LUNDS UNIVERSITET

Matematikcentrum
Matematik NF

Kursbokslut, Course review MATB24, Linear Analysis, autumn 2024

Course responsible: Marcus Carlsson
Number of students: 45.
Grades: 5 VG, 13 G. .

Evaluation

11 student did the evaluation, and the overall comments are unusually positive. The course got 4.6 in total, had no specific dip in any aspect, and also the free text answers were very positive towards my lectures and Stefanos seminars. Some students seem to really like the Hilbert space part and were fine with Bridges book, others seem to feel a need for a simpler text and especially simpler exercises.

Evaluation of changes:

No changes.

Suggestion for changes:

We have made extensive changes to the course plan so the future version will include more material on the Fourier transform. It seems we can keep Bridges book but that the material needs to be better prepared (with a lecture on what is norms for example...) and that we need to provide simpler exercises to complement those in Bridges book.

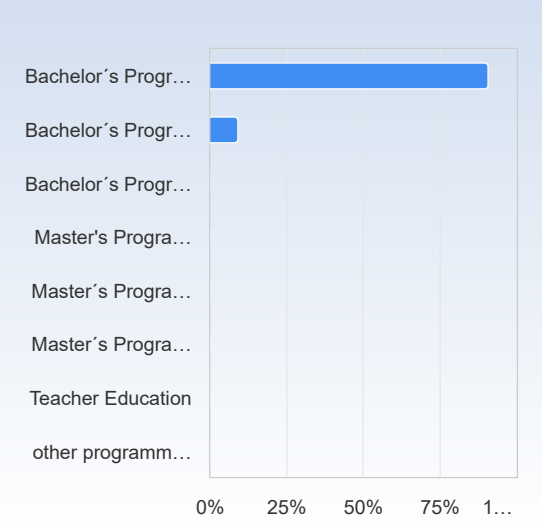
Evaluator: Marcus Carlsson.

MATB24HT24 Linear Analysis

Respondents: 51
Answer Count: 11
Answer Frequency: 21.57%

I have studied this course as part of

I have studied this course as part of	Number of responses
Bachelor´s Programme in Mathematics	10 (90.9%)
Bachelor´s Programme in Physics, Theoretical Physics, Astronomy	1 (9.1%)
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%)
Teacher Education	0 (0.0%)
other programme or as stand alone course	0 (0.0%)
Total	11 (100.0%)

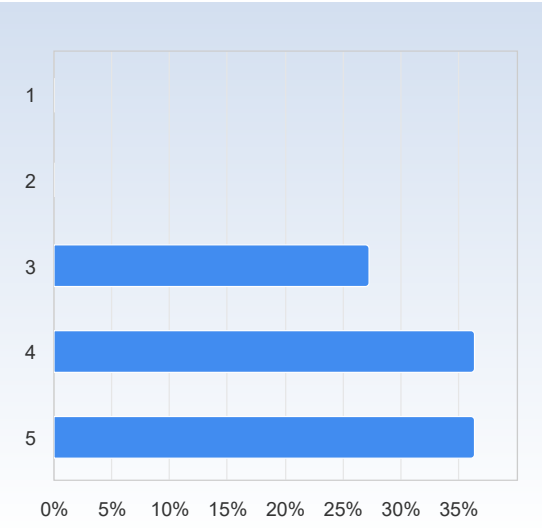


	Mean	Standard Deviation
I have studied this course as part of	1.1	0.3

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.

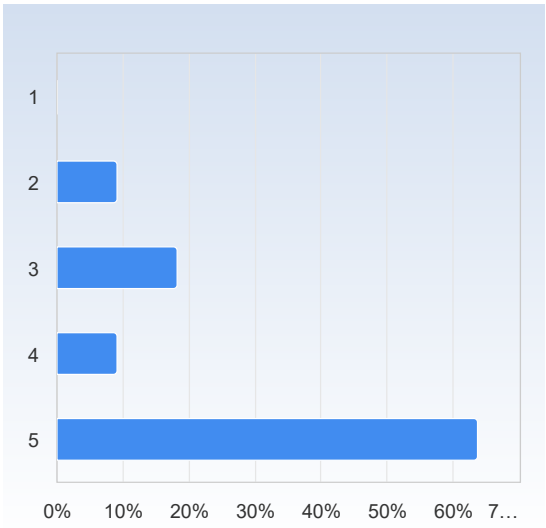
2. My prior knowledge has been sufficient to assimilate the contents of this course.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	3 (27.3%)
4	4 (36.4%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
2.My prior knowledge has been sufficient to assimilate the contents of this course.	4.1	0.8

3.I have participated actively in the course.

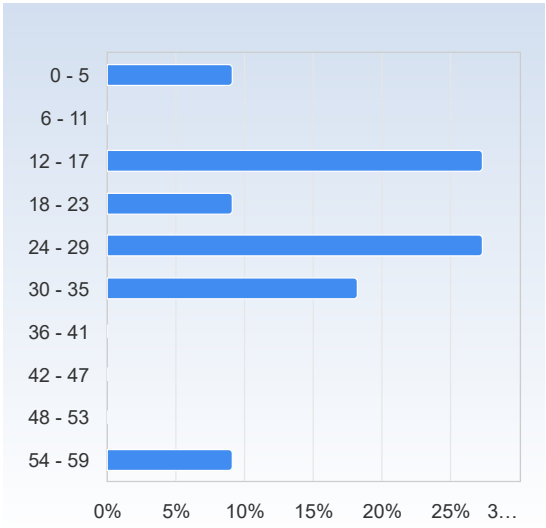
3.I have participated actively in the course.	Number of responses
1	0 (0.0%)
2	1 (9.1%)
3	2 (18.2%)
4	1 (9.1%)
5	7 (63.6%)
Total	11 (100.0%)



	Mean	Standard Deviation
3.I have participated actively in the course.	4.3	1.1

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 - 5	1 (9.1%)
6 - 11	0 (0.0%)
12 - 17	3 (27.3%)
18 - 23	1 (9.1%)
24 - 29	3 (27.3%)
30 - 35	2 (18.2%)
36 - 41	0 (0.0%)
42 - 47	0 (0.0%)
48 - 53	0 (0.0%)
54 - 59	1 (9.1%)
Total	11 (100.0%)



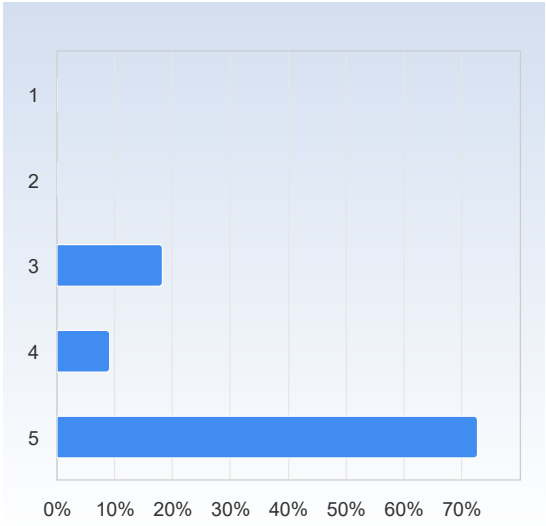
	Mean	Standard Deviation
Average number of hours spent in total on the course per week (including scheduled activities):	23.8	13.0

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.

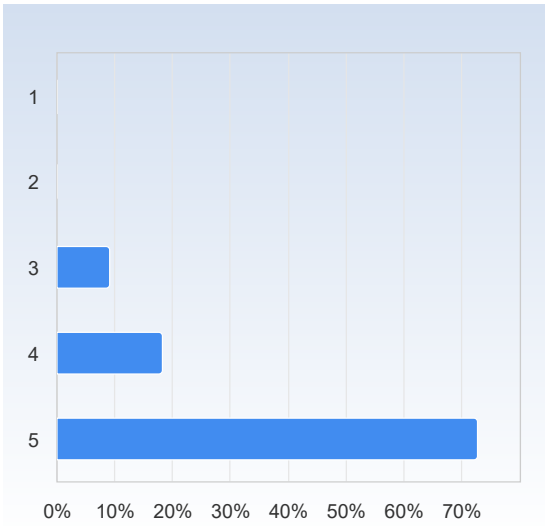
The way the course was taught and organised suited me.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (18.2%)
4	1 (9.1%)
5	8 (72.7%)
Total	11 (100.0%)



	Mean	Standard Deviation
The way the course was taught and organised suited me.	4.5	0.8

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

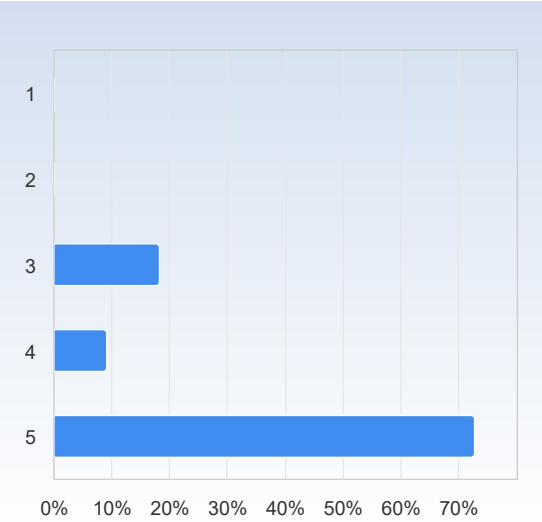
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	2 (18.2%)
5	8 (72.7%)
Total	11 (100.0%)



	Mean	Standard Deviation
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	4.6	0.7

The lectures were valuable for my learning.

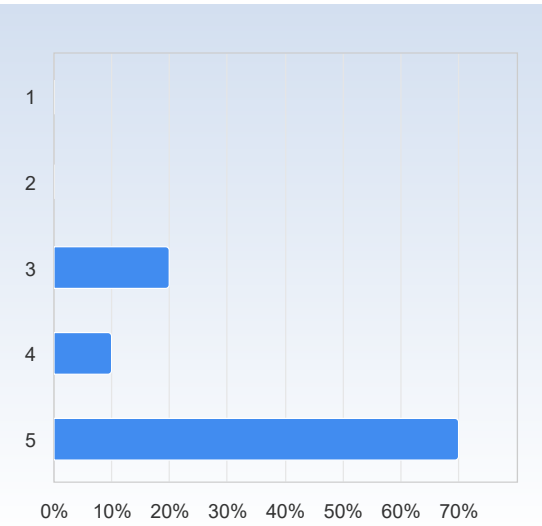
The lectures were valuable for my learning.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (18.2%)
4	1 (9.1%)
5	8 (72.7%)
Total	11 (100.0%)



	Mean	Standard Deviation
The lectures were valuable for my learning.	4.5	0.8

The seminars were valuable for my learning.

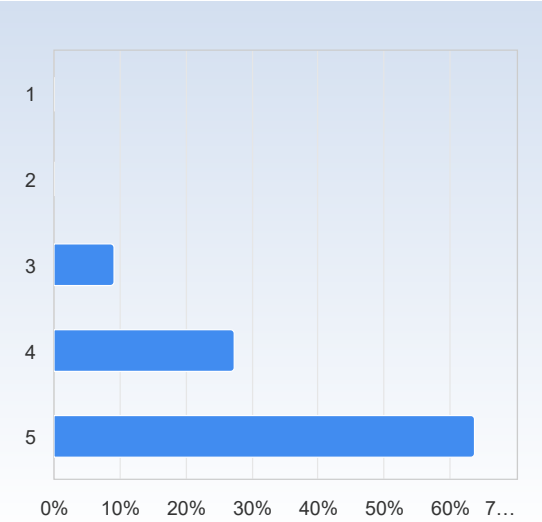
The seminars were valuable for my learning.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (20.0%)
4	1 (10.0%)
5	7 (70.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
The seminars were valuable for my learning.	4.5	0.8

Studying on my own was valuable for my learning.

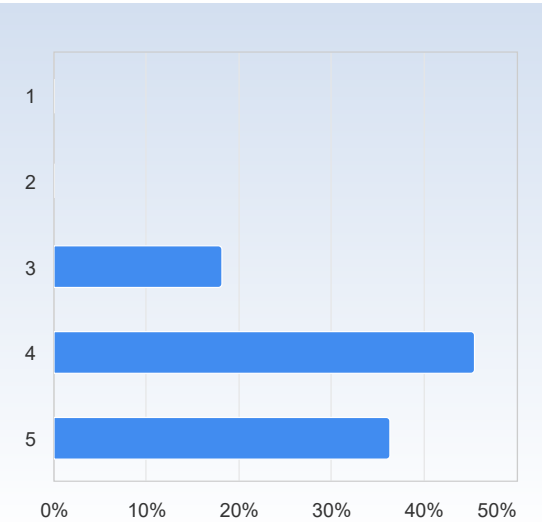
Studying on my own was valuable for my learning.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	3 (27.3%)
5	7 (63.6%)
Total	11 (100.0%)



	Mean	Standard Deviation
Studying on my own was valuable for my learning.	4.5	0.7

The course literature/material was a valuable learning resource.

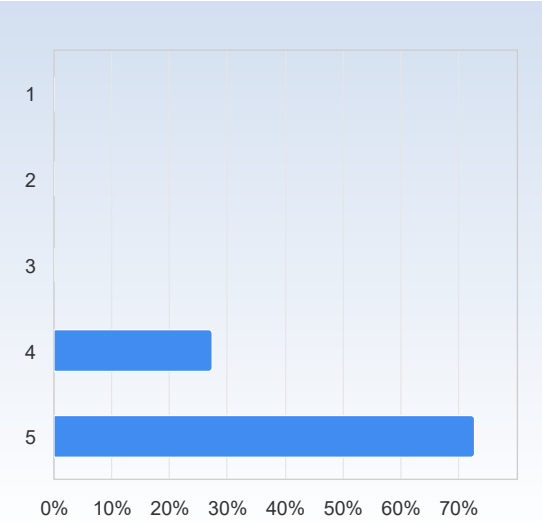
The course literature/material was a valuable learning resource.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (18.2%)
4	5 (45.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	4.2	0.8

The information I received before the course start was satisfactory.

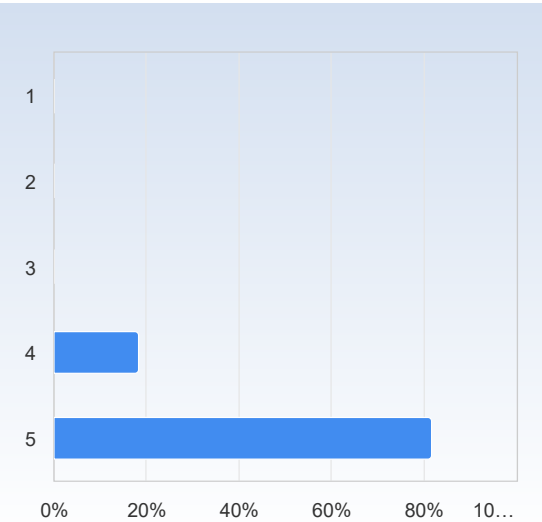
The information I received before the course start was satisfactory.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	3 (27.3%)
5	8 (72.7%)
Total	11 (100.0%)



	Mean	Standard Deviation
The information I received before the course start was satisfactory.	4.7	0.5

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

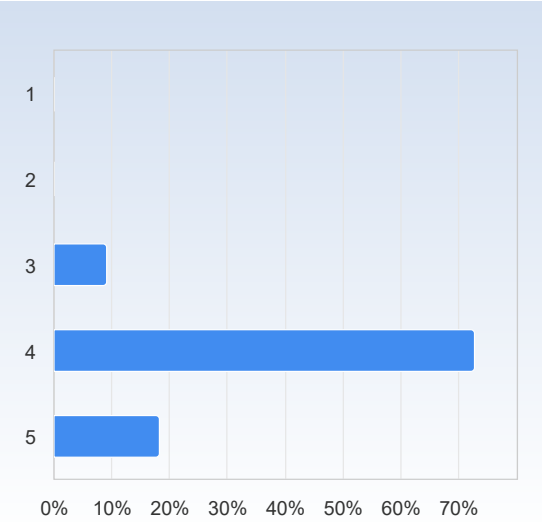
The communication with the teaching staff during the course was good.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	2 (18.2%)
5	9 (81.8%)
Total	11 (100.0%)



	Mean	Standard Deviation
The communication with the teaching staff during the course was good.	4.8	0.4

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

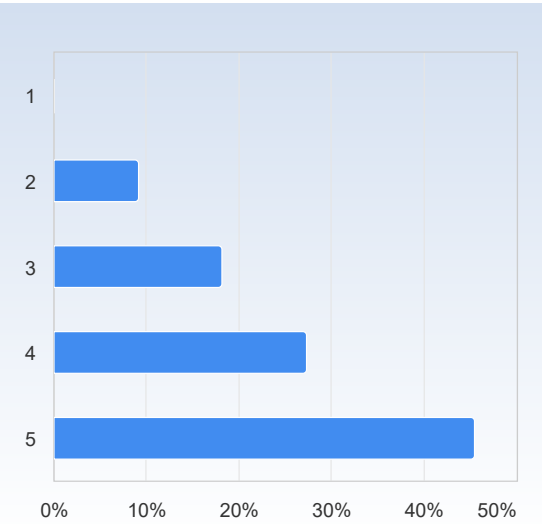
It was clear throughout the course what was expected of me.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	8 (72.7%)
5	2 (18.2%)
Total	11 (100.0%)



	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	4.1	0.5

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

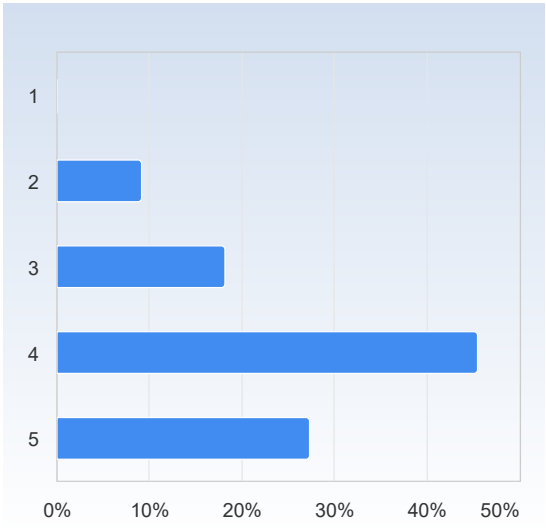
I have received valuable feedback from my teacher /teachers during the course.	Number of responses
1	0 (0.0%)
2	1 (9.1%)
3	2 (18.2%)
4	3 (27.3%)
5	5 (45.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
I have received valuable feedback from my teacher/teachers during the course.	4.1	1.0

The course had a reasonable workload.

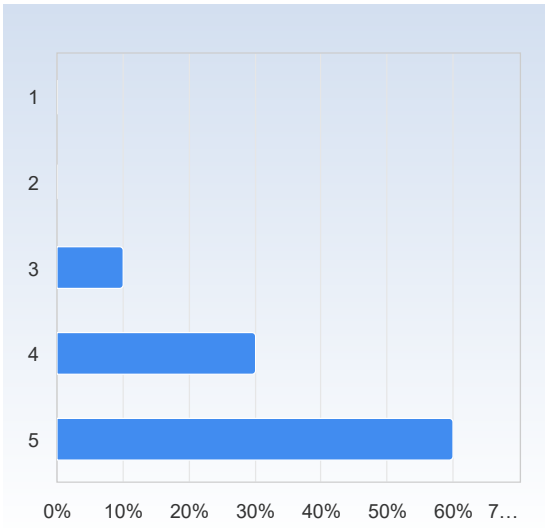
The course had a reasonable workload.	Number of responses
1	0 (0.0%)
2	1 (9.1%)
3	2 (18.2%)
4	5 (45.5%)
5	3 (27.3%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course had a reasonable workload.	3.9	0.9

The workload was evenly distributed throughout the course.

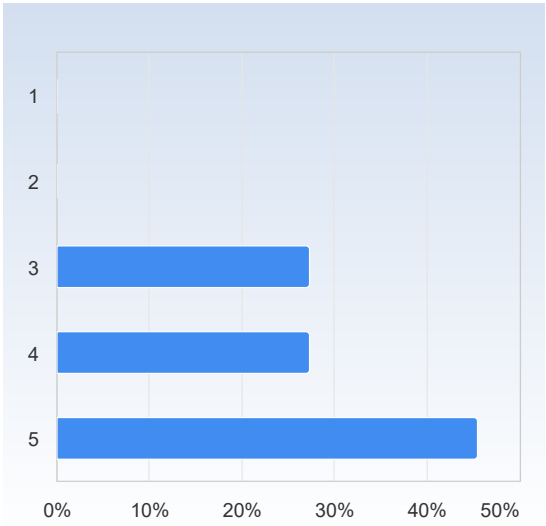
The workload was evenly distributed throughout the course.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (10.0%)
4	3 (30.0%)
5	6 (60.0%)
Total	10 (100.0%)



	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.

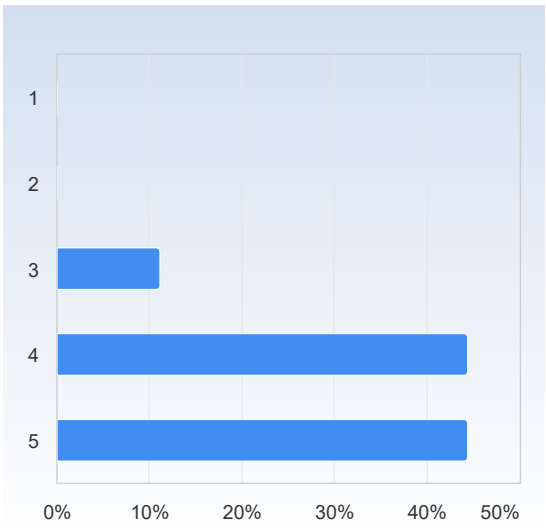
The examination matched the contents and level of the course.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	3 (27.3%)
4	3 (27.3%)
5	5 (45.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
The examination matched the contents and level of the course.	4.2	0.9

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 (11.1%)
4	4 (44.4%)
5	4 (44.4%)
Total	9 (100.0%)



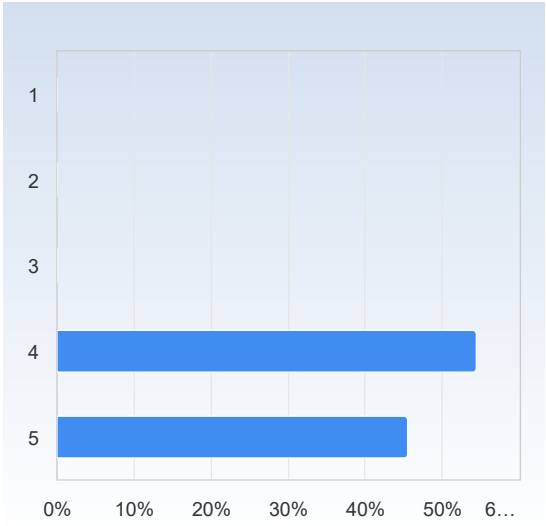
	Mean	Standard Deviation
Overall, I am satisfied with the course.	4.3	0.7

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.

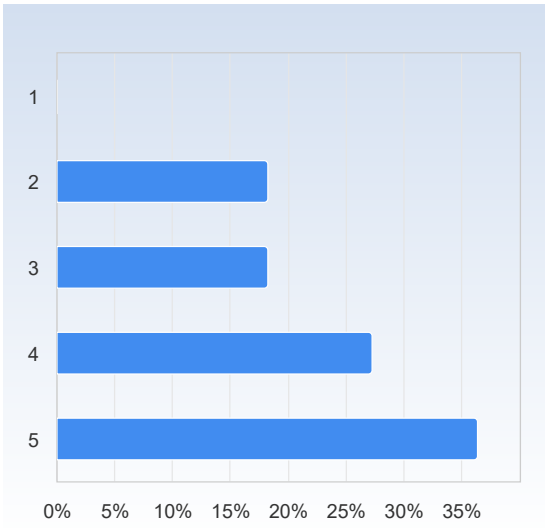
The course has increased my ability to read a mathematical text.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	6 (54.5%)
5	5 (45.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	4.5	0.5

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

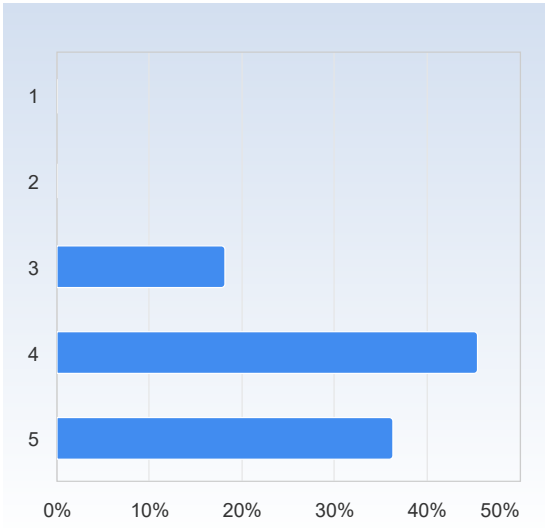
The course has increased my ability to communicate the subject in writing.	Number of responses
1	0 (0.0%)
2	2 (18.2%)
3	2 (18.2%)
4	3 (27.3%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject in writing.	3.8	1.2

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

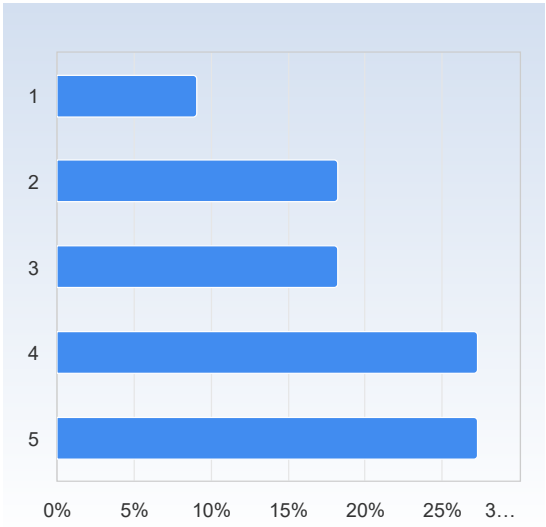
The course has increased my ability to communicate the subject orally.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (18.2%)
4	5 (45.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject orally.	4.2	0.8

The course has increased my ability to cooperate.

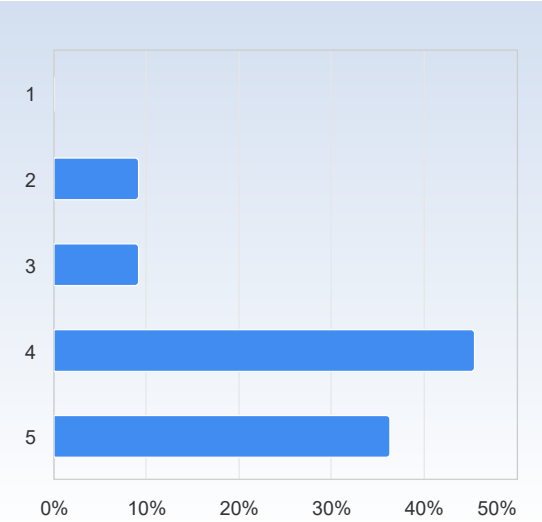
The course has increased my ability to cooperate.	Number of responses
1	1 (9.1%)
2	2 (18.2%)
3	2 (18.2%)
4	3 (27.3%)
5	3 (27.3%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to cooperate.	3.5	1.4

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

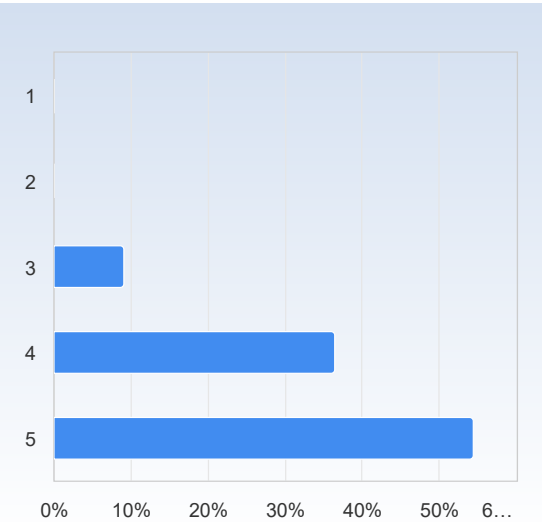
The course has increased my ability to search and process information.	Number of responses
1	0 (0.0%)
2	1 (9.1%)
3	1 (9.1%)
4	5 (45.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to search and process information.	4.1	0.9

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

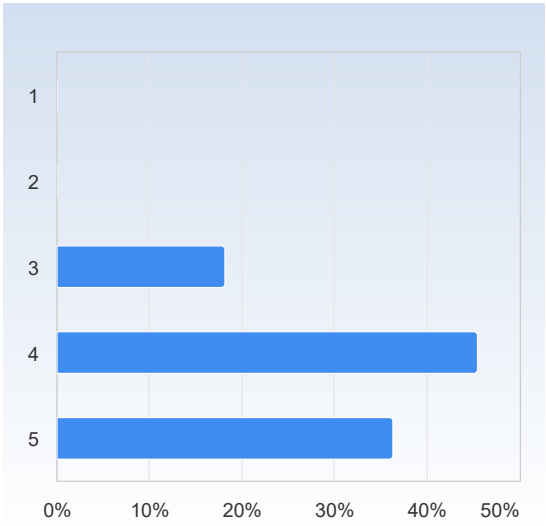
The course has increased my ability to analyze and solve problems.	Number of responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	4 (36.4%)
5	6 (54.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to analyze and solve problems.	4.5	0.7

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	2 (18.2%)
4	5 (45.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
As a result of this course, I feel confident about tackling unfamiliar problems.	4.2	0.8

What did you appreciate most with the course?

What did you appreciate most with the course?
Seminars and Lectures were both great. Stefano continues to be a great seminar leader. Marcus's lectures were really fun. I really appreciated that both of them encourage more 'basic' questions and are always willing to explain.
The seminars were particularly useful. A lot due to an excellent seminar leader, but it was also a way to actually internalise and apply the material from the lectures. As the material was very hard, it was very helpful to go through problems together. Without it I would struggle more with understanding the material.
It was a good course in general, nothing specific i appreciate more.
The lectures and seminars were very instructive
Marcus's lectures are very engaging. I also like Stefanos seminars.
The course structure was overall satesfactory: material was interesting and seminars provided a good oppertunity to hone computational skills.
The connection with Hilbert spaces. I liked the Bridges book, I believe the added exercises were not "too" difficult for this course just more abstract which is great for students continuing in pure mathematics. The professor and seminar leader answered all questions clearly and explained the problems well, this was very helpful for studying the material.
- The seminar is well structured, and the exercises are diverse. The seminar teacher, Stefano Bohmer, is very competent. His solutions are well-prepared, and he is mostly able to answer questions (a bit) beyond the course content clearly. - The lecturer, Marcus Carlsson, makes the lectures very enjoyable. The pace of his lecture is perfect -- slow enough to grasp the concept before moving to the next topics but not too slow to make it boring. Personally, I think he's funny and approachable. - The lectures on Hilbert spaces were very eye-opening.
I think introducing Hilbert space and some theorems about operators utilizing Hilbert space was cool and gives a new perspective to comprehend analytical concepts.
Both proffessors were good in their own way, Yacin who subbed in for the first two weeks was clearly still not feeling at top condition but he came anyways which was nice of him and Marcus teaches well and engages the student very well.

What do you think should be improved?

What do you think should be improved?
I don't really know what could be improved. As long as the curriculum is what it is, I think the course is structured and taught well. Although i would have greatly appreciated if there was more time between the last new subject in class and the exam itself. It was a bit of a mess. With both a lecture and a seminar on the same day as our exam in statistics. But also because more time for revision between the lectures and the exam would give me a better chance of preparing myself for the exam. I suppose I am partly at fault myself, yet I know that i would have liked a larger gap between.
I wish we had more relevant exercises for certain problems.
The section of the course dedicated to Hilbert spaces felt rather poor to me: the literature was on such a level that one needed to go out of their way to learn material outside of the scope of the course to follow along, and the section felt isolated. I'd argue the time spent on Hilbert space theory could be put to better use by spending more time on the Fourier transform. If it is to stay as a part of the course, the literature should be reviewed.
I think the written exam was too easy compared to the material in the course. At least 6q should be more challenging theoretically. Overall, maybe some more abstract material could be added but it is good as it is.
Maybe some of the problems in bridges, but i understand why the lecturer wants the theory in the course, it strings together alot of concepts.
It would be helpful if the lecture notes are uploaded.
- More lectures, seminars and content on Hilbert spaces, Banach spaces, and related topics -- anything from Bridges' book in general. Another comment on this part of the course, all theorem should be proven in the complex vector space case since that is the version we used. For example, we use the theorem that in the real v.sp. <y-Px,x-Px> <= 0 implies x-Px is orthogonal to the subspace we project onto. But one can also extend the proof a bit to get that Re<y-Px,x-Px> = Im i<y-Px,x-Px> <= 0, thus x-Px is orthogonal to the subspace we project onto, even in a complex v.sp. - The lecture on Fourier transform was a bit too fast to the point that I'm not sure that my knowledge will be that useful. Maybe we should spend more lectures on this, or cut this part out completely. - Marcus should use his notes. I think he's a good lecturer, but he was confused by other lecturers' notes too often. - The main written exam paper should be formatted in the standard way (not centred the text). For example, many people missed a sub-question of question 4 because the text is too small and may be misread as a hint only. Instead, the sub-question should be separated into parts like in questions 5 and 6. Also, if the examiner only wants the question to be solved in a specific way, it should be stated clearly that there will be deductions if other methods are used. This was not clear in question 4. - Having the list for the oral exam is misleading if it is possible to be asked questions outside of the list. Having a study guide is beneficial, but please tell your students in advance that this list is not exhaustive.
I think slightly less questions should be suggested for the seminars, as we don't manage to discuss all the problems in the seminar and it takes really long to do all the questions each week.
Not sure

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
No
Not at all
nope
No !
No
Leading question, should be posed as a totally open question instead. With that being said, not at all.
No
No.