LUND UNIVERSITY
Faculty of Science

Centre for Mathematical Sciences
Division of Mathematics and Numerical Analysis

Course Analysis for NUMA01/ÄMAA03 Computational Programming with Python, Autumn 2025

Course Information

Lecturer: Malin Christersson, Mengwu Guo
Teaching assistants: Niklas Kotarsky, Amro Abou-Hachem, Truls Henriksson, Pim Nelissen
Number of students:
On the NUMA01 course we had 103 registered students and on the ÄMAA03 course we had 27 registered students. The NUMA01 course is taken as part of Bachelor's Programme in Mathematics, Physics, Theoretical Physics, Astronomy or as a stand alone course. The ÄMAA03 course is taken as part of Teacher Education.

26 students answered the course evaluation, 12 of them are enrolled on the Bachelosr's Programme in Mathematics, 8 on the Bachelor's Programme in Physics, Theoretical Physics or Astronomy, 1 on other Bachelor's Programme, 4 in Teacher Education, and 2 as stand alone course.

Examination

81 (79%) students taking the NUMA01 course passed the Final Project and Homework 1 and 2. 18 (67%) students taking the ÄMAA03 course passed the Final Project and Homework 1 (Homework 2 is not given to students taking ÄMAA03).

The Final Project presentations took place between 15:th and 19:th December 2026. Six students were asked to make resit presentations in January, of these six students, five passed in January.

Course Evaluation

Teachers' comments:
Only 20% of the students answered the course evaluation.

A surprising number of the students thought that they didn't have sufficient prior knowledge to assimilate the contents of the course. Previous years we have given 1-3 lectures prior to the course to introduce programming for absolute beginners. This semester no prior lectures were given and apparently the beginning of the course should have had a slower pace.

The average number of hours spent on the course per week (6.4 hours), was surprisingly low and 32% of the students spent less than three hours a week on the course, including scheduled activities.

Since we have restructured most of our first-year mathematics courses, the students taking the NUMA01/ÄMAA03 course, no longer know linear algebra when we start using linear algebra within a Python-context. Unfortunately, we hadn't fully realized this during the autumn semester, and it can be seen in the free text answers that some students complained about the mismatch between our teaching and their knowledge. From the free text answers, it can also be seen that the students appreciate all the teachers and the diversity of programming. And, apart from the

comments about the linear algebra mismatch, they think that the pace should be slower and the literature easier to read.

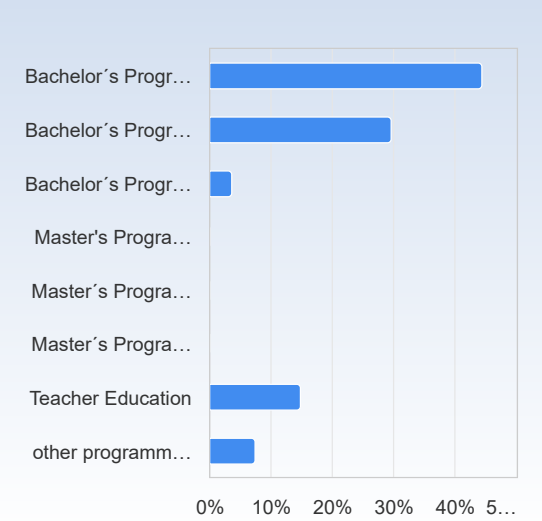
Suggestions for the next course realisation: The introduction to programming at the beginning of the course should be slower and perhaps be given some extra hours. Since we will have students not knowing linear algebra when we need to introduce it to fully utilize all of Python, some introduction to linear algebra should be given withing the NUMA01/ÄMAA03 course.

NUMA01HT25 Computational Programming with Python

Respondents: 130
Answer Count: 26
Answer Frequency: 20.00%

I have studied this course as part of

I have studied this course as part of	Number of responses
Bachelor´s Programme in Mathematics	12 (46.2%)
Bachelor´s Programme in Physics, Theoretical Physics, Astronomy	8 (30.8%)
Bachelor´s Programme, other specialization	1 (3.8%)
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	4 (15.4%)
other programme or as stand alone course	2 (7.7%)
Total	27 (103.8%)

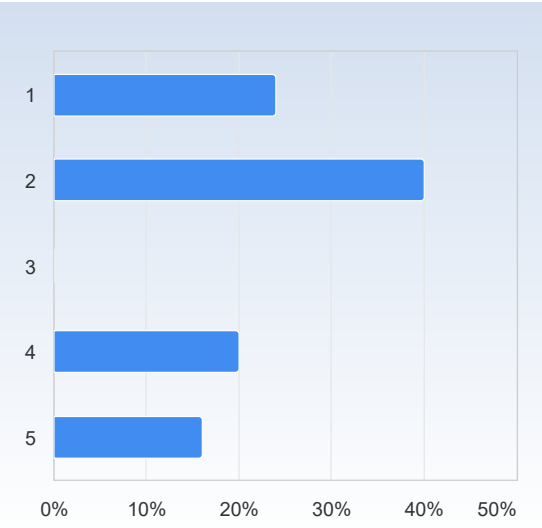


	Mean	Standard Deviation
I have studied this course as part of	2.8	2.5

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.

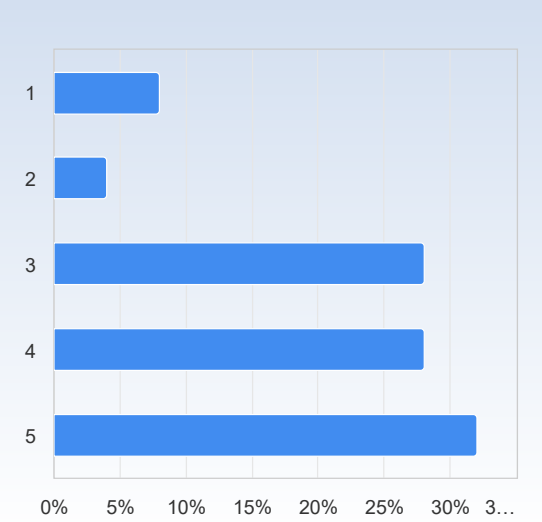
2. My prior knowledge has been sufficient to assimilate the contents of this course.	Number of responses
1	6 (24.0%)
2	10 (40.0%)
3	0 (0.0%)
4	5 (20.0%)
5	4 (16.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
2.My prior knowledge has been sufficient to assimilate the contents of this course.	2.6	1.5

3.I have participated actively in the course.

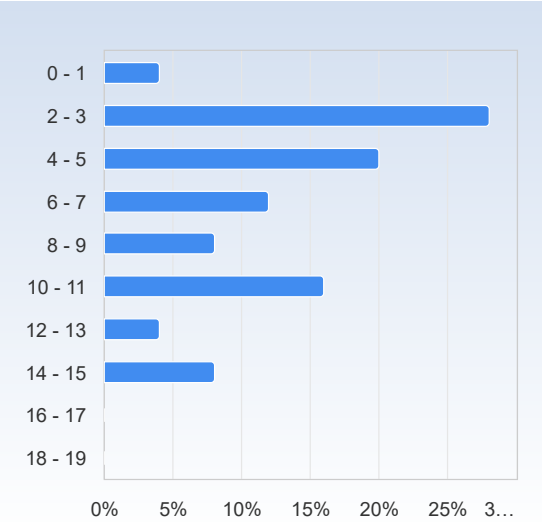
3.I have participated actively in the course.	Number of responses
1	2 (8.0%)
2	1 (4.0%)
3	7 (28.0%)
4	7 (28.0%)
5	8 (32.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
3.I have participated actively in the course.	3.7	1.2

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 - 1	1 (4.0%)
2 - 3	7 (28.0%)
4 - 5	5 (20.0%)
6 - 7	3 (12.0%)
8 - 9	2 (8.0%)
10 - 11	4 (16.0%)
12 - 13	1 (4.0%)
14 - 15	2 (8.0%)
16 - 17	0 (0.0%)
18 - 19	0 (0.0%)
Total	25 (100.0%)



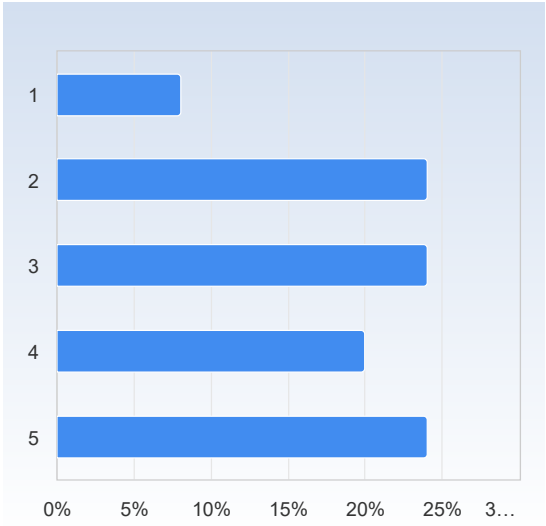
	Mean	Standard Deviation
Average number of hours spent in total on the course per week (including scheduled activities):	6.4	4.1

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.

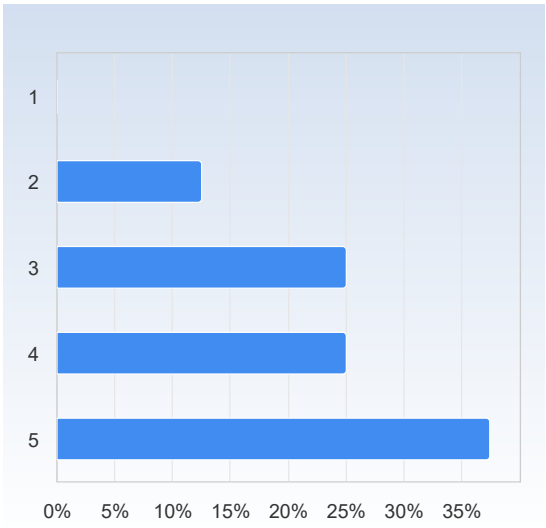
The way the course was taught and organised suited me.	Number of responses
1	2 (8.0%)
2	6 (24.0%)
3	6 (24.0%)
4	5 (20.0%)
5	6 (24.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The way the course was taught and organised suited me.	3.3	1.3

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

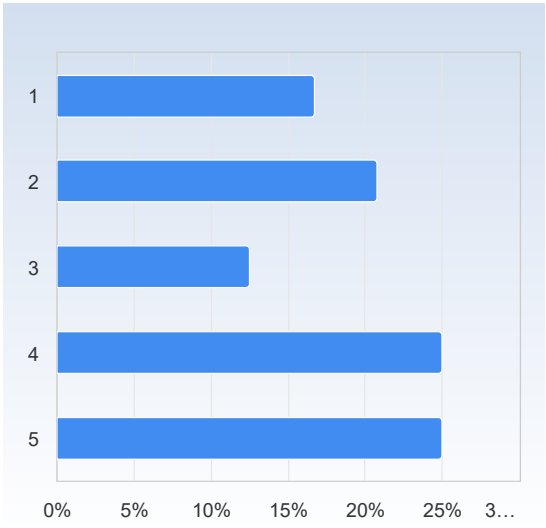
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	Number of responses
1	0 (0.0%)
2	3 (12.5%)
3	6 (25.0%)
4	6 (25.0%)
5	9 (37.5%)
Total	24 (100.0%)



	Mean	Standard Deviation
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	3.9	1.1

The lectures were valuable for my learning.

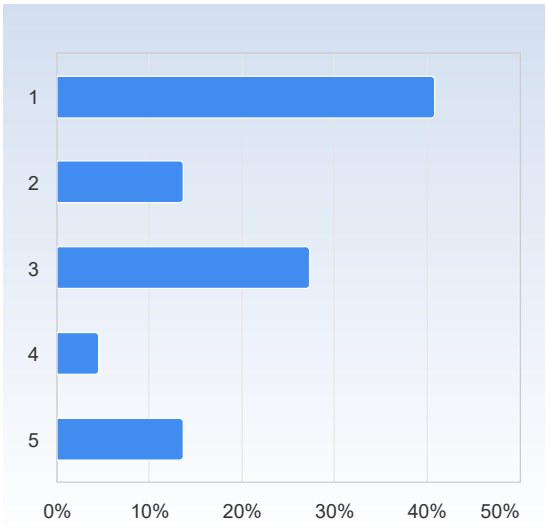
The lectures were valuable for my learning.	Number of responses
1	4 (16.7%)
2	5 (20.8%)
3	3 (12.5%)
4	6 (25.0%)
5	6 (25.0%)
Total	24 (100.0%)



	Mean	Standard Deviation
The lectures were valuable for my learning.	3.2	1.5

The seminars were valuable for my learning.

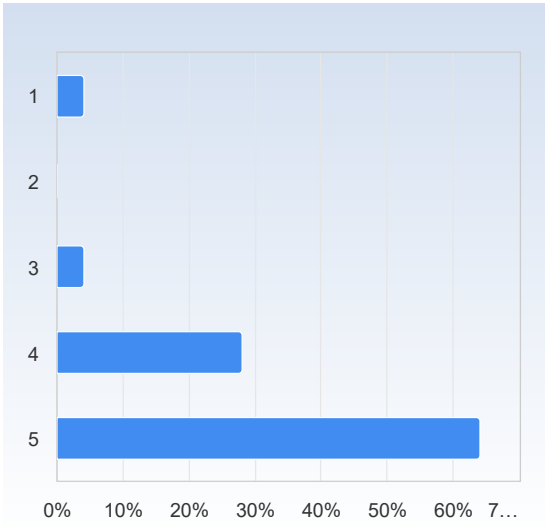
The seminars were valuable for my learning.	Number of responses
1	9 (40.9%)
2	3 (13.6%)
3	6 (27.3%)
4	1 (4.5%)
5	3 (13.6%)
Total	22 (100.0%)



	Mean	Standard Deviation
The seminars were valuable for my learning.	2.4	1.4

Studying on my own was valuable for my learning.

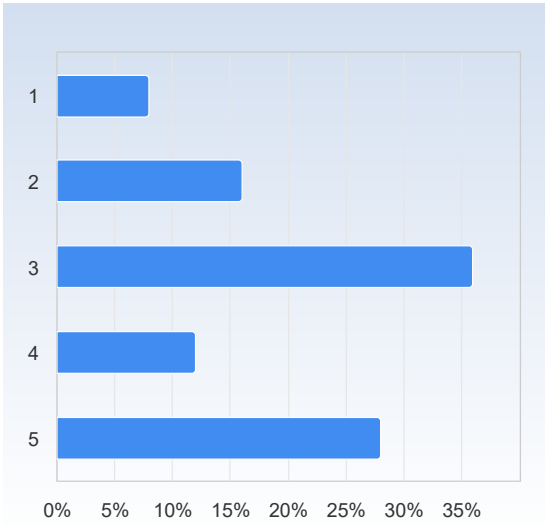
Studying on my own was valuable for my learning.	Number of responses
1	1 (4.0%)
2	0 (0.0%)
3	1 (4.0%)
4	7 (28.0%)
5	16 (64.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
Studying on my own was valuable for my learning.	4.5	0.9

The course literature/material was a valuable learning resource.

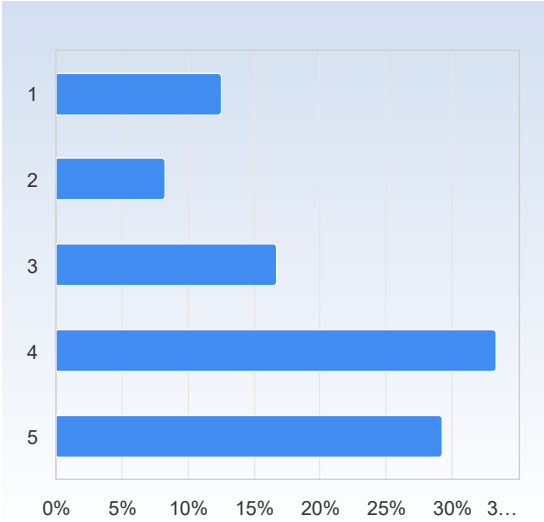
The course literature/material was a valuable learning resource.	Number of responses
1	2 (8.0%)
2	4 (16.0%)
3	9 (36.0%)
4	3 (12.0%)
5	7 (28.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	3.4	1.3

The information I received before the course start was satisfactory.

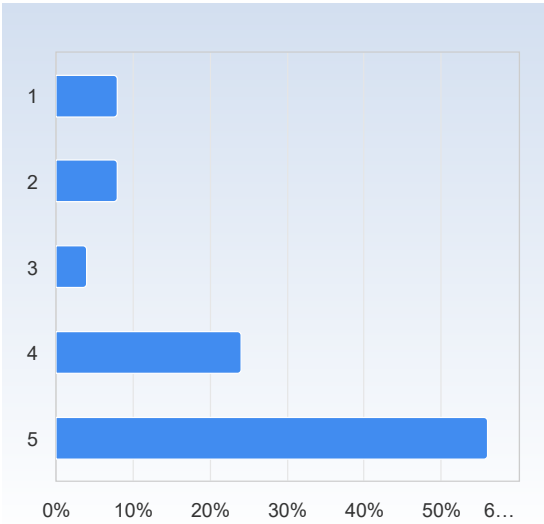
The information I received before the course start was satisfactory.	Number of responses
1	3 (12.5%)
2	2 (8.3%)
3	4 (16.7%)
4	8 (33.3%)
5	7 (29.2%)
Total	24 (100.0%)



	Mean	Standard Deviation
The information I received before the course start was satisfactory.	3.6	1.3

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

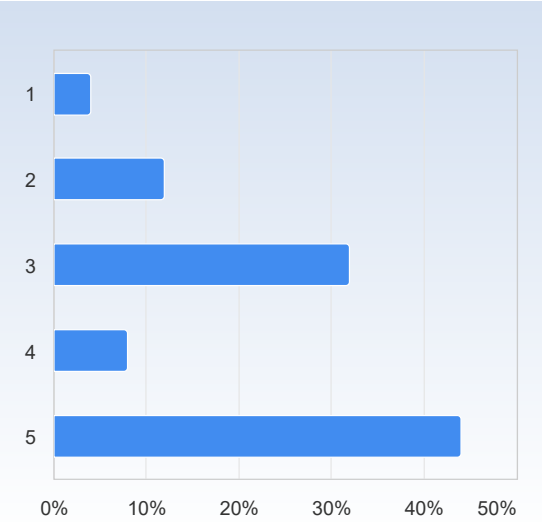
The communication with the teaching staff during the course was good.	Number of responses
1	2 (8.0%)
2	2 (8.0%)
3	1 (4.0%)
4	6 (24.0%)
5	14 (56.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The communication with the teaching staff during the course was good.	4.1	1.3

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

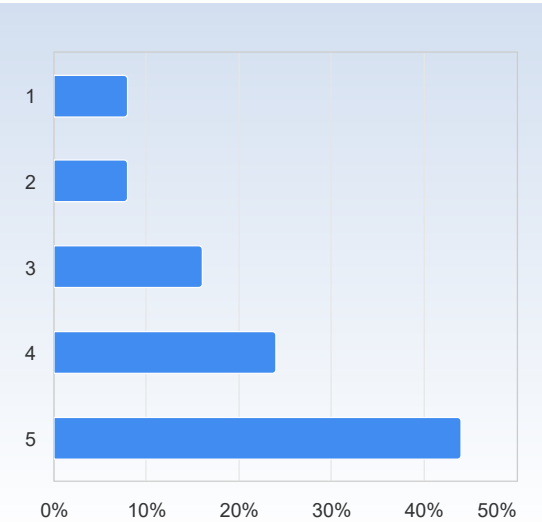
It was clear throughout the course what was expected of me.	Number of responses
1	1 (4.0%)
2	3 (12.0%)
3	8 (32.0%)
4	2 (8.0%)
5	11 (44.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	3.8	1.3

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

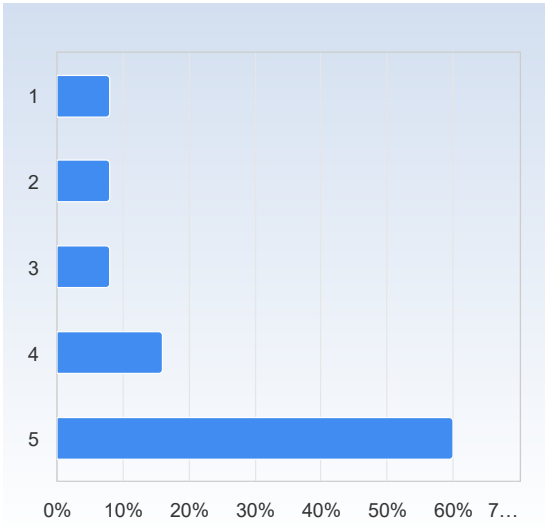
I have received valuable feedback from my teacher /teachers during the course.	Number of responses
1	2 (8.0%)
2	2 (8.0%)
3	4 (16.0%)
4	6 (24.0%)
5	11 (44.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
I have received valuable feedback from my teacher/teachers during the course.	3.9	1.3

The course had a reasonable workload.

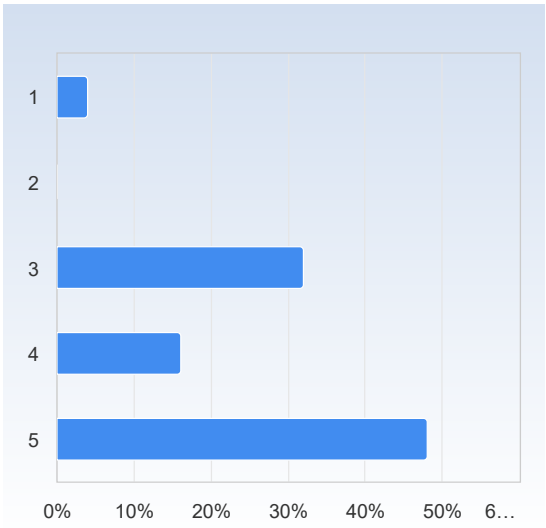
The course had a reasonable workload.	Number of responses
1	2 (8.0%)
2	2 (8.0%)
3	2 (8.0%)
4	4 (16.0%)
5	15 (60.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course had a reasonable workload.	4.1	1.3

The workload was evenly distributed throughout the course.

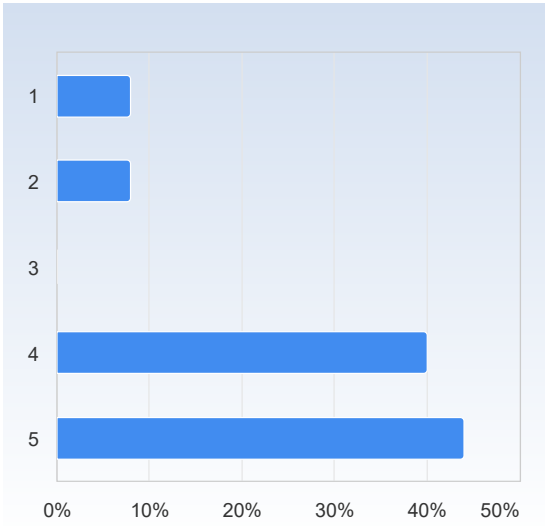
The workload was evenly distributed throughout the course.	Number of responses
1	1 (4.0%)
2	0 (0.0%)
3	8 (32.0%)
4	4 (16.0%)
5	12 (48.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The workload was evenly distributed throughout the course.	4.0	1.1

The examination matched the contents and level of the course.

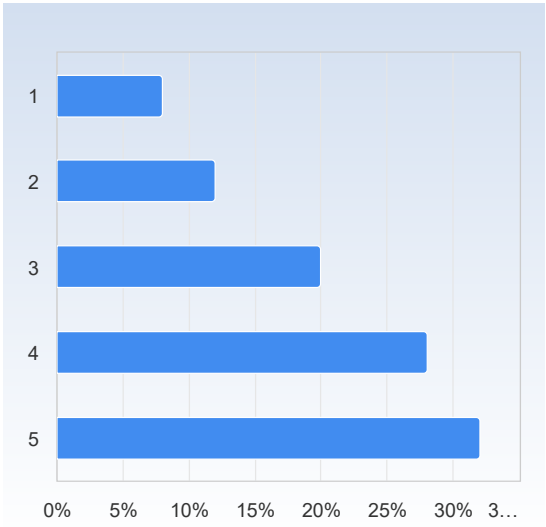
The examination matched the contents and level of the course.	Number of responses
1	2 (8.0%)
2	2 (8.0%)
3	0 (0.0%)
4	10 (40.0%)
5	11 (44.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The examination matched the contents and level of the course.	4.0	1.2

Overall, I am satisfied with the course.

Overall, I am satisfied with the course.	Number of responses
1	2 (8.0%)
2	3 (12.0%)
3	5 (20.0%)
4	7 (28.0%)
5	8 (32.0%)
Total	25 (100.0%)



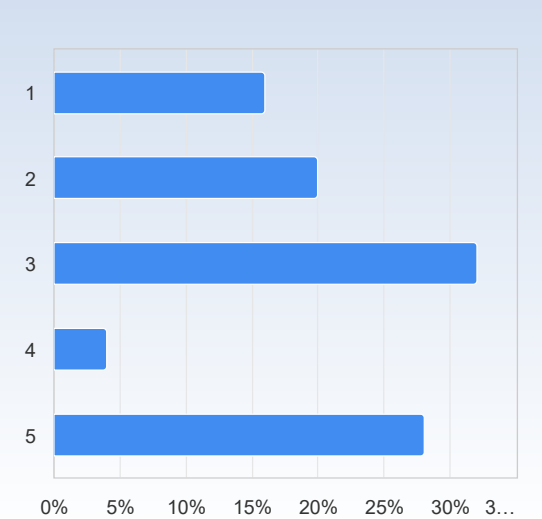
	Mean	Standard Deviation
Overall, I am satisfied with the course.	3.6	1.3

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.

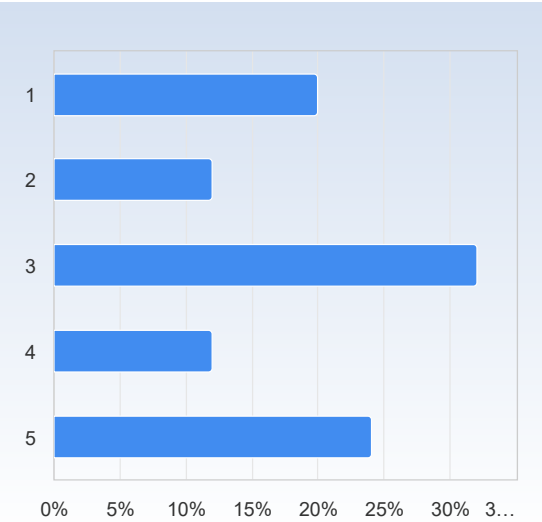
The course has increased my ability to read a mathematical text.	Number of responses
1	4 (16.0%)
2	5 (20.0%)
3	8 (32.0%)
4	1 (4.0%)
5	7 (28.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	3.1	1.4

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

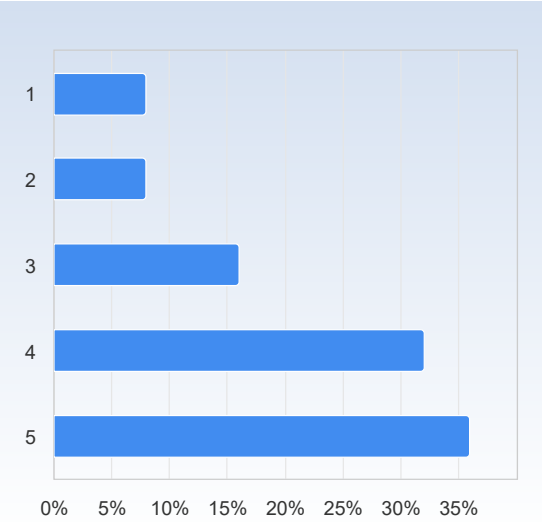
The course has increased my ability to communicate the subject in writing.	Number of responses
1	5 (20.0%)
2	3 (12.0%)
3	8 (32.0%)
4	3 (12.0%)
5	6 (24.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject in writing.	3.1	1.4

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

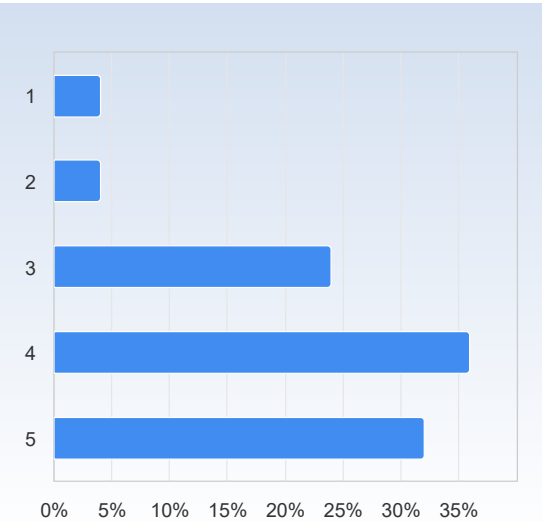
The course has increased my ability to communicate the subject orally.	Number of responses
1	2 (8.0%)
2	2 (8.0%)
3	4 (16.0%)
4	8 (32.0%)
5	9 (36.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject orally.	3.8	1.3

The course has increased my ability to cooperate.

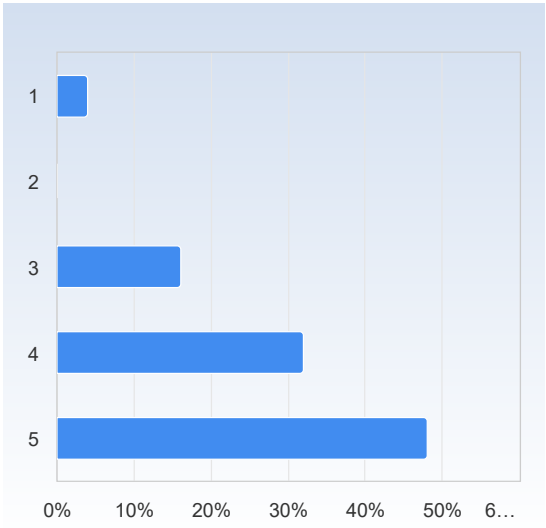
The course has increased my ability to cooperate.	Number of responses
1	1 (4.0%)
2	1 (4.0%)
3	6 (24.0%)
4	9 (36.0%)
5	8 (32.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to cooperate.	3.9	1.1

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

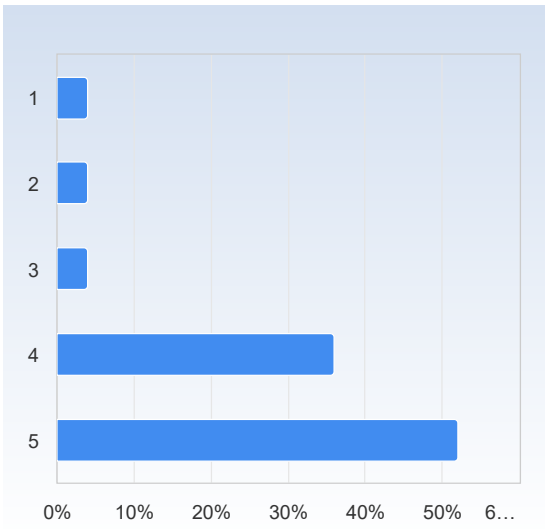
The course has increased my ability to search and process information.	Number of responses
1	1 (4.0%)
2	0 (0.0%)
3	4 (16.0%)
4	8 (32.0%)
5	12 (48.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to search and process information.	4.2	1.0

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

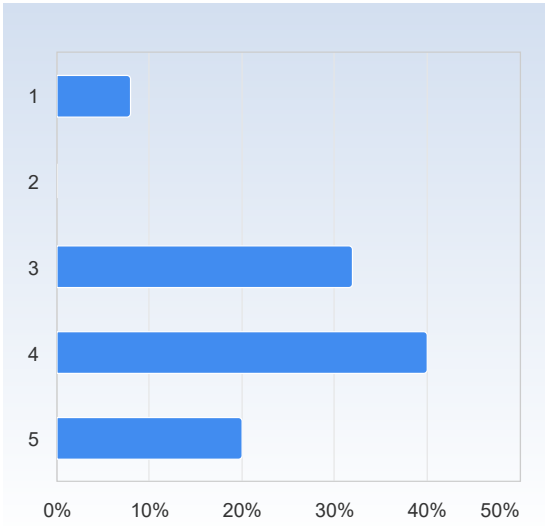
The course has increased my ability to analyze and solve problems.	Number of responses
1	1 (4.0%)
2	1 (4.0%)
3	1 (4.0%)
4	9 (36.0%)
5	13 (52.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to analyze and solve problems.	4.3	1.0

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	2 (8.0%)
2	0 (0.0%)
3	8 (32.0%)
4	10 (40.0%)
5	5 (20.0%)
Total	25 (100.0%)



	Mean	Standard Deviation
As a result of this course, I feel confident about tackling unfamiliar problems.	3.6	1.1

What did you appreciate most with the course?

What did you appreciate most with the course?
The teacher Malin and the TAs
I think I learned the most by the literature.
I enjoyed the project - it was fun
The assignments.
The amount of group work
I appreciated the diversity of programming structures and objects that we studied in Python. I also very much appreciated the ability to choose my final project and work with empirical data analysis, that part was extremely valuable.
The fast feedback from teachers.
The final assignment
I appreciated the contact with the teachers and the help from the TAs during the course. They gave valuable feedback during the smaller and bigger presentations and the TAs assisting both the exercise classes and the homework presentations have been very kind and helpful and have made the subject seem less intimidating. I also appreciated the group projects in the course, since they allowed us to learn from each other. As someone who did not have any prior knowledge on programming, this was particularily helpful.
Malin as a lecturer. She always listened to feedback and was great at teaching the subject.
Bra slutuppgift där man får samarbeta och lösa problem tillsammans. Det är precis så man oftast tacklar programmering i verkligheten. Upplägget där gillade jag.
The final project and the assignments
How the assignments was divided!

What do you think should be improved?

What do you think should be improved?
n/a
The pace was very fast for beginners.
Start with the basics in programming because I had NO background in programming and I felt that they assume that we know alot more than we/I do.
Det mesta tyvärr. Om man som jag kommer till denna kurs utan några förkunskaper så är det redan kört inlärningsmässigt (iallafall om man läser fler och större kurser vid sidan om). Du har ingen chans då, speciellt om du inte har något intresse för programmering. Jag försökte ändå anstränga mig de första veckorna men var trots detta helt borta efter ungefär tre veckor. Kursen är alltså alldeles för svår, och det är inte bara jag som tycker det här. Näst intill alla som jag pratat med som har tagit denna kursen har hållit med. Tro mig, det är ett problem! Ni måste verkligen fixa denna kursen så att man lär sig någonting av den. Jag kan med handen på hjärtat säga att jag har inget vidare intresse för programmering, men jag försökte. Trots detta går jag ifrån denna kursen och kan i princip lika mycket som innan jag började på den. Så, konstruktiv kritik: Minska på stoffet. Ni kan välja på att minska på kursinnehållet så att fler har en chans att lära sig, ELLER på att säga "vi kan inte minska på kursinnehållet (i praktiken: vi bryr oss inte) och bibehålla kursen som den är och därmed att tusentals studenter fortsatt kommer slösa sin tid och energi på denna kurs utan att lära sig speciellt mycket.
I think it was too hard for beginners, especially the exercises so I think it would have been good with more exercises you could do that was of a easier level, because now many of the exercises almost felt impossible to me as a beginner so I got demotivated.
Overall the content was way above beginner standards
Maybe adding new literature
The structure of the lecture and just maybe a slower pace in the lectures because 50 slides in an hour and a half makes it a bit hard to process it all at once
The introduction to linear algebra should come before the first assignment
It was not syncronised with the other courses, went too fast for people who never programmed, and didn't focus on the bases, like how to construct and think of an algorithm. The lectures weren't much useful since they were too packed with information, which was often not necessary for the course.
I think there should be some course literature that is written in an easy language for absoute beginners. The course book we used was way too advanced. Not the content per say, but the way it was taught. During the course, I felt very overwhelmed and that I was not following at all. I felt like we were going much faster than what was reasonable. In the end, however, I managed to capture the content without too much effort, and I realised that the biggest problem was not to learn the code per se, but to understand it from the way it was taught. When I asked AI to summerize and explain the content of the course book to me as if I was a child with no experience, it became much easier to understand. I had the feeling that the course was taught in a pace that was beneficial for very few people. Most people I talked to had either programmed before and were almost bored in the lectures, or were absolute beginners and very overwhelmed. I understand that a certain amount of material needs to be covered in a limited time though, so an easier book as well as a proper vocabulary introduction and proper guidance on how to set up apps and environments to start coding would have been very helpful.
The organization of the course is very messy. We did linear algebra before doing it in the Linear Algebra course, with the result of not understanding anything during the lectures.
It would be better to teach python from the beginning

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 I have not
No, not at all.
Nope
No never
No
No.
No
Ja, de som hade läst linjär algebra på gymnasiet hade de förkunskaper som behövdes för att ta åt sig informationen inom vissa moment, medan vi andra inte hade det. HUR kan man göra så?? Hur kan man lära ut till studenter hur man använder linjär algebra i programmering när de flesta inte ens vet vad linjär algebra är?? Misstag eller ej, ni lär ut saker som kräver förkunskaper som majoriteten av studenterna inte har och som det inte har sagts att man behöver ha. Det här är inte att stå på studenternas sida. Och även om det var ett misstag så kostade det misstaget flera timmar /student och energi helt i onödan. Otroligt dåligt.
No
No, not at all
No