



LUND UNIVERSITY
Faculty of Science

Centre for Mathematical Sciences
Division of Mathematics and Numerical Analysis

Course Analysis for MATM20 Mathematical Modelling, VT 2022

Course Information

Lecturer: Joachim Hein

Teaching assistants: None

Number of students: 15

14 newly registered and 1 re-registered.

3 students answered the course evaluation, 2 of them are enrolled on the Bachelor's programme in Mathematics and 1 of them in a Master's Programme, other specialisation.

Examination

Project: 7 students passed.

Oral presentation: 7 students passed.

Oral examination: does not apply.

Written examination: 6 students passed.

- Ordinary examination 02/06 2022: 8 students participated and 6 of them passed.

- Resit examination 18/08 2022: 0 students participated and 0 of them passed.

Final grades:

In all, 6 students, including 0 re-registered students, have got their final grade.

4 passed with distinction.

2 passed.

Course Evaluation

Summary of student's answers:

The survey showed a good overall satisfaction with the course (overall score: 4.0 out of 5.0). All survey question received an average score of 3.0 out of 5.0 or better. Some aspects of the course receiving very high scores of 4.7 or even 5.0 out of 5.0. Scores of 3.0 were received for the questions "The course has increased my ability to cooperate" and "Studying on my own was valuable for my learning".

Two submissions also provided written feedback, for which I am very grateful.

Teachers' comments:

The course consisted out of lectures and seminars. All events were on campus in a classroom setting. For most parts the course followed a textbook. There were set exercises, which were discussed during the seminars in the following week. Students received Python programs and Excel sheets from the lecture demonstrations and sample solutions for the programming exercises.

As stated in the course plan, there was a written exam and project work. The project work was a group assignment with a project presentation in the end. All project members had to actively participate in the presentation.

This was the first time I have offered the course in a classroom setting. I am happy that the course was well received by the responding students. I particularly appreciate the text comments. The basic ideas behind the branch and bound method were discussed during the course and are also covered in the course literature.

Changes from the previous course realisation:

As stated before this was the first time the course was taught in a classroom setting. Compared to the previous year, this had a positive impact on the teacher feedback rating.

In this year's course the projects were assigned to working groups. It was hoped that this, together with the classroom teaching would improve the cooperation between students. Unfortunately, the rating regarding the cooperation did not significantly improve.

Compared to previous years, in the 2022 course the use of Maple was replaced with SymPy. This has worked well and did not generate any negative feedback.

Suggestions for the next course realisation:

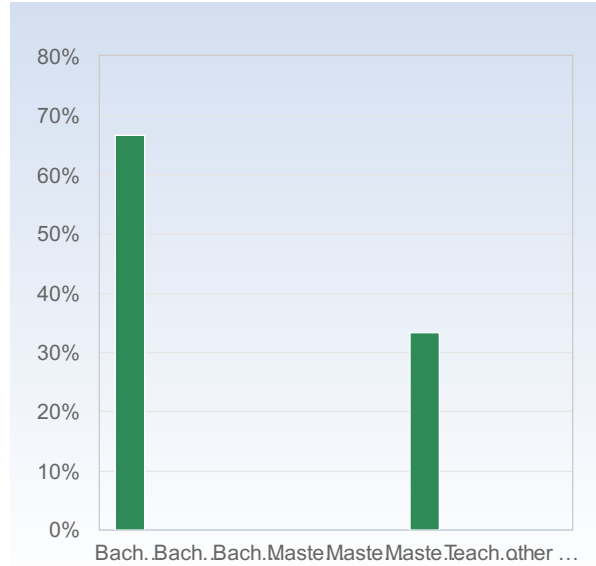
To facilitate more cooperation between the students, group assignments are planned to be offered earlier in the course.

Mathematical Modeling, Spring 2022

Answer Count: 3

I have studied this course as part of

I have studied this course as part of	Number of responses
Bachelor's Programme in Mathematics	2 (66.7%)
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	1 (33.3%)
Teacher Education	0 (0.0%)
other programme or as stand alone course	0 (0.0%)
Total	3 (100.0%)

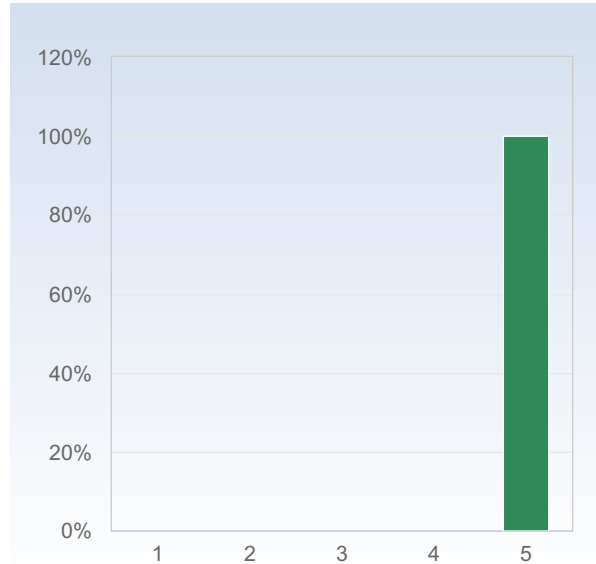


	Mean	Standard Deviation
I have studied this course as part of	2.7	2.9

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.

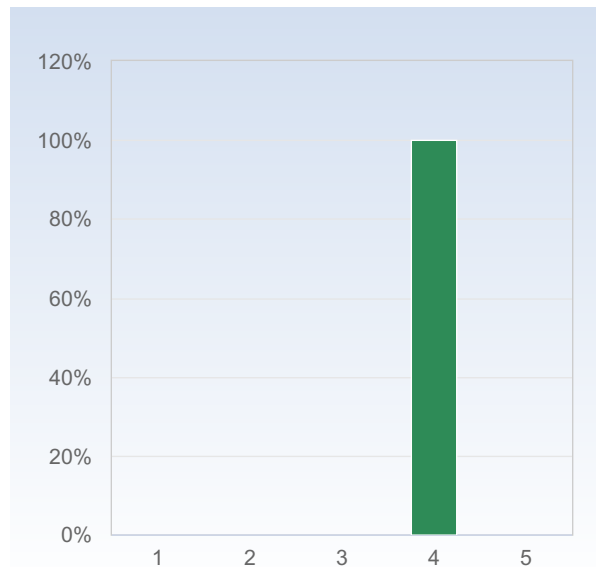
2. My prior knowledge has been sufficient to assimilate the contents of this course.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	0 (0.0%)
5	3 (100.0%)
Total	3 (100.0%)



2. My prior knowledge has been sufficient to assimilate the contents of this course.	Mean	Standard Deviation
	5.0	0.0

3. I have participated actively in the course.

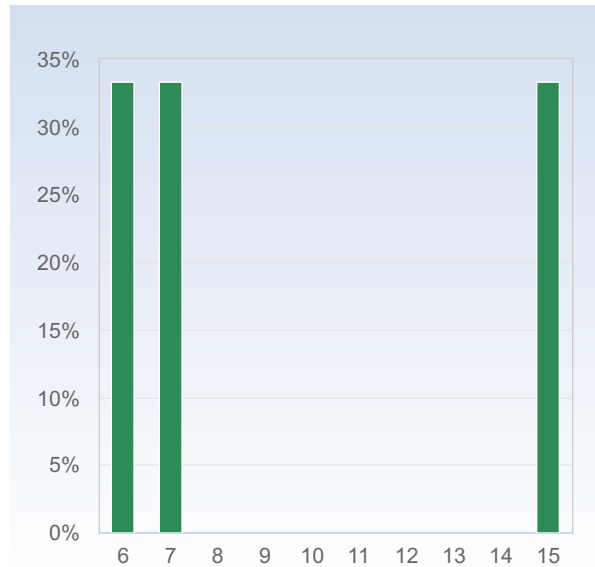
3. I have participated actively in the course.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	3 (100.0%)
5	0 (0.0%)
Total	3 (100.0%)



3. I have participated actively in the course.	Mean	Standard Deviation
	4.0	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
6	1 (33.3%)
7	1 (33.3%)
8	0 (0.0%)
9	0 (0.0%)
10	0 (0.0%)
11	0 (0.0%)
12	0 (0.0%)
13	0 (0.0%)
14	0 (0.0%)
15	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
Average number of hours spent in total on the course per week (including scheduled activities):	9.3	4.9

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.

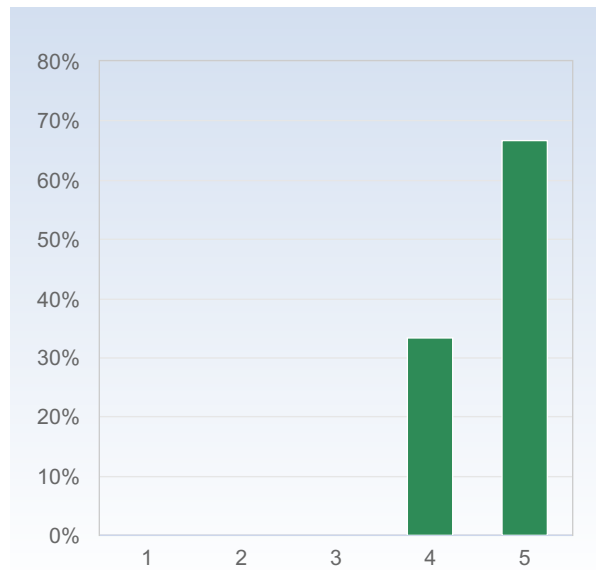
The way the course was taught and organised suited me.	Number of responses
1	0 (0.0%)
2	1 (33.3%)
3	0 (0.0%)
4	1 (33.3%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The way the course was taught and organised suited me.	3.7	1.5

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

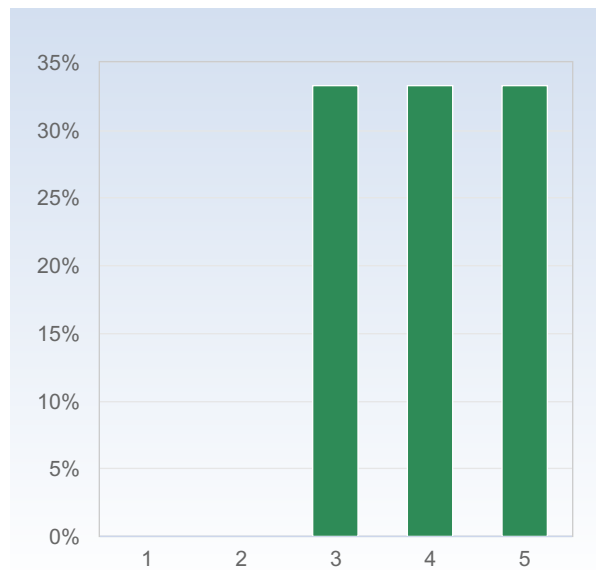
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	1 (33.3%)
5	2 (66.7%)
Total	3 (100.0%)



	Mean	Standard Deviation
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	4.7	0.6

The lectures were valuable for my learning.

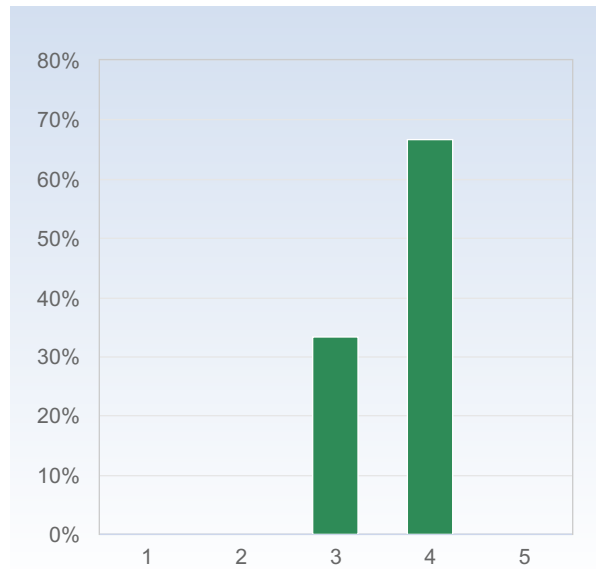
The lectures were valuable for my learning.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (33.3%)
4	1 (33.3%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The lectures were valuable for my learning.	4.0	1.0

The seminars were valuable for my learning.

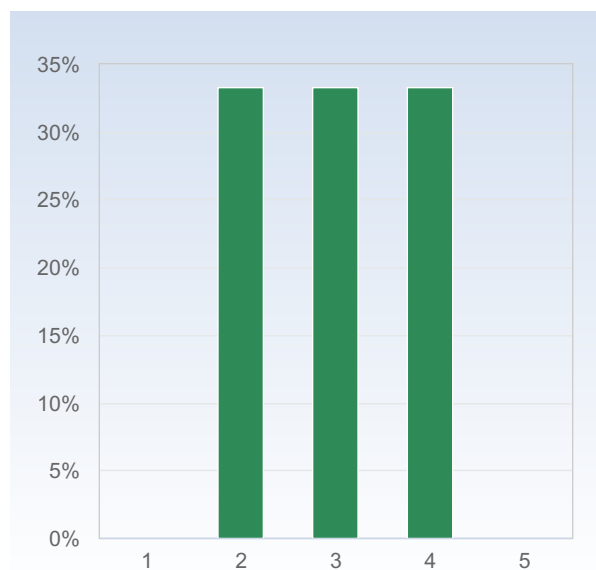
The seminars were valuable for my learning.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (33.3%)
4	2 (66.7%)
5	0 (0.0%)
Total	3 (100.0%)



	Mean	Standard Deviation
The seminars were valuable for my learning.	3.7	0.6

Studying on my own was valuable for my learning.

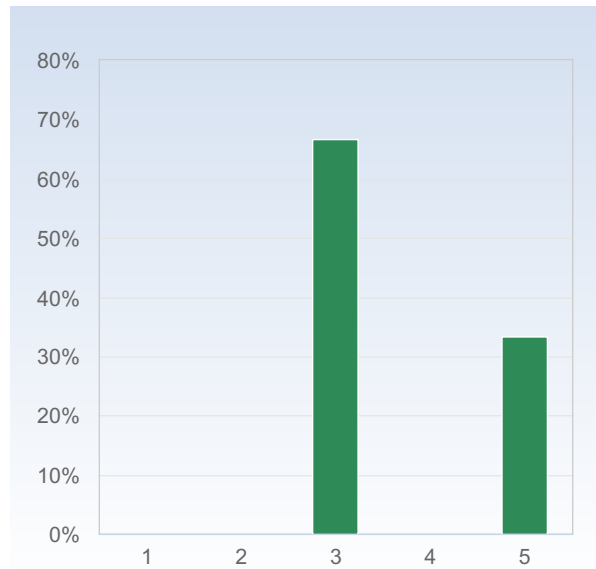
Studying on my own was valuable for my learning.	Number of responses
1	0 (0.0%)
2	1 (33.3%)
3	1 (33.3%)
4	1 (33.3%)
5	0 (0.0%)
Total	3 (100.0%)



	Mean	Standard Deviation
Studying on my own was valuable for my learning.	3.0	1.0

The course literature/material was a valuable learning resource.

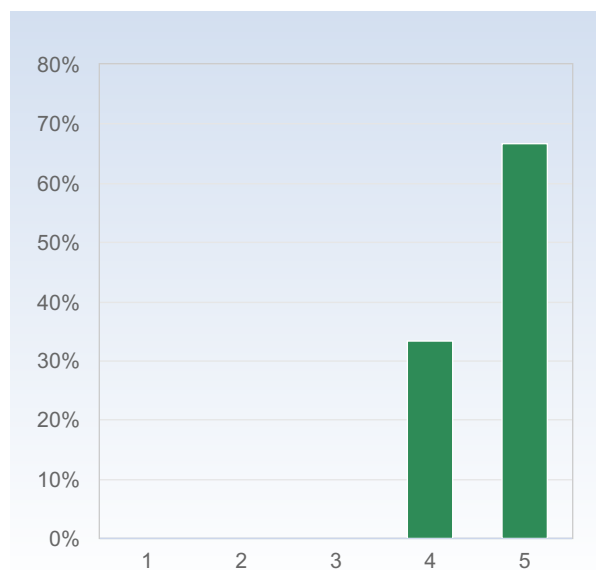
The course literature/material was a valuable learning resource.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (66.7%)
4	0 (0.0%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	3.7	1.2

The information I received before the course start was satisfactory.

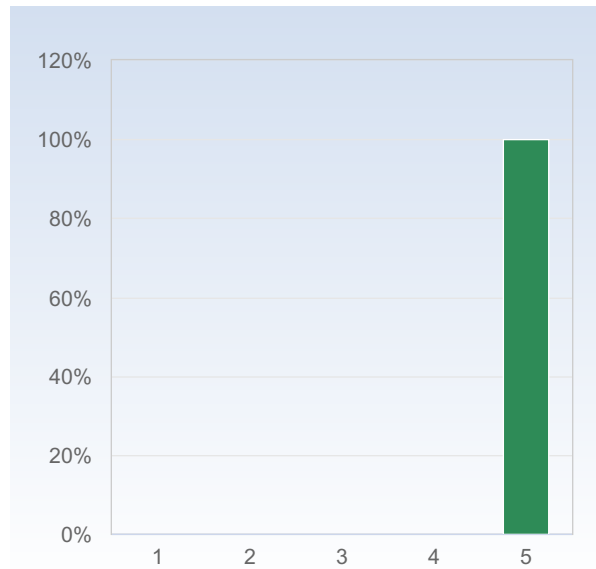
The information I received before the course start was satisfactory.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	1 (33.3%)
5	2 (66.7%)
Total	3 (100.0%)



	Mean	Standard Deviation
The information I received before the course start was satisfactory.	4.7	0.6

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

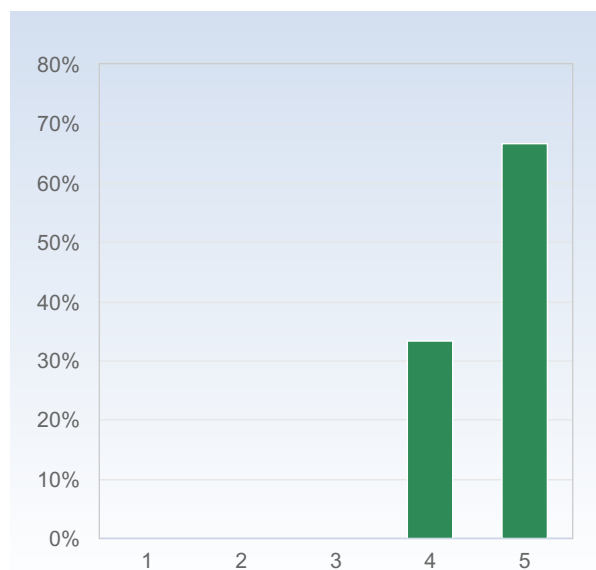
The communication with the teaching staff during the course was good.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	0 (0.0%)
5	3 (100.0%)
Total	3 (100.0%)



	Mean	Standard Deviation
The communication with the teaching staff during the course was good.	5.0	0.0

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

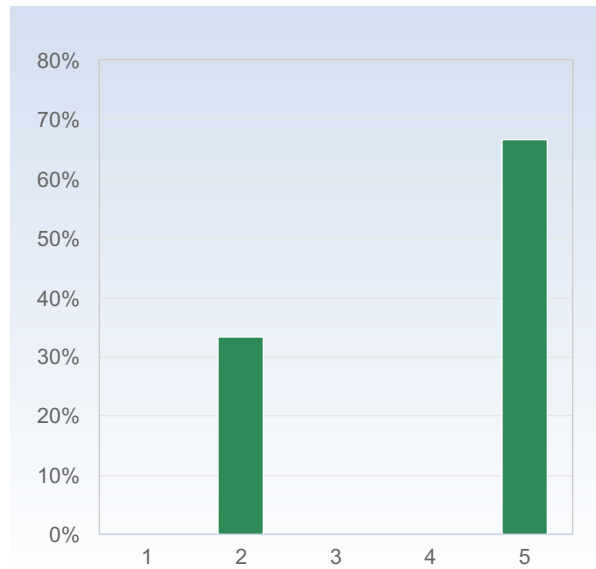
It was clear throughout the course what was expected of me.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	1 (33.3%)
5	2 (66.7%)
Total	3 (100.0%)



	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	4.7	0.6

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

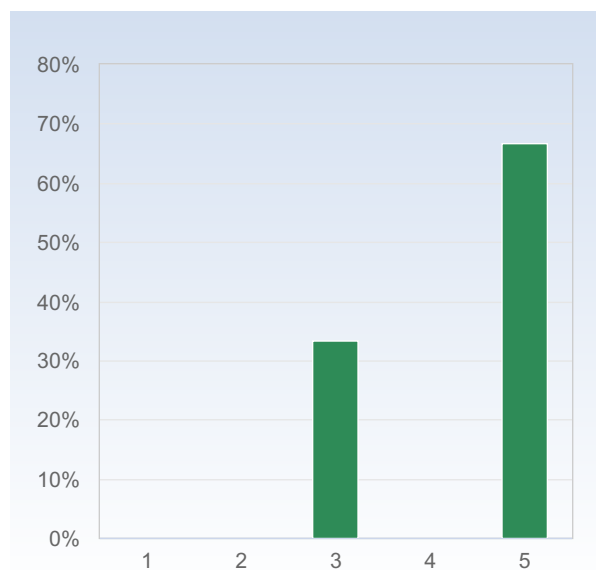
I have received valuable feedback from my teacher/teachers during the course.	Number of responses
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I have received valuable feedback from my teacher/teachers during the course.	Mean	Standard Deviation
	4.0	1.7

The course had a reasonable workload.

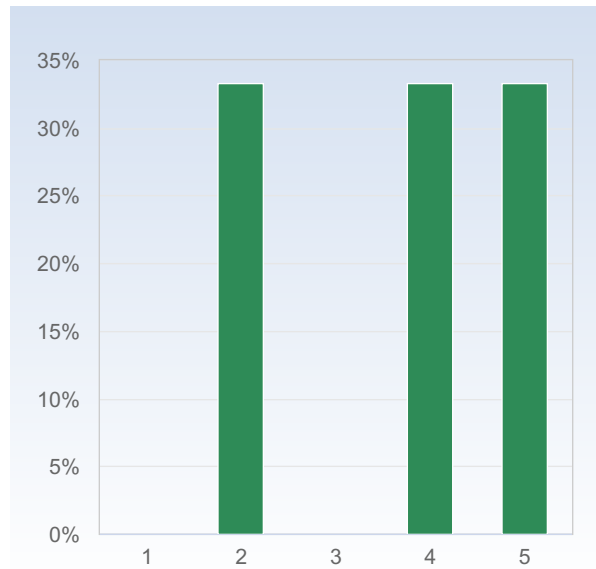
The course had a reasonable workload.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (33.3%)
4	0 (0.0%)
5	2 (66.7%)
Total	3 (100.0%)



The course had a reasonable workload.	Mean	Standard Deviation
	4.3	1.2

The workload was evenly distributed throughout the course.

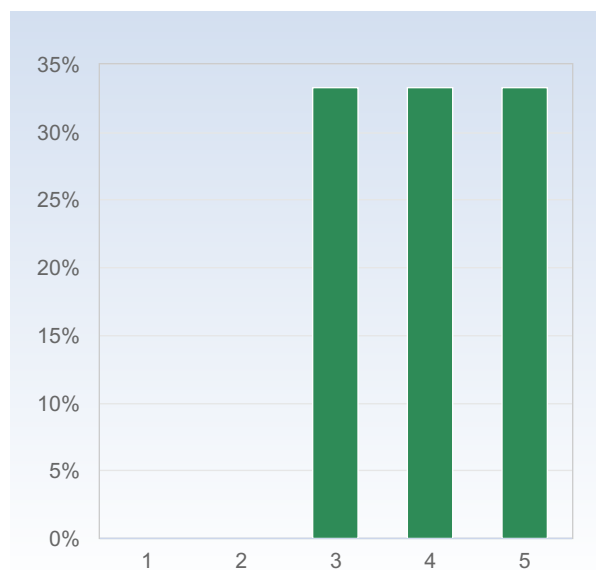
The workload was evenly distributed throughout the course.	Number of responses
1	0 (0.0%)
2	1 (33.3%)
3	0 (0.0%)
4	1 (33.3%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The workload was evenly distributed throughout the course.	3.7	1.5

The examination matched the contents and level of the course.

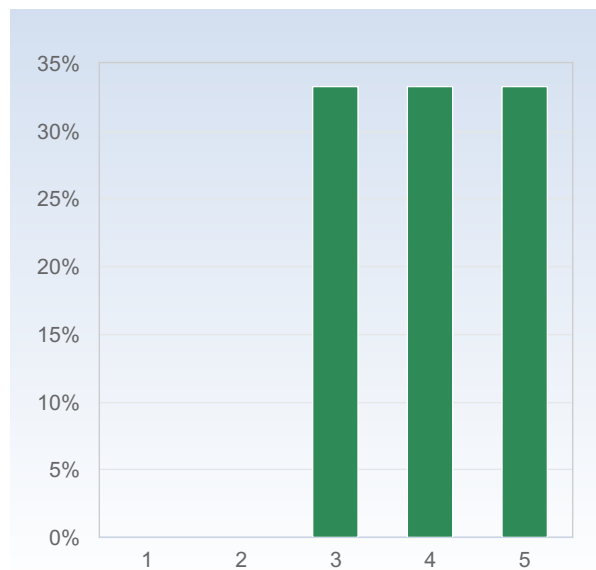
The examination matched the contents and level of the course.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (33.3%)
4	1 (33.3%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The examination matched the contents and level of the course.	4.0	1.0

Overall, I am satisfied with the course.

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2	0 (0.0%)
3	1 (33.3%)
4	1 (33.3%)
5	1 (33.3%)
Total	3 (100.0%)



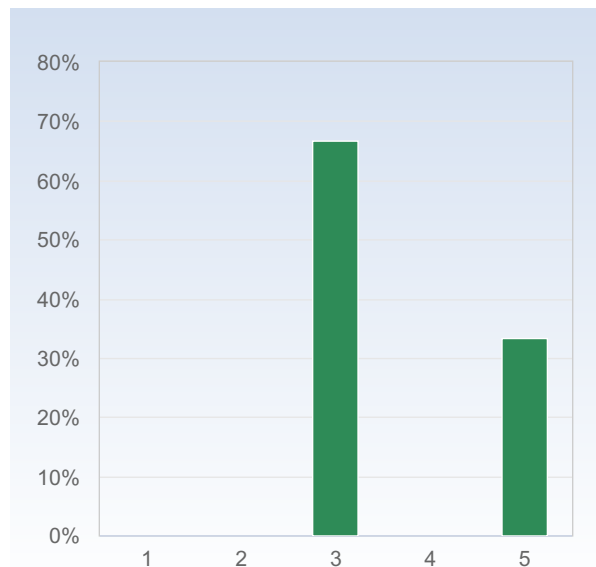
	Mean	Standard Deviation
Overall, I am satisfied with the course.	4.0	1.0

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.

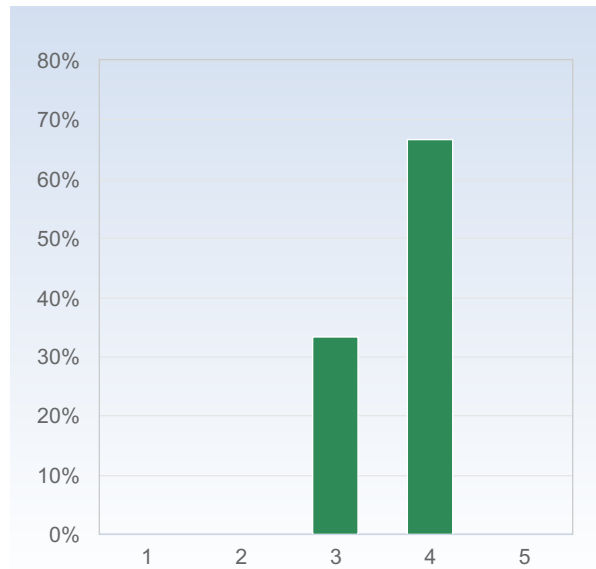
The course has increased my ability to read a mathematical text.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (66.7%)
4	0 (0.0%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	3.7	1.2

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

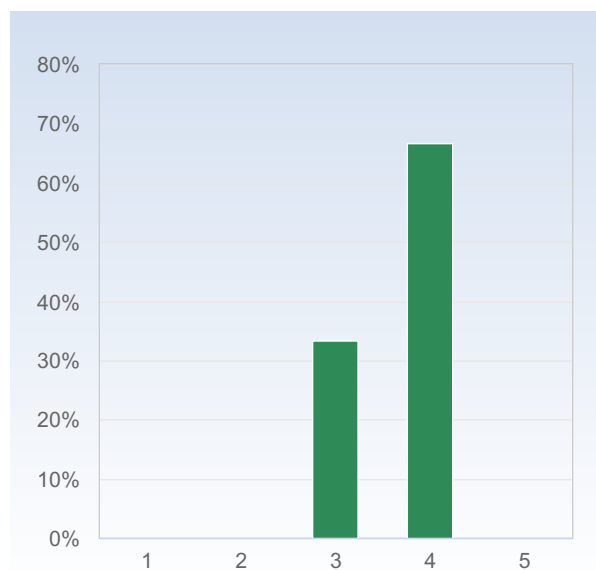
The course has increased my ability to communicate the subject in writing.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (33.3%)
4	2 (66.7%)
5	0 (0.0%)
Total	3 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject in writing.	3.7	0.6

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

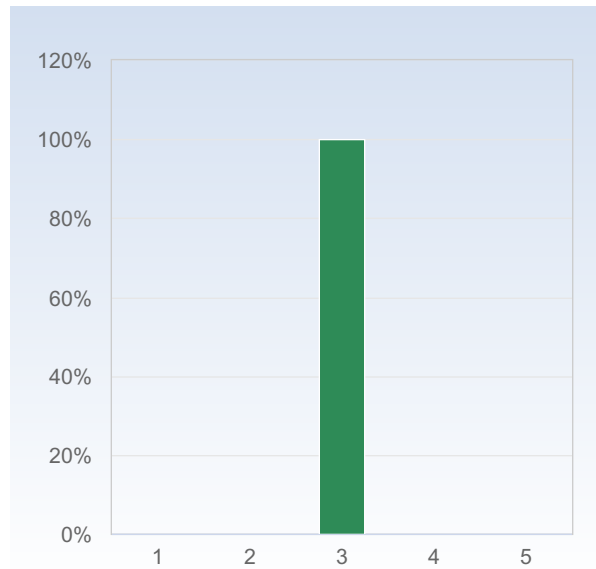
The course has increased my ability to communicate the subject orally.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (33.3%)
4	2 (66.7%)
5	0 (0.0%)
Total	3 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject orally.	3.7	0.6

The course has increased my ability to cooperate.

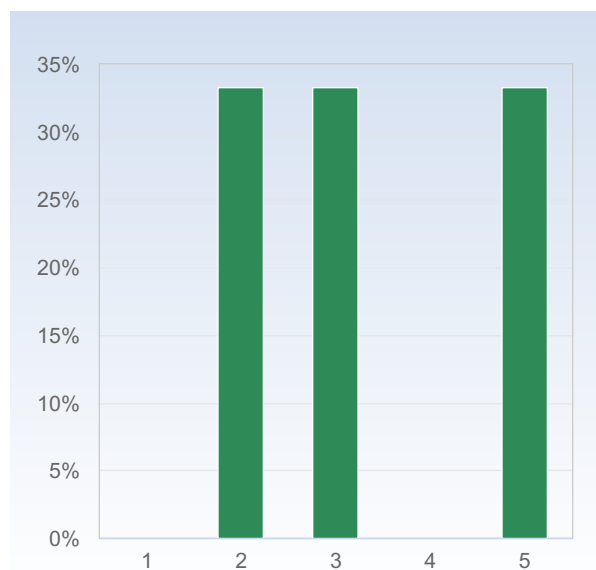
The course has increased my ability to cooperate.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	3 (100.0%)
4	0 (0.0%)
5	0 (0.0%)
Total	3 (100.0%)



	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.

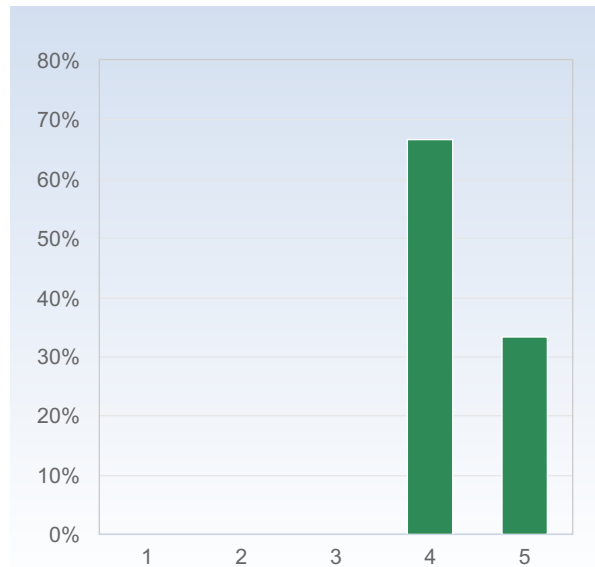
The course has increased my ability to search and process information.	Number of responses
1	0 (0.0%)
2	1 (33.3%)
3	1 (33.3%)
4	0 (0.0%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to search and process information.	3.3	1.5

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

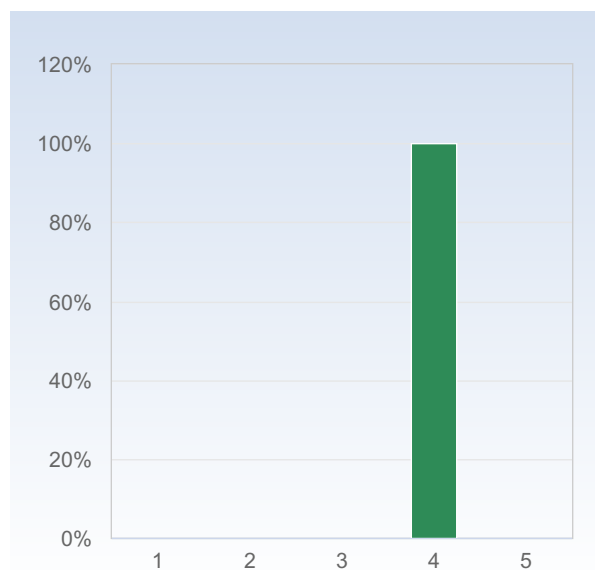
The course has increased my ability to analyze and solve problems.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	2 (66.7%)
5	1 (33.3%)
Total	3 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to analyze and solve problems.	4.3	0.6

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

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1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	3 (100.0%)
5	0 (0.0%)
Total	3 (100.0%)



	Mean	Standard Deviation
As a result of this course, I feel confident about tackling unfamiliar problems.	4.0	0.0

What did you appreciate most with the course?

What did you appreciate most with the course?

That i have become better at dissecting texts and translate them into mathematical problems. There is a significant difference to before i started the course for me.

Joachim was a nice teacher, good teaching and easy to talk to in general!

It was nice to see some application of mathematical skills in real world problems.

I think the most valuable skill I will be taking with me is sensitivity analysis.

What do you think should be improved?

What do you think should be improved?

Live coding during lectures was for me quite uninteresting and lost my interest for the problems since it took up a significant amount of time during the lectures without giving much more new insight into problems (Except for the later ones where programming is mandatory to the problem, like simulations etc). I have programmed a lot before and therefore my opinion might be biased and not represent the other participants of the course.

You can probably rush the first parts of the course a bit quicker, the first week i constantly asked myself why we were doing single variable optimization which is a thing every student taking this course should be well acquainted with. I can however see how it is a smooth way to introduce the 5 step method which is nice. But still, it could probably be done faster and i would be more stimulated and motivated to learn the contents of the course from the beginning.

While the use of spread sheets for solving integer problems is useful I would have liked to see it done with python as well, or at least some discussion as to the methods for doing it. For a mathematical course it feels a little strange learning to use a tool, but not knowing the underlying methods of it. Looking to make my own I have discovered the branch and bound method, but it would have been nice talking about this in the course.

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

no

No.
