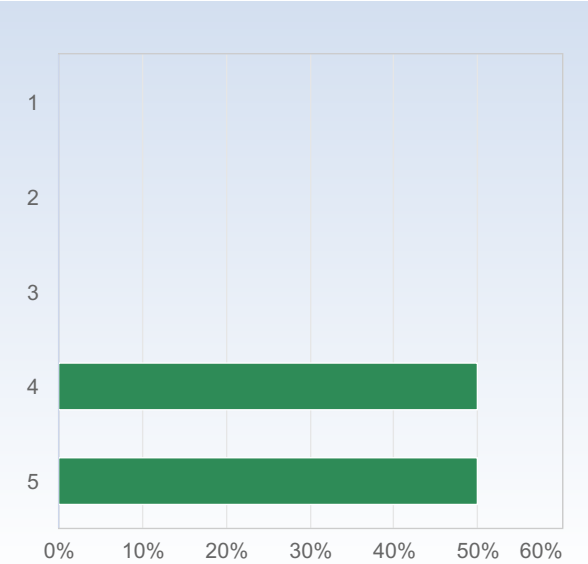
The course has increased my ability to cooperate.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (50,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to cooperate.	4,5	0,7

The course has increased my ability to search and process information.

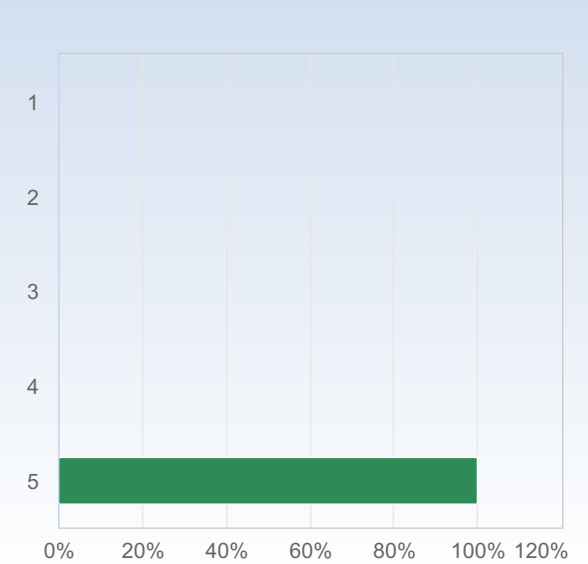
The course has increased my ability to search and process information.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (50,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to search and process information.	4,5	0,7

The course has increased my ability to analyze and solve problems.

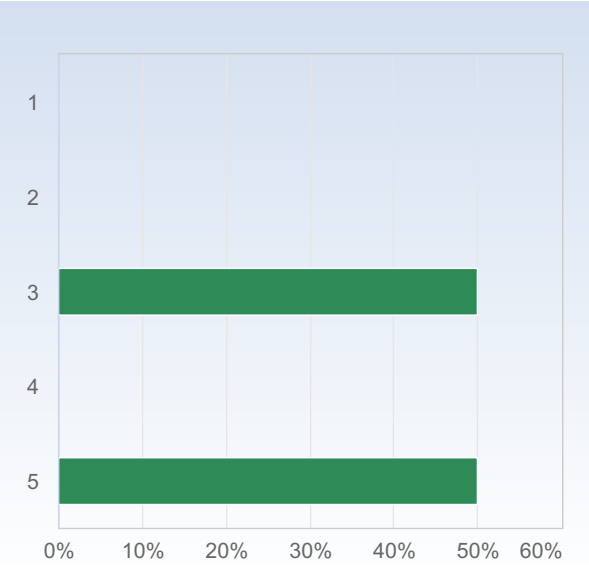
The course has increased my ability to analyze and solve problems.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to analyze and solve problems.	5,0	0,0

As a result of this course, I feel confident about tackling unfamiliar problems.

As a result of this course, I feel confident about tackling unfamiliar problems.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)

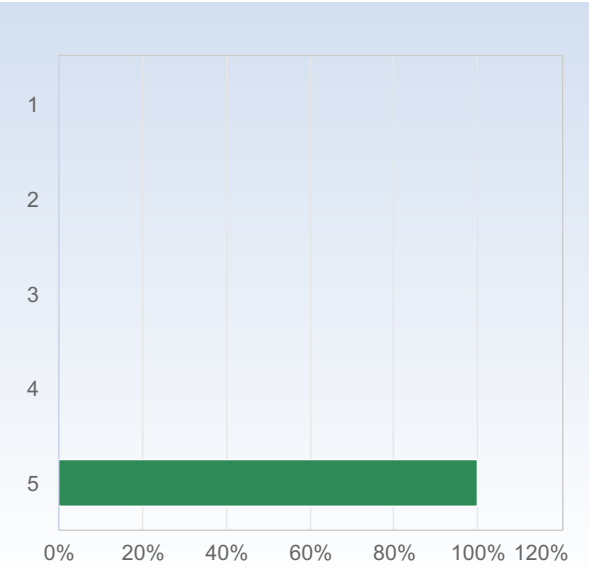


	Mean	Standard Deviation
As a result of this course, I feel confident about tackling unfamiliar problems.	4,0	1,4

On the project presentations
On the scale 1-5 select the option that best matches your opinion:1= disagree completely → 3= partly agree → 5= agree completely

I preferred the oral project presentations over writing a report.

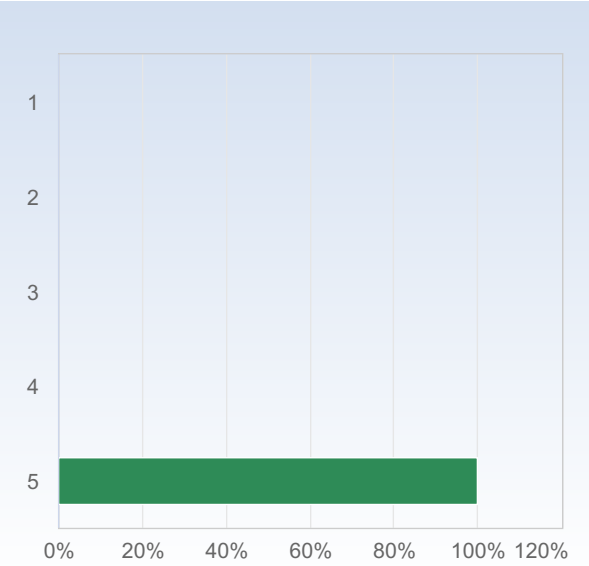
I preferred the oral project presentations over writing a report.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
I preferred the oral project presentations over writing a report.	5,0	0,0

I feel like I learned as much from the projects with oral presentation as from the one with a written report.

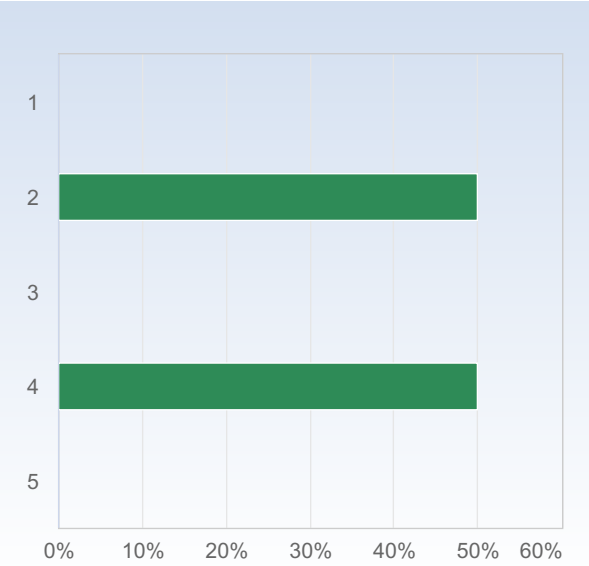
I feel like I learned as much from the projects with oral presentation as from the one with a written report.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
I feel like I learned as much from the projects with oral presentation as from the one with a written report.	5,0	0,0

I received better feedback at the oral presentations than on my report.

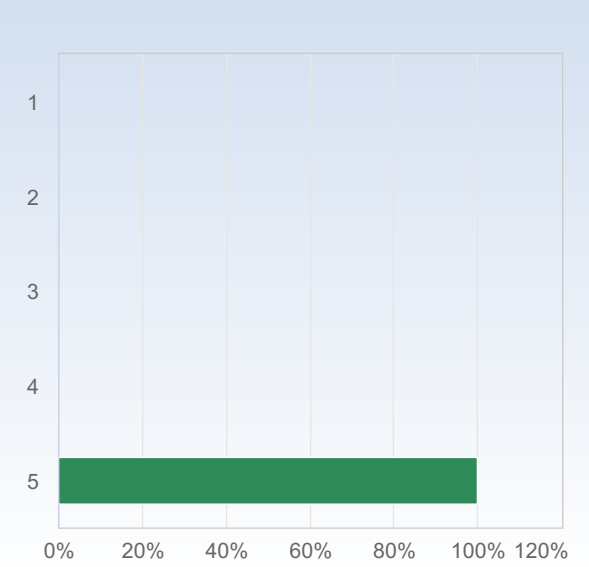
I received better feedback at the oral presentations than on my report.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	0 (0,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
I received better feedback at the oral presentations than on my report.	3,0	1,4

It was easier to integrate an oral presentation in my schedule than a written report.

It was easier to integrate an oral presentation in my schedule than a written report.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
It was easier to integrate an oral presentation in my schedule than a written report.	5,0	0,0

What did you appreciate most with the course?

What did you appreciate most with the course?
The projects were interesting, and made it easier to understand and remember methods and concepts from the course.
The oral presentations were a great learning opportunity for me. I feel like I learn most by preparing for them and that I can better show how I understood the course through them then through the exam.

What do you think should be improved?

What do you think should be improved?
Some project descriptions were a little confusing. For example, some of them introduced a lot of terminology in the beginning of a task, and then freely used them, even though it was new. A lot of this terminology also came from physics, which made it more challenging for me, specifically, since I never studied physics in English. Another thing is that throughout the course it's not entirely clear what is going to be expected from us on the exam. Overall, during the course, we work on projects and can't prepare for the theoretical exam. In the end, there is only the holidays left to prepare, and I find it not very convenient.
The past exams should be published earlier, Throughout the initial weeks it was unclear what type of questions could be asked on the exams since what we covered was more applicable to the projects.

Have you during this course experienced course literature, staff or teaching methods to be discriminatory in any way (gender, ethnicity, etc.) ?

Have you during this course experienced course literature, staff or teaching methods to be discriminatory in any way (gender, ethnicity, etc.)?
No.

If you have any other thoughts that you would like to share which were not covered by the previous questions, please feel free to state them here.