

Course Analysis for NUMN32 Numerical Methods for Differential Equations, Autumn 2023

Course Information

Lecturer: Tony Stillfjord, Monika Eisenmann

Teaching assistants: Måns Williamson, Niklas Kotarsky, Jaime Manriquez, Marvin Jans

Number of students:

19 newly registered and 1 re-registered.

2 students answered the course evaluation survey, 1 of them from the Bachelor programme and 1 from “Other” programme, i.e. likely an exchange student.

Examination

Project: 20 students passed.

Written examination: 14 students passed.

- Ordinary examination 05/01 2024: 18 students participated and 14 of them passed.

Final grades

In all, 14 students, have got their final grade.

9 passed with distinction.

5 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 evaluations are done for the LTH and NF students. The NF version was sent out on Dec. 18 and was open until the written exam on Jan. 5. Only two out of the 20 NF students answered the survey, and the LTH evaluation had not yet been discussed at the time of this writing. Thus, it is difficult to draw any conclusions from the results. Both of the NF students were overall satisfied with the course.

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. All teaching took place on campus. Like last year, there were two lecturers and the lectures were split evenly among us by topic.

A major change from last year is that we provided solutions to the study questions. These were published in the middle/at the end of the following week. The main idea behind this was to encourage the students to try to solve the exercises without checking the solutions whenever they are stuck. The students seemed to appreciate that we provided solutions but complained that we did not publish them earlier.

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, many students passed every project at the first opportunity and almost everyone had passed 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.

Out of the 147 LTH students, 132 passed the course, which is 90%. The percentage among the NF students was only 70%. But due to the low number of NF students, this could simply have been due to a few students being sick at the time of the exam. We therefore do not think this is a cause for concern. In total, 87% of the LTH and NF students passed the course, which we are quite happy with.

Changes from the previous course realization:

As mentioned before, we provided complete solutions for the non-mandatory study questions. These were published with a delay to encourage students to solve the exercises without the solutions. The solutions seemed to help, but we received feedback in the CEQ survey of LTH that the students would like to get the solutions earlier.

Moreover, we exchanged the concept of the logarithmic norm by a more broadly known concept of accretivity or dissipativity of an operator. As to be expected, there were some questions towards old exams as they now handle concepts that we did not discuss in the lectures. Otherwise there were no complaints from the students.

Suggestions for the next course realisation:

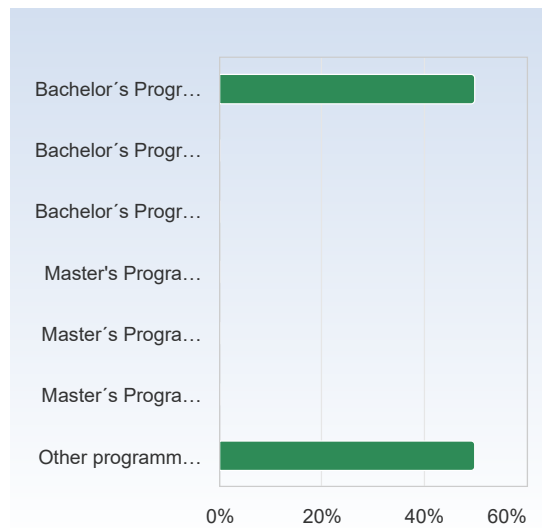
Due to frequent requests from the LTH students, many of whom refuse to engage with the study questions unless complete solutions are available for immediate reference, we are considering whether to publish such solutions earlier. We are still, however, of the opinion that this is detrimental to the overall learning process.

NUMN32 ht2023

Answer Count: 2

I have studied this course as part of

I have studied this course as part of	Number of responses
Bachelor's Programme in Mathematics	1 (50,0%)
Bachelor's Programme in Physics, Theoretical Physics, Astronomy	0 (0,0%)
Bachelor's Programme, other specialization	0 (0,0%)
Master's Programme in Mathematics	0 (0,0%)
Master's Programme in Mathematical Statistics	0 (0,0%)
Master's Programme, other specialization	0 (0,0%)
Other programme or as stand alone course	1 (50,0%)
Total	2 (100,0%)

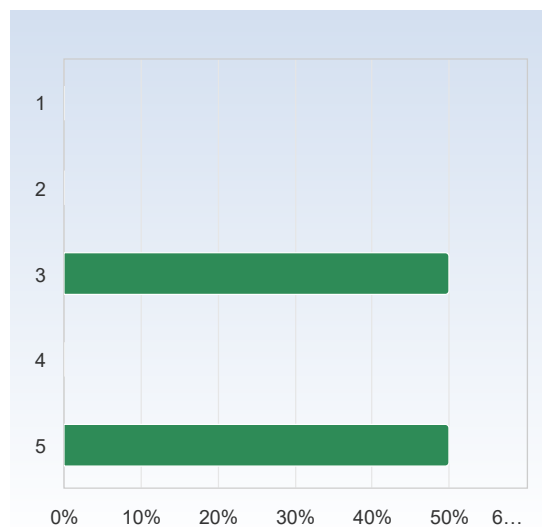


	Mean	Standard Deviation
I have studied this course as part of	4,0	4,2

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

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

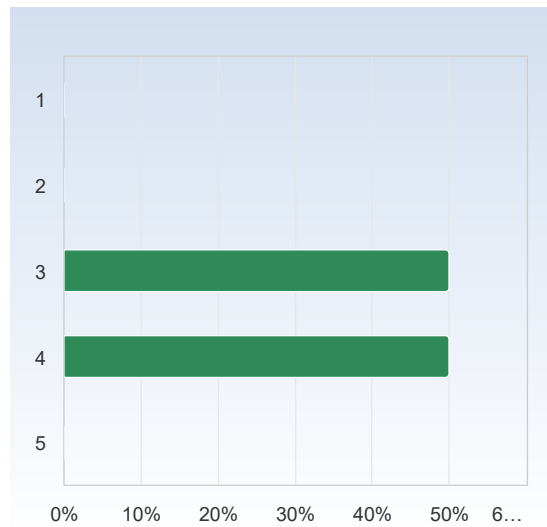
My prior knowledge has been sufficient to assimilate the contents of this course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
My prior knowledge has been sufficient to assimilate the contents of this course.	4,0	1,4

I have participated actively in the course.

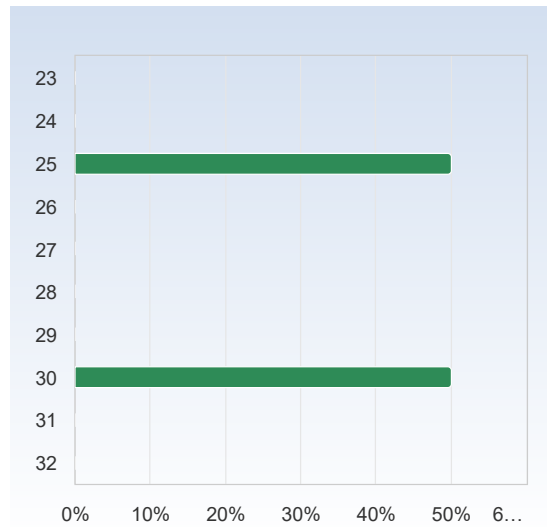
I have participated actively in the course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
I have participated actively in the course.	3,5	0,7

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
23	0 (0,0%)
24	0 (0,0%)
25	1 (50,0%)
26	0 (0,0%)
27	0 (0,0%)
28	0 (0,0%)
29	0 (0,0%)
30	1 (50,0%)
31	0 (0,0%)
32	0 (0,0%)
Total	2 (100,0%)



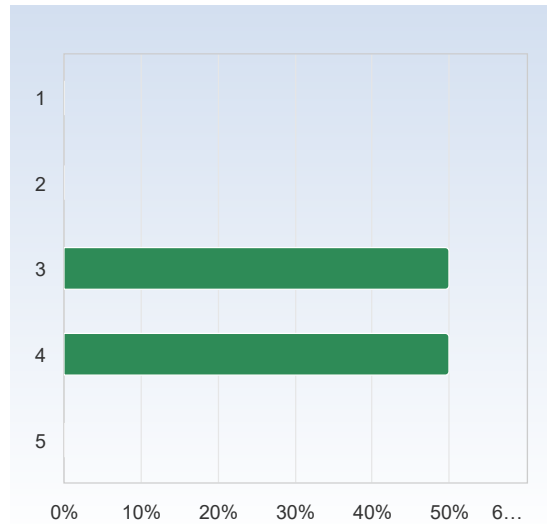
	Mean	Standard Deviation
Average number of hours spent in total on the course per week (including scheduled activities):	27,5	3,5

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.

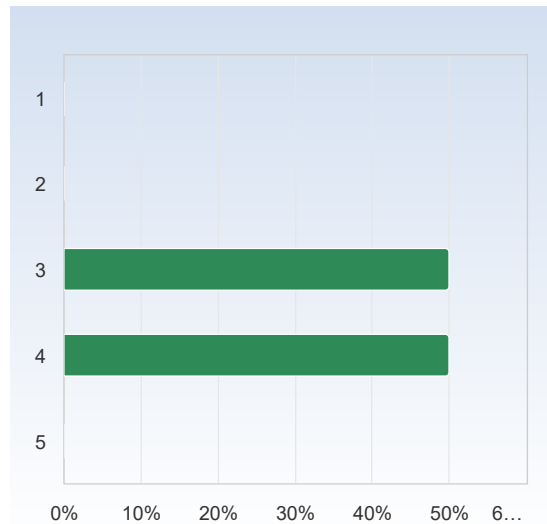
The way the course was taught and organised suited me.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The way the course was taught and organised suited me.	3,5	0,7

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

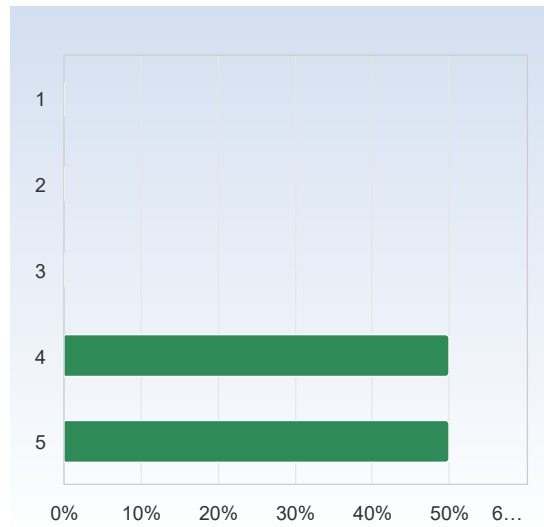
The number of teacher lead activities (lectures, computer exercises etc.) has been satisfactory.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (50,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The number of teacher lead activities (lectures, computer exercises etc.) has been satisfactory.	3,5	0,7

The lectures were valuable for my learning.

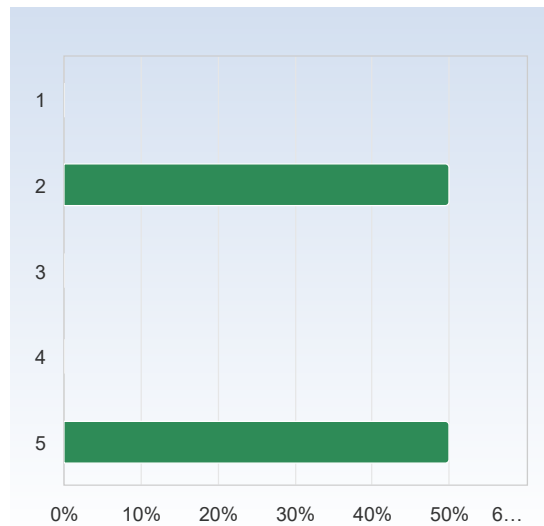
The lectures were valuable for my learning.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (50,0%)
5	1 (50,0%)
Total	2 (100,0%)



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

The computer exercises were valuable for my learning.

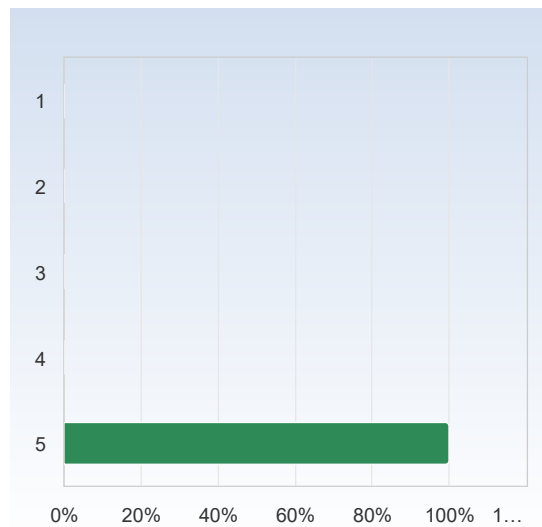
The computer exercises were valuable for my learning.	Number of responses
1	0 (0,0%)
2	1 (50,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (50,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The computer exercises were valuable for my learning.	3,5	2,1

Studying on my own was valuable for my learning.

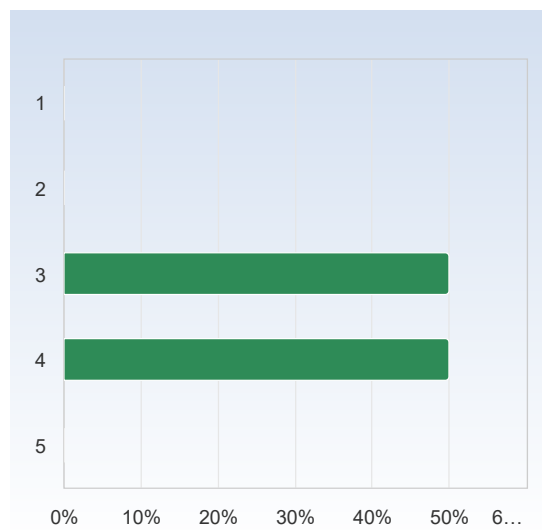
Studying on my own was valuable for my learning.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	2 (100,0%)
Total	2 (100,0%)



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

The course literature/material was a valuable learning resource.

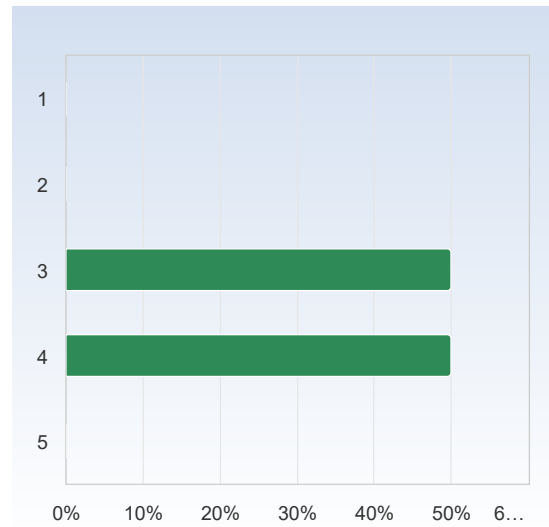
The course literature/material was a valuable learning resource.	Number of responses
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2	0 (0,0%)
3	1 (50,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	3,5	0,7

The information I received before the course start was satisfactory.

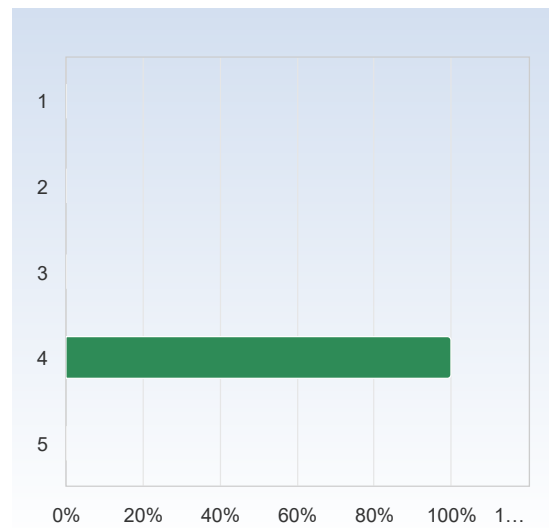
The information I received before the course start was satisfactory.	Number of responses
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Total	2 (100,0%)



	Mean	Standard Deviation
The information I received before the course start was satisfactory.	3,5	0,7

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

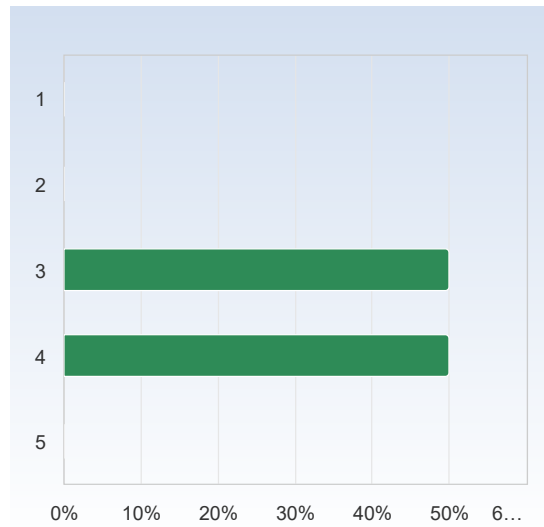
The communication with the teaching staff during the course was good.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	2 (100,0%)
5	0 (0,0%)
Total	2 (100,0%)



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

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

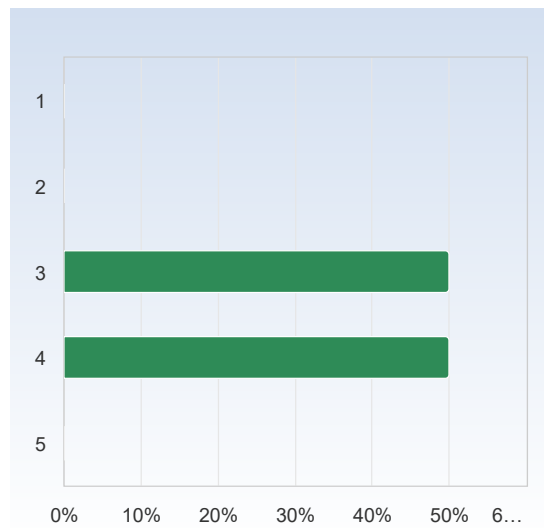
It was clear throughout the course what was expected of me.	Number of responses
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3	1 (50,0%)
4	1 (50,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	3,5	0,7

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

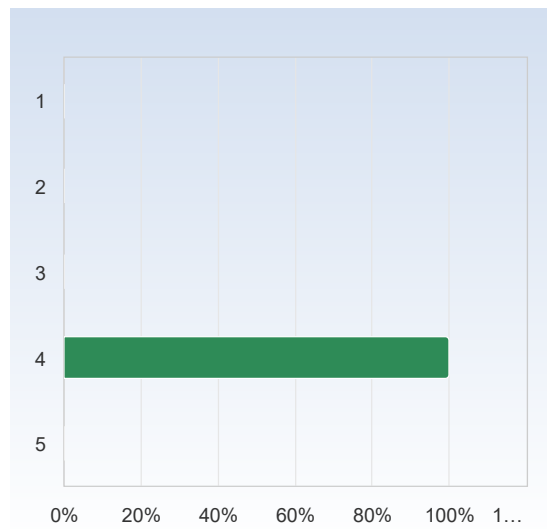
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	Mean	Standard Deviation
I have received valuable feedback from my teacher/teachers during the course.	3,5	0,7

The course had a reasonable workload.

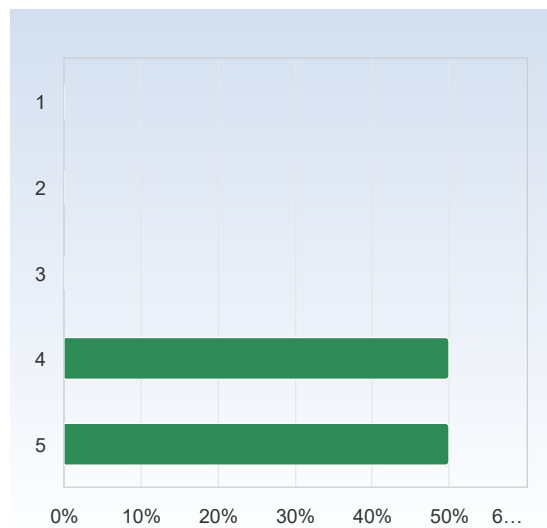
The course had a reasonable workload.	Number of responses
1	0 (0,0%)
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3	0 (0,0%)
4	2 (100,0%)
5	0 (0,0%)
Total	2 (100,0%)



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

The workload was evenly distributed throughout the course.

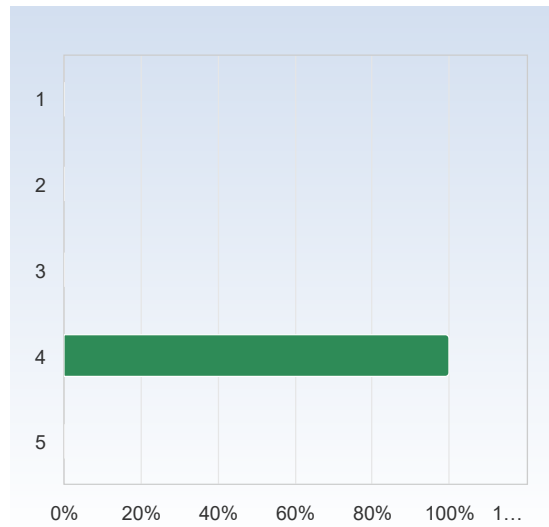
The workload was evenly distributed throughout the course.	Number of responses
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5	1 (50,0%)
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	Mean	Standard Deviation
The workload was evenly distributed throughout the course.	4,5	0,7

The examination matched the contents and level of the course.

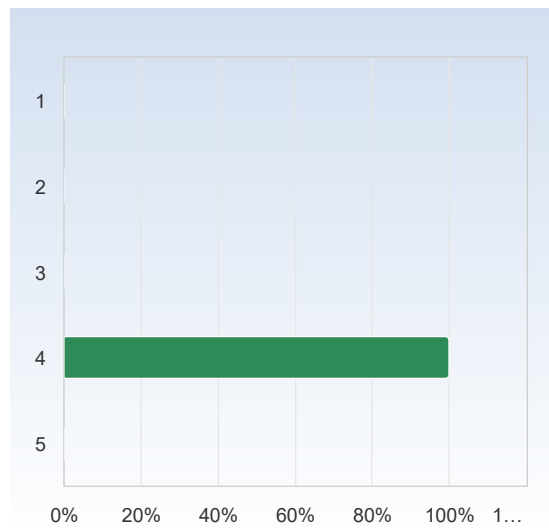
The examination matched the contents and level of the course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	2 (100,0%)
5	0 (0,0%)
Total	2 (100,0%)



	Mean	Standard Deviation
The examination matched the contents and level of the course.	4,0	0,0

Overall, I am satisfied with the course.

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1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	2 (100,0%)
5	0 (0,0%)
Total	2 (100,0%)



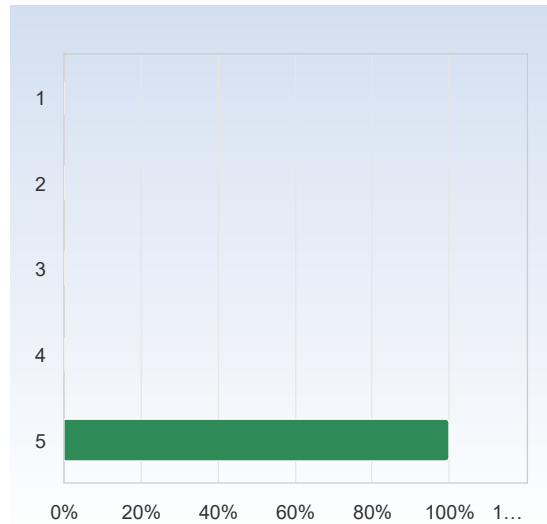
	Mean	Standard Deviation
Overall, I am satisfied with the course.	4,0	0,0

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.

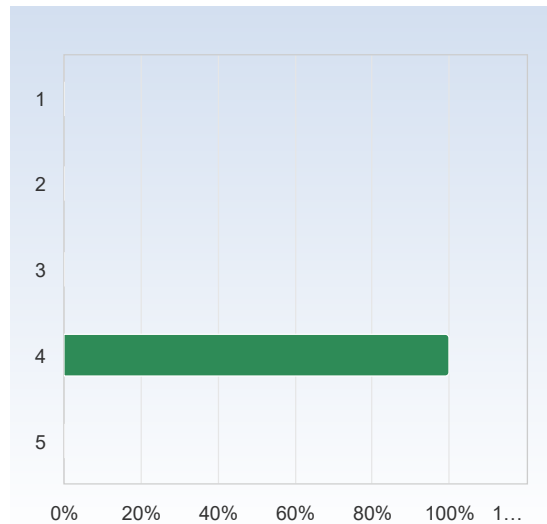
The course has increased my ability to read a mathematical text.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (100,0%)
Total	1 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	5,0	0,0

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

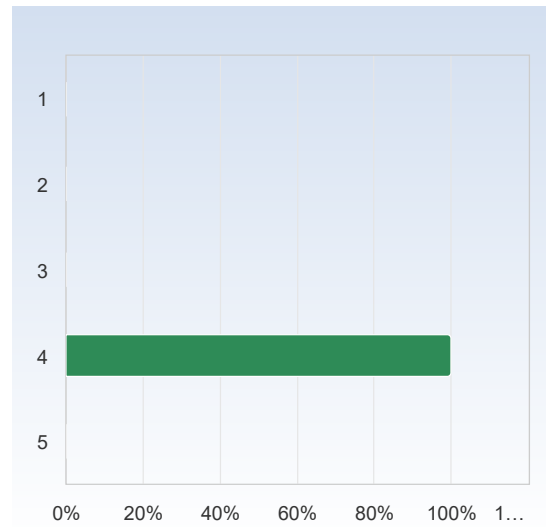
The course has increased my ability to communicate the subject in writing.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



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

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

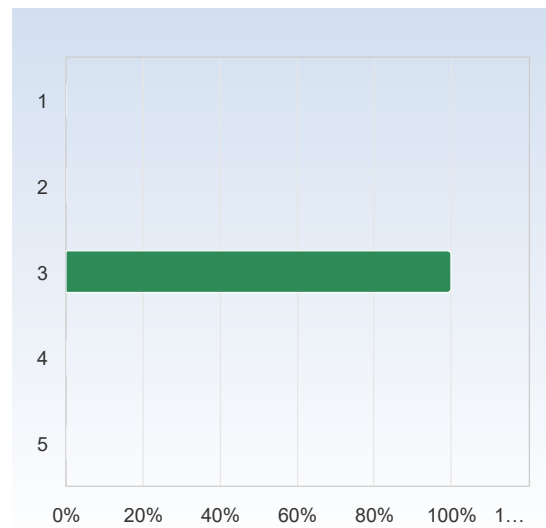
The course has increased my ability to communicate the subject orally.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



	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.

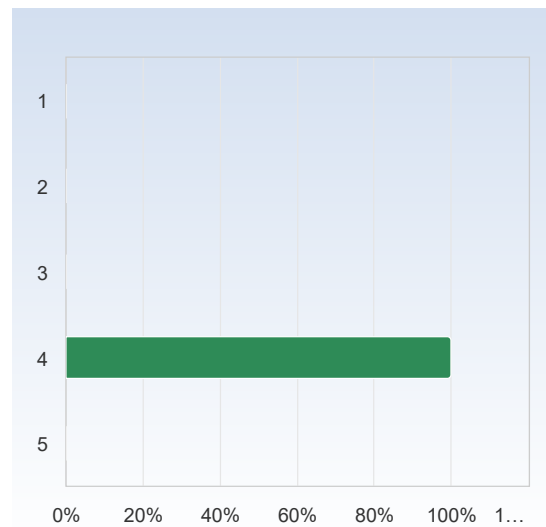
The course has increased my ability to cooperate.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	1 (100,0%)
4	0 (0,0%)
5	0 (0,0%)
Total	1 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to cooperate.	3,0	0,0

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

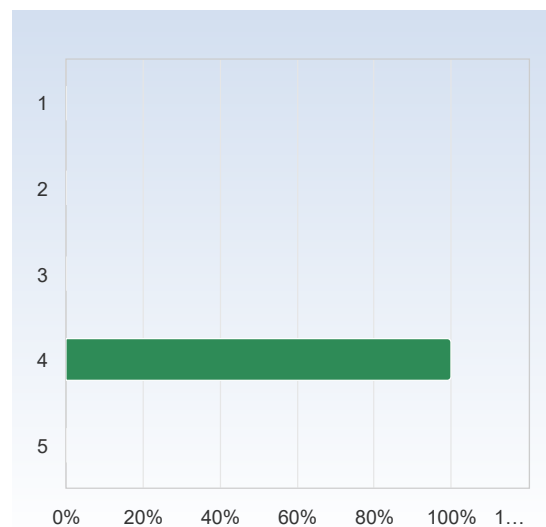
The course has increased my ability to search and process information.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



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

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

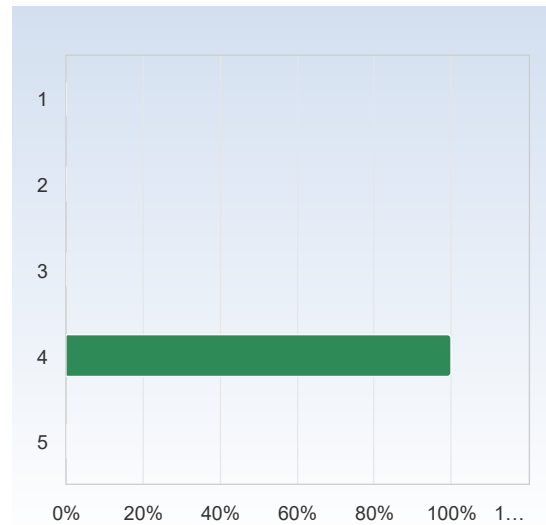
The course has increased my ability to analyze and solve problems.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



	Mean	Standard Deviation
The course has increased my ability to analyze and solve problems.	4,0	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	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)

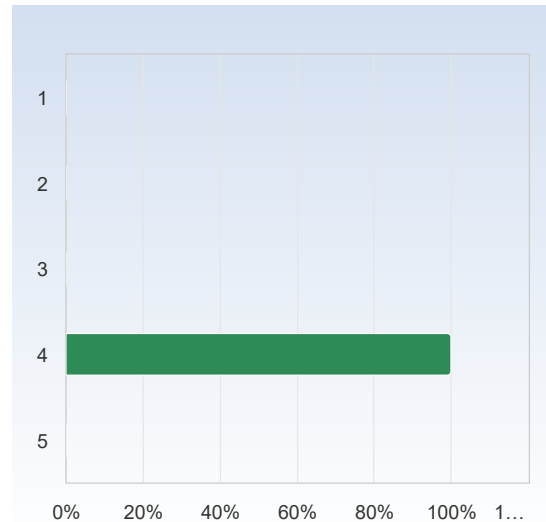


	Mean	Standard Deviation
As a result of this course, I feel confident about tackling unfamiliar problems.	4,0	0,0

On general programming skills

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

My general programming skills acquired in previous courses were sufficient to handle the practical part of this course.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



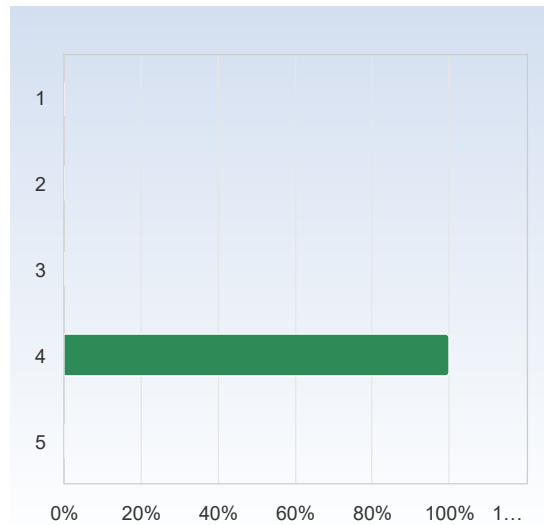
	Mean	Standard Deviation
My general programming skills acquired in previous courses were sufficient to handle the practical part of this course.	4,0	0,0

On the study questions

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

The level of difficulty of the study questions was suitable.

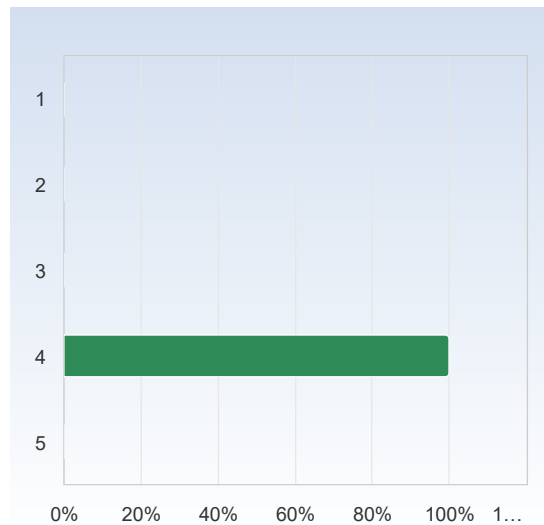
The level of difficulty of the study questions was suitable.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



	Mean	Standard Deviation
The level of difficulty of the study questions was suitable.	4,0	0,0

I solved (some of) the study questions before their solutions were published.

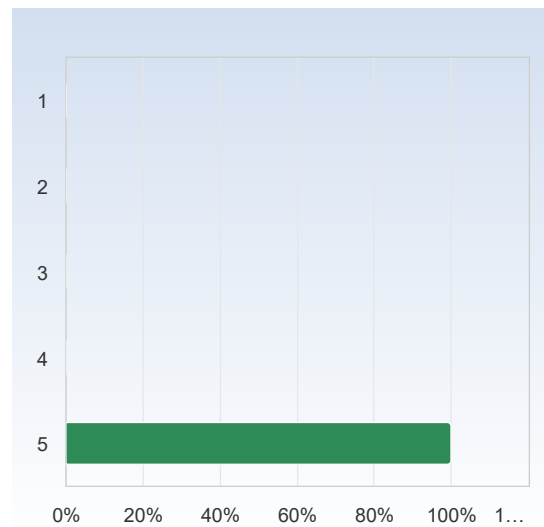
I solved (some of) the study questions before their solutions were published.	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (100,0%)
5	0 (0,0%)
Total	1 (100,0%)



	Mean	Standard Deviation
I solved (some of) the study questions before their solutions were published.	4,0	0,0

The solutions to the study questions had a sufficient level of detail.

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1	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	0 (0,0%)
5	1 (100,0%)
Total	1 (100,0%)



	Mean	Standard Deviation
The solutions to the study questions had a sufficient level of detail.	5,0	0,0

What did you appreciate most with the course?

What did you appreciate most with the course?

- The coding projects were very valuable
- The breadth of material.

What do you think should be improved?

What do you think should be improved?

I am satisfied with the course

The material was quite difficult. Ideally, they should go a bit deeper into some proofs or bigger ideas. Show the bigger picture more and maybe some more background to theory of differential equations for those that have not yet been exposed to ODE/PDEs as much.

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

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No

Course literature was a bit lacking. The lecture notes in my opinion were very barebones and difficult to learn from. There should be a dedicated textbook which lectures are based on.

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.