Course analysis – Analysis in one variable, MATA21 / ÄMAD01 HT21

Lecturer: Jan-Fredrik Olsen (first half), Eskil Rydhe (second half).

Seminar teachers: Alex Bergman, Frej Weiström Dahlin (second half), Joakim Cronvall (first half), Jonathan Holmquist (second half).

Summary: The ongoing pandemic has required large adaptations of the practical aspects of teaching and examination. Students rank statements about teaching activities in particular noticeably lower on average than usual.[1] There also appears to be slightly more responses in the lower end of the scale. This subjective observation is supported by standard deviations being higher than previous years.

It's a well-known issue to make the "project" part of the course meaningful for all students, in particular ÄMAD01. Comments indicate that the solution from this semester was less successful, and that further development is needed.

Qualitative comparisons are done relative to the autumn 2020 (HT20), which is the most recent iteration of MATA21 combined with ÄMAD01.

Number of students: 73 newly registered + 32 re-registered (105 total) on MATA21. 27 newly registered + 5 re-registered (32 total) on ÄMAD01.

Anomalies: The administration of the course was carried out according to existing routines (lectures, seminars, mentor meetings etc.). The teaching and examination procedures have required adjustment to the ongoing pandemic (COVID-19).

In order to comply with regulations of public gatherings during the pandemic, students were split into three groups. These would take turns to visit lectures on campus. Students off campus would watch live streams of the lectures, which were also recorded. A similar procedure applied for the seminars.

During the first half of the semester, society opened up gradually. By the mid-term change of lecturer, the university was officially back to business as usual. In connection with this, we invited all students to take part in education on campus, but we still offered online alternatives so that students wouldn't be forced to develop new learning routines in the middle of a course.

The written exam was given on campus, with the option of taking the exam with Zoom surveillance. This was decided after the safety assessment of the examination was performed.

Exam results: The exam results are presented in the two tables below. The pass rate on the regular exam was 62%. Excluding students from ÄMAD01[2], 25% of students received a pass with distinction (VG). The pass rate was somewhat lower than previous previous autumn (65%), whereas the pass with distinction rate was higher (14%).

The pass rate on the retake exam was 17%, noticeably lower than HT20 (26%). A total of 89 unique students took either of the exams, and the total pass rate was 62% (70%).

Course section	MATA21	ÄMAD01	Other
# submissions	56	18	7
# U	18	10	3
# G	24	8	2
# VG	14	0[2]	2

Table 1: Results on the regular exam, broken down into three sections.

Course section	MATA21	ÄMAD01	Other
# submissions	21	7	2
# U	16	7	2
# G	5	0	0
# VG	0	0[2]	0

Table 2: Results on the retake exam, broken down into three sections.

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[1]These statements have been rephrased slightly, which might make a direct comparison unfair.

[2]The grades for ÄMAD01 students are based on more than this single exam.

Results of course survey

36 students answered the course evaluation. 15 of them are enrolled on the Mathematics Bachelor's programme, 12 on the Physics Bachelor's programme, 1 on Bachelor's programme with other specialization and 8 on the Teacher's Education programme.

Students were asked to estimate the "Average number of hours spent in total on the course per week (including scheduled activities):". The average was 17.9, and the standard deviation 11.1. The average is lower than previous autumn (20.3). The standard deviation is also slightly lower (12.8).

The following statements were also graded on a scale from 1 to 5, where 1 = disagree completely $\rightarrow$ 3 = partly agree $\rightarrow$ 5 = agree completely. The table shows the average and standard deviation. For comparison, the corresponding average from the previous autumn is included.

Statement	μ	σ	μ_{HT20}
My prior knowledge has been sufficient to assimilate the contents of this course.	3.8	1.2	3.8
I have participated actively in the course.	4.0	1.2	4.1
The way the course was taught and organised suited me.	3.6	1.0	3.4
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	4.2	0.8	4.2
Attending lectures on campus was valuable for my learning.	3.6	1.4	—[3]
Attending lectures online was valuable for my learning.	3.2	1.3	—[3]
Watching recorded lectures was valuable for my learning.	3.1	1.5	—[3]
Attending seminars on campus was valuable for my learning.	3.1	1.3	—[3]
Attending seminars on online was valuable for my learning.	2.7	1.5	—[3]
Writing up solutions from the seminar to be posted on CampusWire was valuable for my learning.	2.9	1.5	—[3]
Studying on my own was valuable for my learning.	4.4	0.9	4.4
The mentor groups were valuable for my learning.	3.2	1.5	3.9
The use of Python valuable for my learning.	2.5	1.3	2.9
The course literature/material was a valuable learning resource.	4.1	1.1	4.0
The pre-recorded Youtube videos were valuable to my learning.	3.6	1.1	4.1
The written solutions posted on CampusWire were a valuable learning resource.	2.7	1.5	—[4]
The information I received before the course start was satisfactory.	3.8	1.3	3.7
The communication with the teaching staff during the course was good.	3.7	1.4	4.2
It was clear throughout the course what was expected of me.	3.8	1.0	3.8
I have received valuable feedback from my teacher/teachers during the course.	3.2	1.4	3.8
The course had a reasonable workload.	3.8	1.1	3.7
The workload was evenly distributed throughout the course.	3.9	1.1	3.7
The examination matched the contents and level of the course.	4.0	1.2	4.3
Overall, I am satisfied with the course.	3.8	1.3	3.9
The course has increased my ability to read a mathematical text.	4.0	1.1	4.5
The course has increased my ability to communicate the subject in writing.	3.9	1.2	3.9
The course has increased my ability to communicate the subject orally.	3.7	1.3	3.5
The course has increased my ability to cooperate.	3.0	1.2	3.1
The course has increased my ability to search and process information.	3.4	1.3	3.7
The course has increased my ability to analyze and solve problems.	3.9	1.2	4.1
As a result of this course, I feel confident about tackling unfamiliar problems.	3.2	1.3	3.4
The course has stimulated my overall interest for mathematics.	3.6	1.3	4.0

The statements about different teaching activities have been altered since 2020. This may have shifted focus from the activities as such to how or where they were carried out. Nevertheless, these statements are ranked considerably lower in the current survey.

The learning platform CampusWire receives a low rating compared to most statements, but a higher rating than the corresponding statement about Piazza, the platform used in 2020.

The standard deviations are noticeably larger than in the previous survey. The feeling when looking at many statements is that comparatively many students "disagree completely".

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[3] On the previous course survey, students were given the statements "The lectures were valuable for my learning.", "The seminars were valuable for my learning.", and "The assignments we valuable for my learning." The respective averages were 4.0, 3.5, and 4.0.

[4] On the previous course survey, students were given the statement "Piazza was valuable to my learning." The average was 2.2.

Answer to free text questions

Summary: As to be expected, comments are mixed. Different students may have very different opinions about the same aspect of the course. Several students elaborate on the project part of the course and how this is perceived as unfair towards teacher students.

One student has faced discrimination, but doesn't provide any more details of this.

What did you appreciate most with the course?

I appreciated that the lectures were directly tied to the contents of the course literature.

The way Jan-Fredrik taught us was very well The online lectures and pre-recorded videos.

The textbook and the lectures. Very clear, and quite fun that not everything is just given in the book, instead one has to think a bit beforhand on one's own, through exercises to help in proving things. And then getting it explained in the lectures. I guess personally I might prefer Eskil's style, of not as much student interaction during the lectures, though, that might be because of the online, breakout rooms didn't really work too well for discussion.

SI+Exercise Meetings!!!

I think Don't Panic was a perfect mix between being educational and going deep enough while still not feeling too "academic" or "monotone", which i think helped alot with not losing interest or feeling like you couldn't follow what was being done. The lectures were also held at a good level, most often on the same level as the book but also going deeper on things which were harder and therefor required some more going-thorugh in person with questions etc. Both Jan-Fredrik and Eskil were engaging and easy to listen to.

Lectures on campus, the mentor groups, the challenging problems

The flexibility, both in terms of online/on campus, and how much and what I was studying, which allowed me to only focus my efforts on the new course contents, rather than the considerable amount I'd done in high school.

It was interesting to me to see an experimental course that is very different from the classic courses that I studied earlier. Looks like something postmodern.

How approachable the instructors were with questions.

Without doubt Eskils and JFs passion for the subject. Really thankful for the great discussions/explanations when asking questions post-lectures. Also liked the fact that the teachers are relaxed and joking around a little bit, there's no point in being serious when one could just have some fun.. wagmi anyway

the content, found it very interdasting

The course literature prepares the students very well for the lectures. If there's anything unclear in the text, it's always mentioned in the lecture, and vice versa.

The Don't Panic textbook has a good balance of serious and playful

The teaching notes

The Youtube films.

Youtube Clips, Lecture Notes

Having the chance to be taught by Jan-Fredrik Olsen at the very beginning of my studies at Lund was probably the most wonderful event of my first semester. His pre-recorded YouTube videos were extraordinary and it really gave me enough confidence to believe that everything is easily learnable, if one has the right resources and teachers.

The pacing. All of the content was covered without rushing at any point.

Fun course

It is very nice when the course literature is made for the course.

What do you think should be improved?

I think that it should be made clear what activities are compulsory / award points for teacher students as alot of us were expecting to get bonus points from the seminars.

Maybe adding more applications for non-maths students. So more students feel a need or want to learn the material more

Student-teacher communication. For instance there isn't any email if one wants to contact the teachers.

I think the lecture notes could use a proofrrading. Overall I think they were great, but especially towards the end more and more mistakes started to pop up.

The mentor groups most of all. Perhaps though this is mostly a fault of that mine was online, and on top of that we only ended up with three active students in the end... I didn't really feel like I got much out of it personally, but that can also be because I tend to function very well alone and had studied a bit of analysis prior... well, actually, toward the end we had a few nice chats about further studies and such, so that was nice.

This may have more to do with the administration of the course for teacher students. But i think the whole system with bonus points and seminar presentations might need to be looked over. Us teachers students got told different things a lot. In the beginning, we were not told much and so some people were under the assumption that we DID get bonus points from presentations, while other weren't. We were then told by seminar leaders that we DID indeed get points, while some people were told by Jan-Fredrik that we did not. So there was a lot of confusion there. It was also confusing what was obligatory for us and not. At least some of the mentors made it sound like presentations and CampusWire uploads were obligatory, while some said not. Which lead to the fact that many people did both, which i guess is not a bad thing. But then finding out that 1) id did not give us bonus points for the exam and 2) was not obligatory, was kind of annoying. Especially since i think a lot of us did all that, but we still only get 13HP for the course while Bachelors people get 15HP. And on top of that we took the Math Didactics course. So all in all, some of us feel like we did the same amount of work but got less for it. I think the rules for what applies for the teacher students vs Bachelors sgudents should be more clear and also more clearly communicated to the seminar leaders and mentors. Make students participate more actively on seminars (just listening to other people's solutions isn't always very interesting)

Continuing the mentor group-centred seminar format - in which presentations was mandatory - during the second half of the course would probably be an improvement.

1. I would change the structure of the seminars to the following: the teacher talks about the method, then the students independently solve problems on the blackboard. 2. I would lengthen the course time (too much material and too short time). Earlier, when I studied this material at Moscow State University, it took 2 years (with the same intensity: 2 lectures and 2 seminars per week). What is now is quite suitable for those who are going to be teachers, but not for those who are going to become mathematicians.

I like the concept of creating a course book that's improved for every term the class is given. Hopefully it will converge to something great! :) My suggestions for the course book: - A proof of the completeness 'axiom' should be included, imo it would fit in nicely at the end of appendix B with a clear remark that it is probably a proof one should look into when Ch 1-8 have been fully understood. - I absolutely don't understand why the proofs in Ch 11 (Integrals) are left to the end of the chapter since everything else is built on them. Ch 8, fine, but at the point Ch 11 arrives we have enough machinery to prove things prior to their usage.

eskils gotta upgrade his pen-and-paper style since he replaces jan fredrik and his use of state of the art software, the bar is set tooo high for the pen-and-paper move

Keep the exercise group presentations throughout the whole course and don't stop it 1/2 way through. It was a good incentive to stay on top of lectures and seminars.

The communication about what information applied to the teacher students were very unclear. Everybody said different things about if we had to do the seminar presentations or not, if we got the bonus points or not, if we had to do the oral exam or not. This lead to a LOT of confusion and stress during the whole course.

Maybe explanations of more complex problems during seminars

For the last 4 chapters I also think Youtube films could be beneficial.

You didn't listen to what your students told you and the teacher student weren't prioritized

Solving difficult exam problems in the lecture as examples would be nice.

The second half of the course was taught by Eskil Rydhe and his teaching methods were not as well-formatted as Jan-Fredrik's. While Jan-Fredrik's approach was a purely pedagogical one, Eskil's courses seemed to be rather like quick revision sessions. As a result of this, I spent most of my time studying on my own and felt terribly distant from the lectures. Furthermore, mentor meetings and group presentations had a sudden pause after the midterm exam and what once was a good opportunity for teamwork and problem solving, sank into oblivion. Eskil is obviously a wonderful mathematician. What I'm trying to point out here is the teaching method in particular. The presentation slides made by Jan-Fredrik would make everything a bit more interactive and understandable, while Eskil's handwritten notes were sometimes difficult to follow. It would have been a lot better if Jan-Fredrik and Eskil had [almost] the same teaching method, in order to avoid this sudden change of format during the course.

I found the lectures to not always be very helpful. The method of running through a bunch of proofs was sort of useful sometimes, but it mostly just lead to me confusing myself.

The lectures, especially the second half with Eskil, where mostly very long and very complicated proofs that were hard to follow and seemed irrelevant. For example, we proved the theory on integrals before we actually applied it. This makes it very hard to understand what it is you are actually proving. In addition to that, Eskil's teaching methods were not very entic-

ing. It was mostly writing proofs on a sheet of paper for 2 hours, with very little examples, discussion or ways to relate the theory to real world problems. The lectures at the beginning of the course with Jan-Fredrik were better, as he used interactive power points, discussion and more appliances of the theories we were actually proving. This is not to say that Eskil is a worse lecturer than Jan-Fredrik, it could also simply depend on the material that each of them discussed.

Nothing comes to mind at time of writing.

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

Teacher students were asked to do the same seminar presentations as the bachelors students. While they were awarded both 2hp and 10 bonus points for the exam, we were given nothing and were instead asked to do an additional written assignment in our didactics course over christmas to get the bonus points.

I have not experienced any of that, the courses staff and teachers were absolutely great.

No.

No

Try to teach more details about how to make proofs.

No

No

No.

No

No

gm

actually yes

No

no

No

No

No, not at all.

No.

No

No!

No

What further opinions about the course would you like to share?

I thought that both Jan-Fredrik and Eskil were very good lecturers. I also thought that the transition between them was very smooth and that Eskil did a good job picking up where Jan-Fredrik left off.

None.

To be honest I don't seem to like analysis that much :/

All in all i am very satisfied with the course

I enjoyed trying to solve the challenging problems posted throughout the course

It managed to make a lot of repetition really enjoyable.

I'm quite satisfied with how I learned (remembered after 30 years) the material of the course and with my result on the exam.

I believe that the potential opportunities associated with CampusWire are not fully implemented. I think it would be useful to give bonus points to those who are active there.

Thanks a lot!!!

Unfortunately it feels like the course ends right at the point where things become interesting and one begins to under-

stand the basics of analysis.

workload too light, lots and lots of spare time more assignments more presentations

Thank you Jan-Fredrik and Eskil! /a physics student

I don't feel kvalified to fill out this

I would like for for recordings of lectures and online lectures to continue to be an option.

There's nothing more to say, except that I'm truly thankful for everything that this course provided for my learning.

None in particular.

Its hard :)

MATA21 / ÄMAD03 HT2021

Answer Count: 36

I have studied this course as part of

I have studied this course as part of	Number of responses
Bachelor´s Programme in Mathematics	15 (41,7%)
Bachelor´s Programme in Physics, Theoretical Physics, Astronomy	12 (33,3%)
Bachelor´s Programme, other specialization	1 (2,8%)
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	8 (22,2%)
other programme or as stand alone course	0 (0,0%)
Total	36 (100,0%)
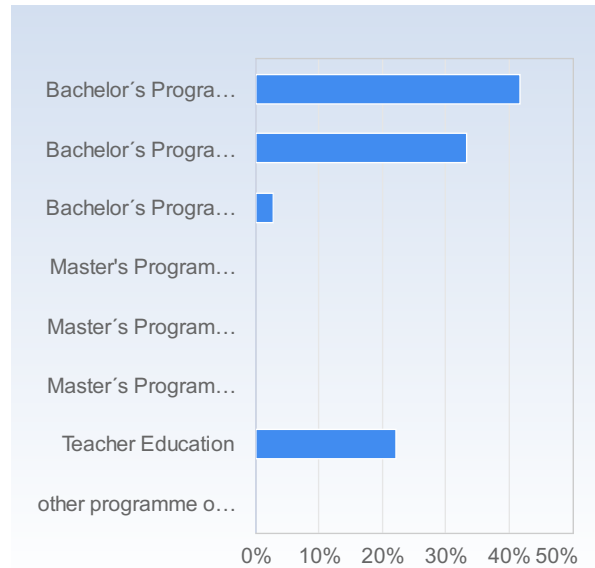
	Mean	Standard Deviation
I have studied this course as part of	2,7	2,4

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	1 (2,8%)
2	5 (13,9%)
3	9 (25,0%)
4	5 (13,9%)
5	16 (44,4%)
Total	36 (100,0%)
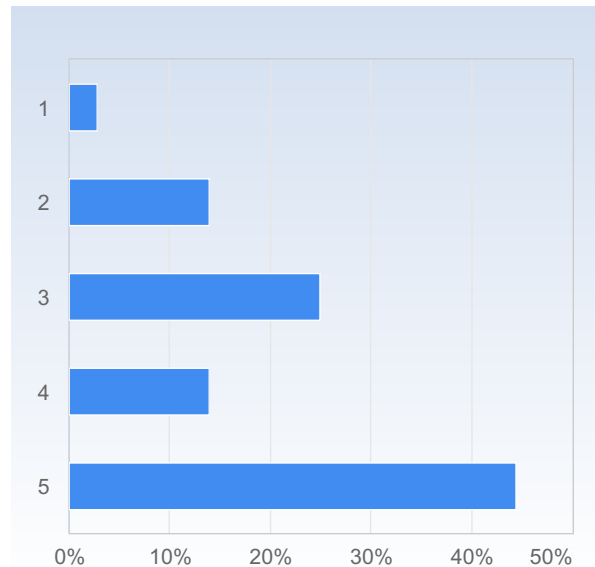
	Mean	Standard Deviation
2.☐My prior knowledge has been sufficient to assimilate the contents of this course.	3,8	1,2

3.☐I have participated actively in the course.

3.☐I have participated actively in the course.	Number of responses
1	2 (5,6%)
2	2 (5,6%)
3	7 (19,4%)
4	8 (22,2%)
5	17 (47,2%)
Total	36 (100,0%)
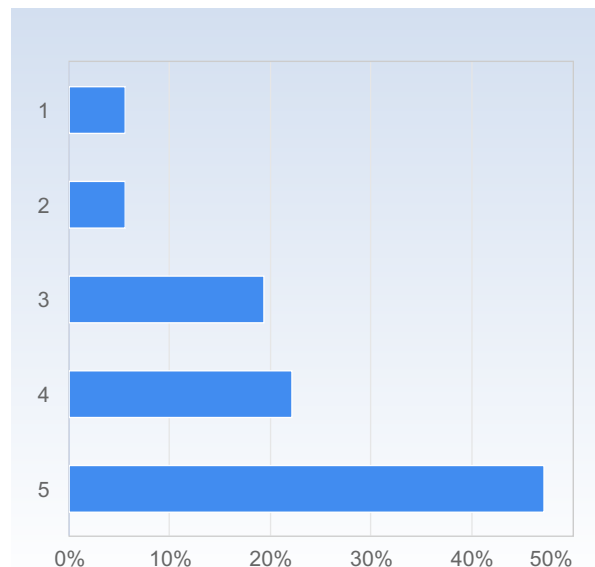
	Mean	Standard Deviation
3.☐I have participated actively in the course.	4,0	1,2

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 - 10	9 (26,5%)
11 - 21	16 (47,1%)
22 - 32	4 (11,8%)
33 - 43	4 (11,8%)
44 - 54	1 (2,9%)
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	34 (100,0%)
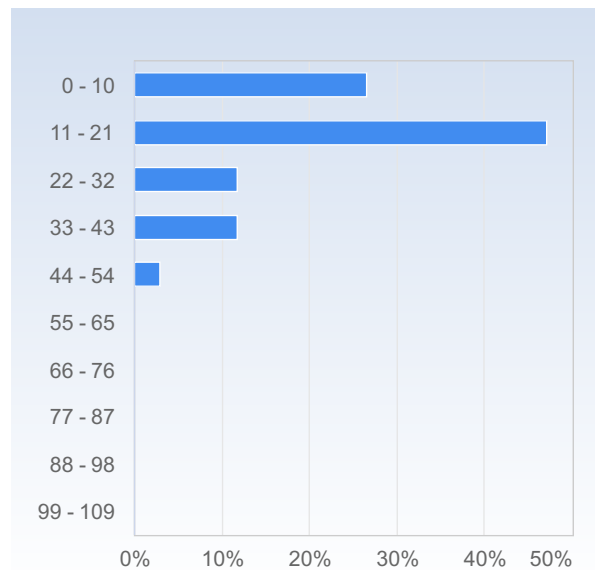
	Mean	Standard Deviation
Average number of hours spent in total on the course per week (including scheduled activities):	17,9	11,1

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	1 (2,8%)
2	4 (11,1%)
3	10 (27,8%)
4	13 (36,1%)
5	8 (22,2%)
Total	36 (100,0%)
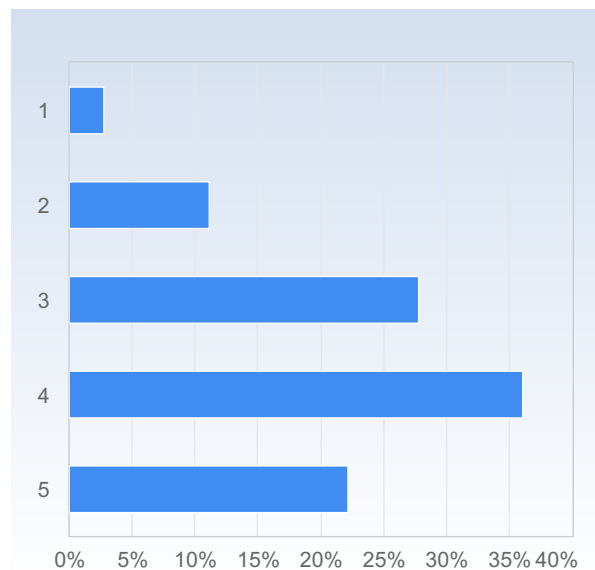
	Mean	Standard Deviation
The way the course was taught and organised suited me.	3,6	1,0

# 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	1 (2,8%)
3	7 (19,4%)
4	13 (36,1%)
5	15 (41,7%)
Total	36 (100,0%)
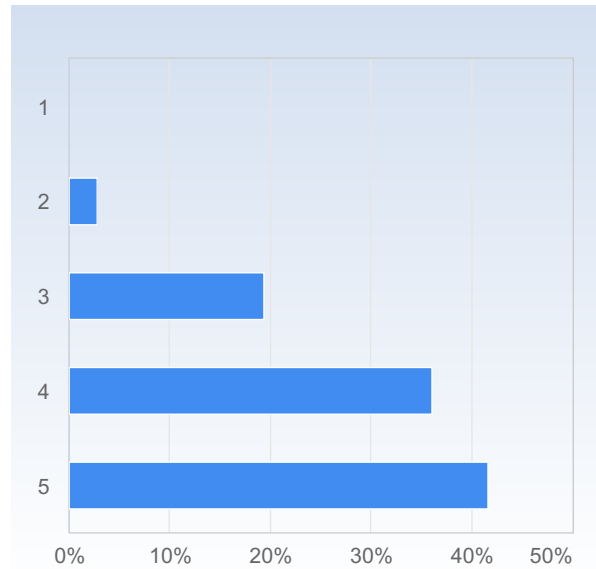
	Mean	Standard Deviation
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	4,2	0,8

Attending lectures on campus was valuable for my learning.

Attending lectures on campus was valuable for my learning.	Number of responses
1	4 (11,4%)
2	5 (14,3%)
3	5 (14,3%)
4	8 (22,9%)
5	13 (37,1%)
Total	35 (100,0%)
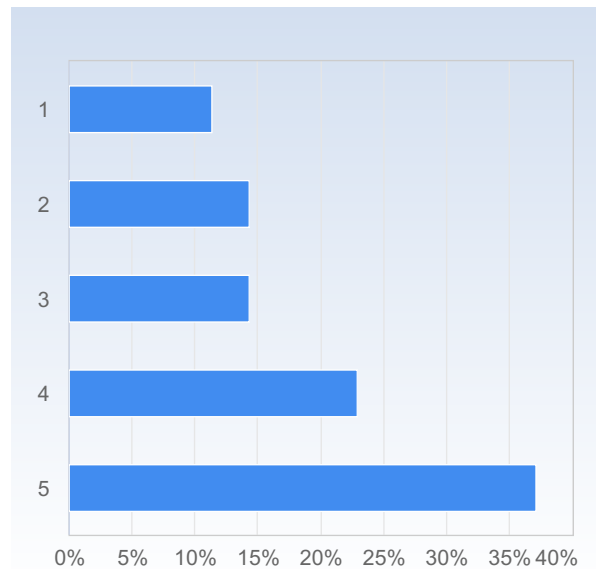
	Mean	Standard Deviation
Attending lectures on campus was valuable for my learning.	3,6	1,4

Attending lectures online was valuable for my learning.

Attending lectures online was valuable for my learning.	Number of responses
1	6 (16,7%)
2	3 (8,3%)
3	10 (27,8%)
4	11 (30,6%)
5	6 (16,7%)
Total	36 (100,0%)
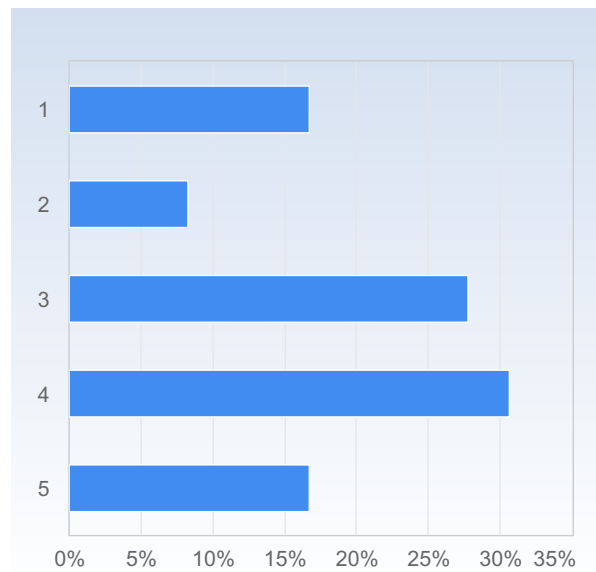
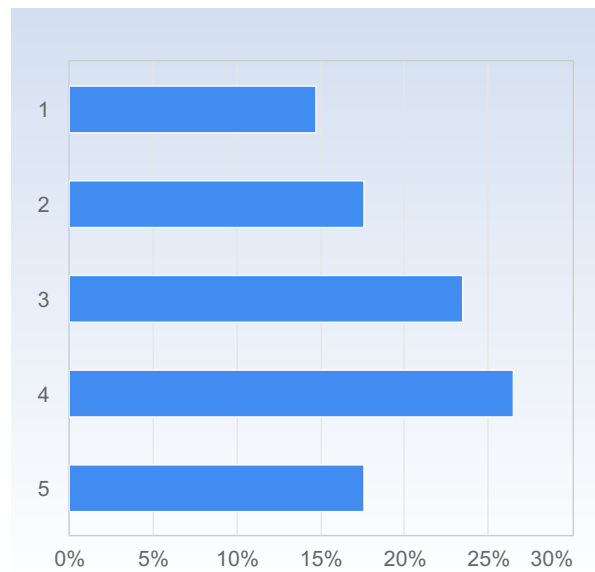|	Mean	Standard Deviation
Attending lectures online was valuable for my learning.	3,2	1,3

Watching recorded lectures was valuable for my learning.

Watching recorded lectures was valuable for my learning.	Number of responses
1	7 (20,0%)
2	5 (14,3%)
3	9 (25,7%)
4	4 (11,4%)
5	10 (28,6%)
Total	35 (100,0%)
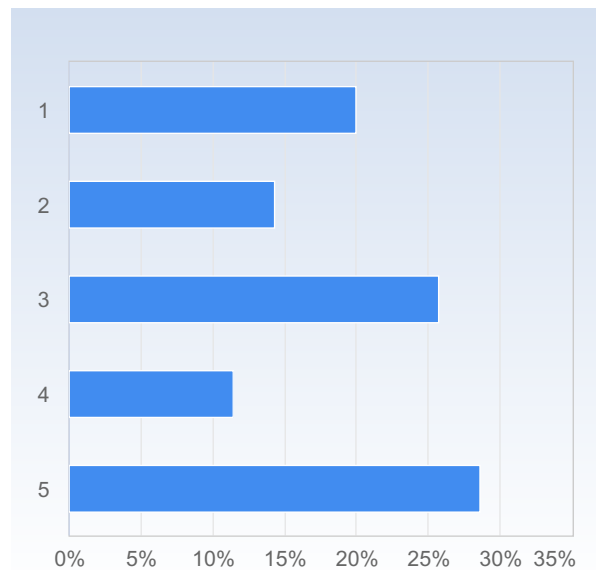
	Mean	Standard Deviation
Watching recorded lectures was valuable for my learning.	3,1	1,5

Attending seminars on campus was valuable for my learning.

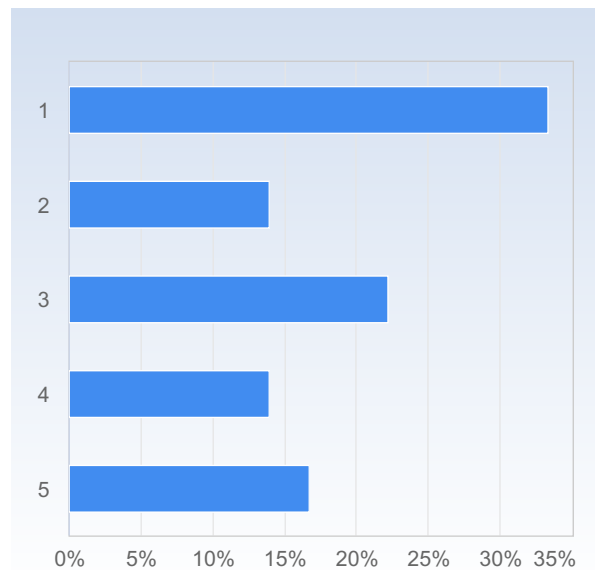| Attending seminars on campus was valuable for my learning.	Number of responses
1	5 (14,7%)
2	6 (17,6%)
3	8 (23,5%)
4	9 (26,5%)
5	6 (17,6%)
Total	34 (100,0%)

	Mean	Standard Deviation
Attending seminars on campus was valuable for my learning.	3,1	1,3

Attending seminars online was valuable for my learning.

Attending seminars online was valuable for my learning.	Number of responses
1	12 (33,3%)
2	5 (13,9%)
3	8 (22,2%)
4	5 (13,9%)
5	6 (16,7%)
Total	36 (100,0%)

	Mean	Standard Deviation
Attending seminars online was valuable for my learning.	2,7	1,5

# Writing up solutions from the seminar to be posted on CampusWire was valuable for my learning.

Writing up solutions from the seminar to be posted on CampusWire was valuable for my learning.	Number of responses
1	11 (30,6%)
2	3 (8,3%)
3	6 (16,7%)
4	9 (25,0%)
5	7 (19,4%)
Total	36 (100,0%)
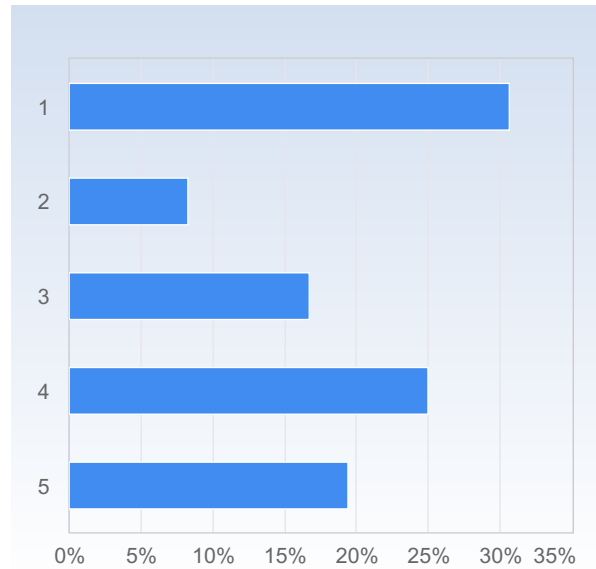
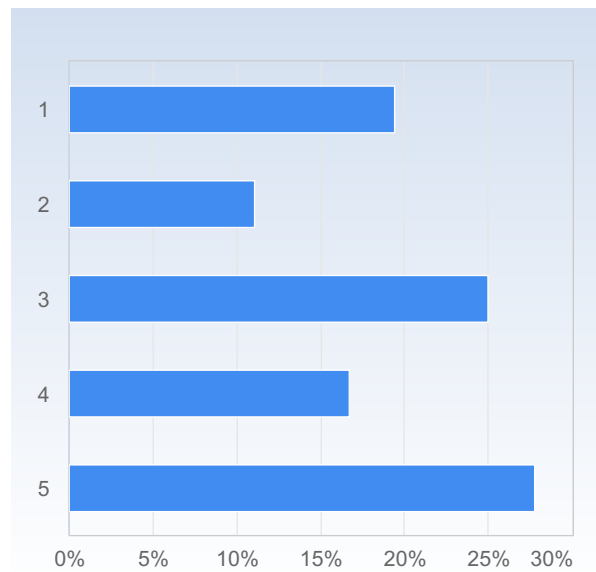|	Mean	Standard Deviation
Writing up solutions from the seminar to be posted on CampusWire was valuable for my learning.	2,9	1,5

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 (2,9%)
3	5 (14,3%)
4	7 (20,0%)
5	22 (62,9%)
Total	35 (100,0%)
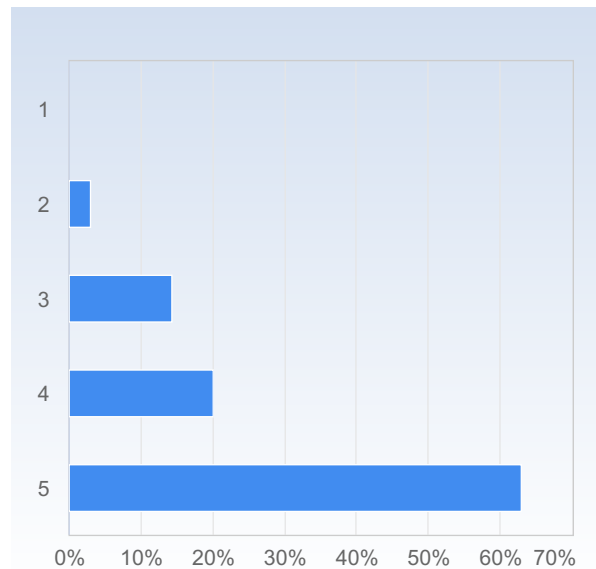
	Mean	Standard Deviation
Studying on my own was valuable for my learning.	4,4	0,9

My mentor group was valuable for my learning.

My mentor group was valuable for my learning.	Number of responses
1	7 (19,4%)
2	4 (11,1%)
3	9 (25,0%)
4	6 (16,7%)
5	10 (27,8%)
Total	36 (100,0%)

	Mean	Standard Deviation
My mentor group was valuable for my learning.	3,2	1,5

The use of Python was valuable for my learning.

The use of Python was valuable for my learning.	Number of responses
1	11 (30,6%)
2	8 (22,2%)
3	9 (25,0%)
4	4 (11,1%)
5	4 (11,1%)
Total	36 (100,0%)
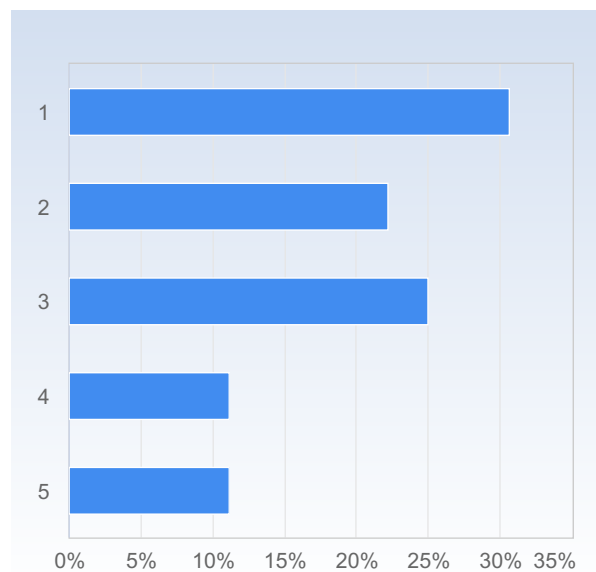
	Mean	Standard Deviation
The use of Python was valuable for my learning.	2,5	1,3

The course literature/material was a valuable learning resource.

| The course literature/material was a valuable learning resource.	Number of responses
1	1 (2,8%)
2	3 (8,3%)
3	6 (16,7%)
4	8 (22,2%)
5	18 (50,0%)
Total	36 (100,0%)
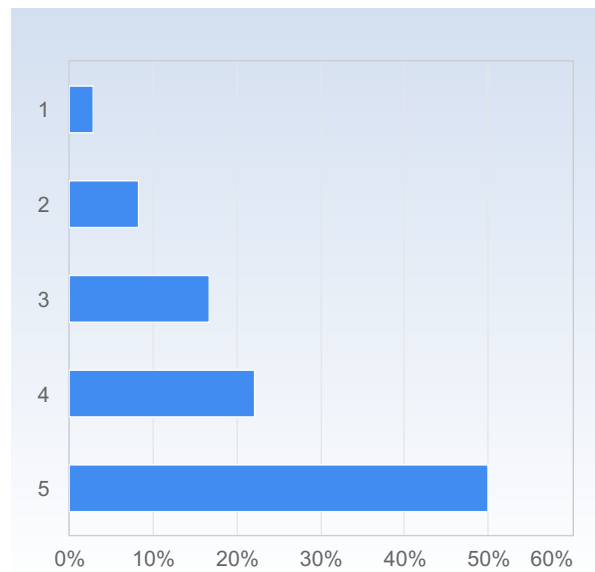
	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	4,1	1,1

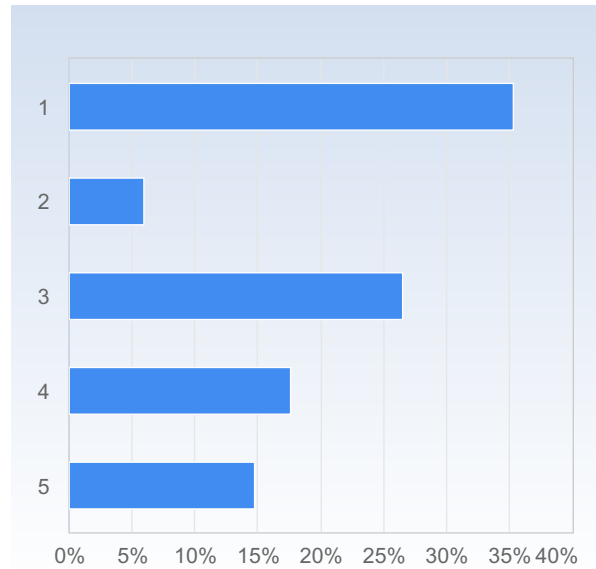# The pre-recorded YouTube films were valuable learning resource.

The pre-recorded YouTube films were valuable learning resource.	Number of responses
1	3 (8,3%)
2	5 (13,9%)
3	8 (22,2%)
4	6 (16,7%)
5	14 (38,9%)
Total	36 (100,0%)
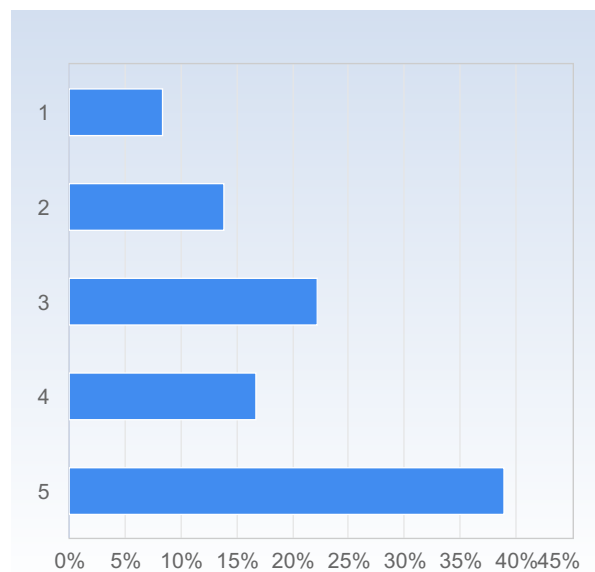
	Mean	Standard Deviation
The pre-recorded YouTube films were valuable learning resource.	3,6	1,4

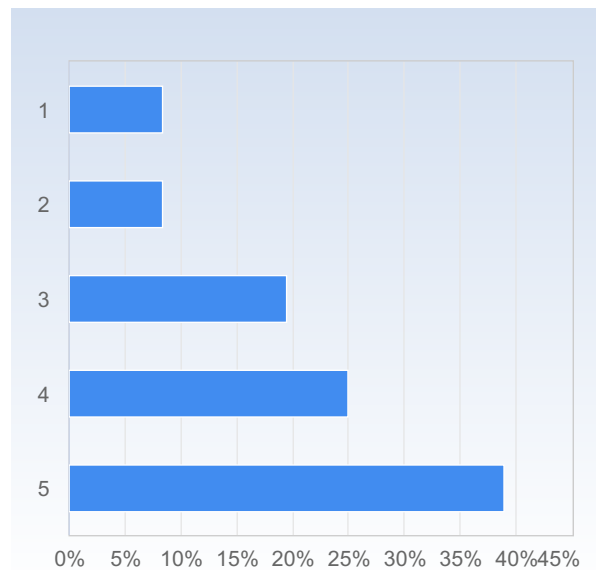# The written solutions posted on CampusWire were a valuable learning resource.

The written solutions posted on CampusWire were a valuable learning resource.	Number of responses
1	12 (35,3%)
2	2 (5,9%)
3	9 (26,5%)
4	6 (17,6%)
5	5 (14,7%)
Total	34 (100,0%)

	Mean	Standard Deviation
The written solutions posted on CampusWire were a valuable learning resource.	2,7	1,5

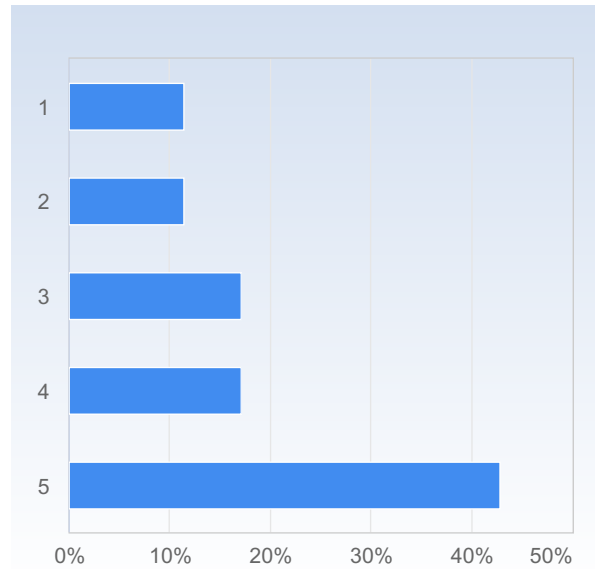# The information I received before the course start was satisfactory.

The information I received before the course start was satisfactory.	Number of responses
1	3 (8,3%)
2	3 (8,3%)
3	7 (19,4%)
4	9 (25,0%)
5	14 (38,9%)
Total	36 (100,0%)

	Mean	Standard Deviation
The information I received before the course start was satisfactory.	3,8	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	4 (11,4%)
2	4 (11,4%)
3	6 (17,1%)
4	6 (17,1%)
5	15 (42,9%)
Total	35 (100,0%)

	Mean	Standard Deviation
The communication with the teaching staff during the course was good.	3,7	1,4

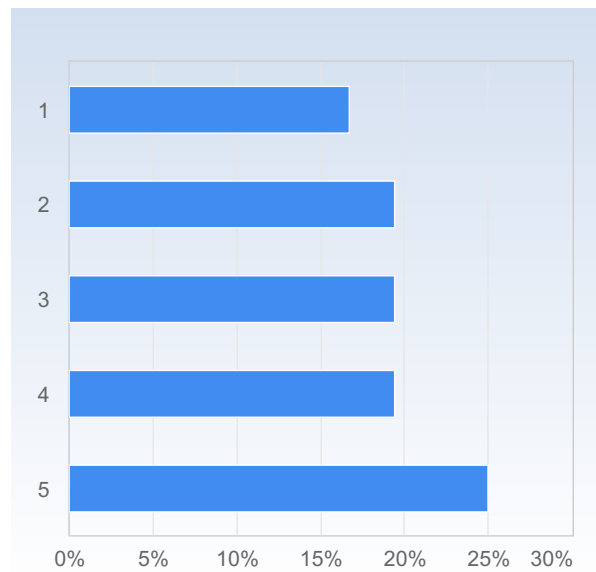# It was clear throughout the course what was expected of me.

It was clear throughout the course what was expected of me.	Number of responses
1	5 (13,9%)
2	1 (2,8%)
3	7 (19,4%)
4	8 (22,2%)
5	15 (41,7%)
Total	36 (100,0%)
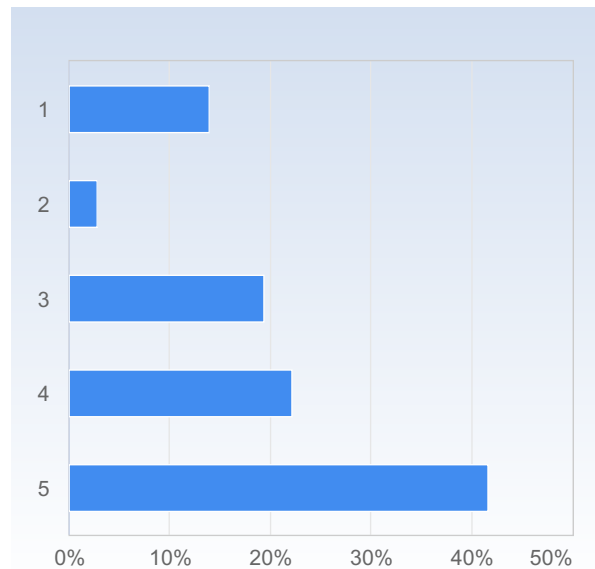
	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	3,8	1,4

# 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	6 (16,7%)
2	7 (19,4%)
3	7 (19,4%)
4	7 (19,4%)
5	9 (25,0%)
Total	36 (100,0%)

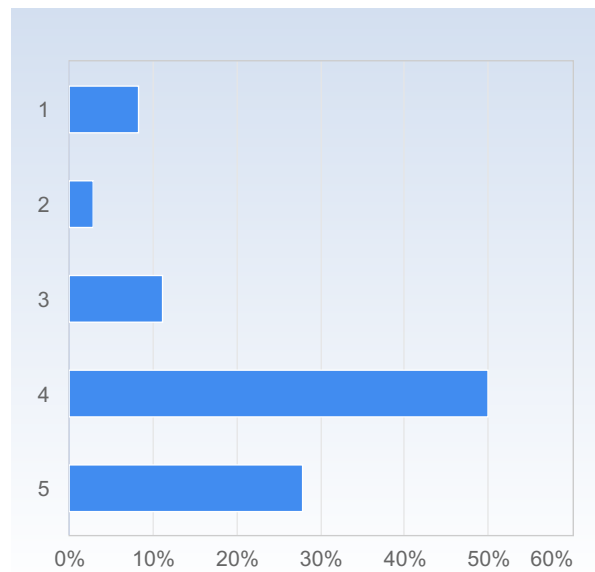|	Mean	Standard Deviation
I have received valuable feedback from my teacher/teachers during the course.	3,2	1,4

The course had a reasonable workload.

The course had a reasonable workload.	Number of responses
1	2 (5,6%)
2	2 (5,6%)
3	9 (25,0%)
4	12 (33,3%)
5	11 (30,6%)
Total	36 (100,0%)
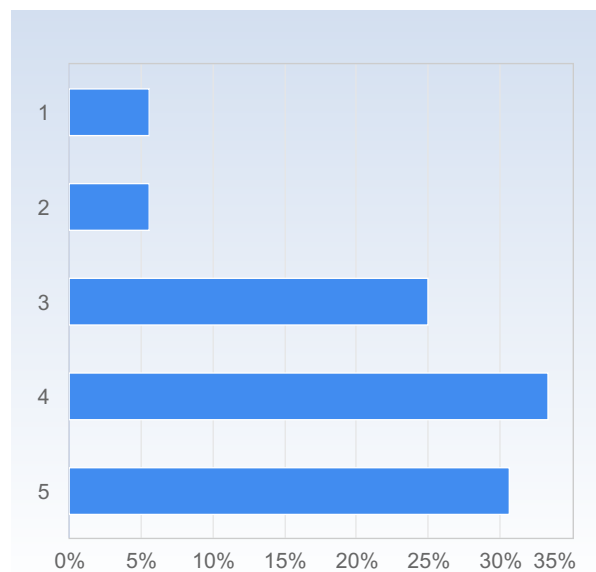
	Mean	Standard Deviation
The course had a reasonable workload.	3,8	1,1

The workload was evenly distributed throughout the course.

The workload was evenly distributed throughout the course.	Number of responses
1	3 (8,3%)
2	1 (2,8%)
3	4 (11,1%)
4	18 (50,0%)
5	10 (27,8%)
Total	36 (100,0%)

	Mean	Standard Deviation
The workload was evenly distributed throughout the course.	3,9	1,1

The examination matched the contents and level of the course.

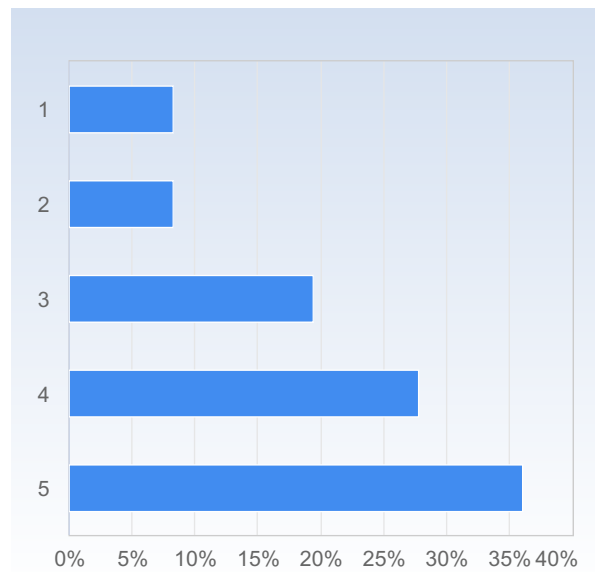| The examination matched the contents and level of the course.	Number of responses
1	1 (2,9%)
2	4 (11,4%)
3	7 (20,0%)
4	6 (17,1%)
5	17 (48,6%)
Total	35 (100,0%)
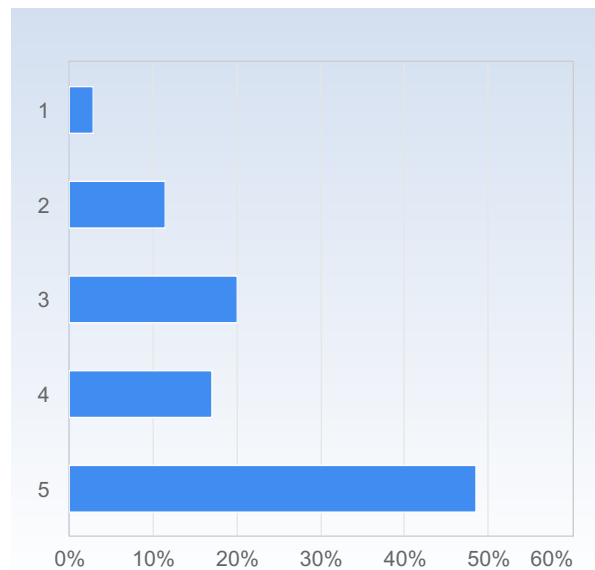
	Mean	Standard Deviation
The examination matched the contents and level of the course.	4,0	1,2

Overall, I am satisfied with the course.

Overall, I am satisfied with the course.	Number of responses
1	3 (8,3%)
2	3 (8,3%)
3	7 (19,4%)
4	10 (27,8%)
5	13 (36,1%)
Total	36 (100,0%)

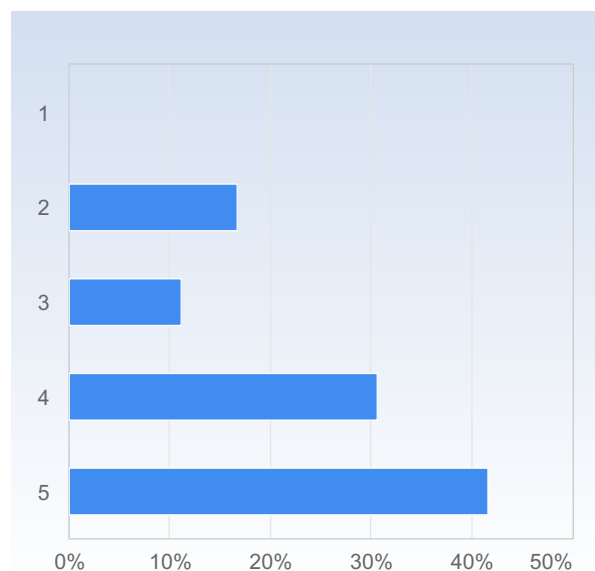|	Mean	Standard Deviation
Overall, I am satisfied with the course.	3,8	1,3

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	0 (0,0%)
2	6 (16,7%)
3	4 (11,1%)
4	11 (30,6%)
5	15 (41,7%)
Total	36 (100,0%)

	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	4,0	1,1

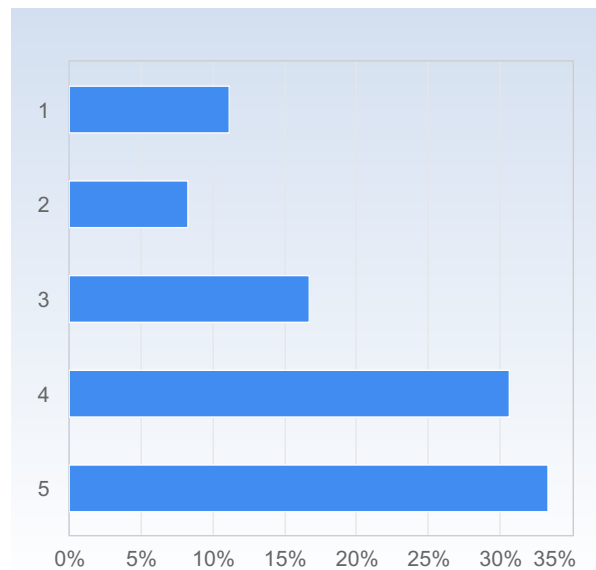# The course has increased my ability to communicate the subject in writing.

The course has increased my ability to communicate the subject in writing.	Number of responses
1	1 (2,8%)
2	4 (11,1%)
3	8 (22,2%)
4	8 (22,2%)
5	15 (41,7%)
Total	36 (100,0%)
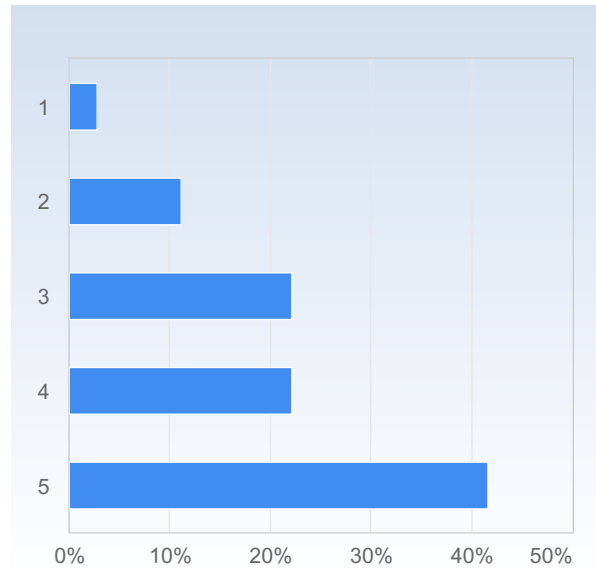
	Mean	Standard Deviation
The course has increased my ability to communicate the subject in writing.	3,9	1,2

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	4 (11,1%)
2	3 (8,3%)
3	6 (16,7%)
4	11 (30,6%)
5	12 (33,3%)
Total	36 (100,0%)

	Mean	Standard Deviation
The course has increased my ability to communicate the subject orally.	3,7	1,3

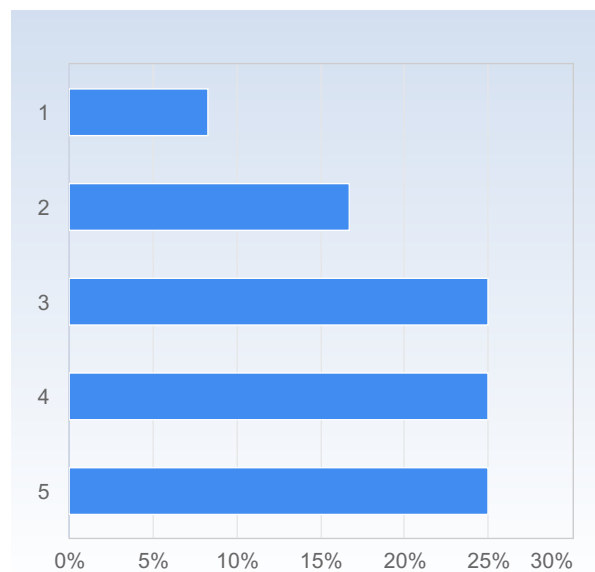# The course has increased my ability to cooperate.

The course has increased my ability to cooperate.	Number of responses
1	5 (13,9%)
2	5 (13,9%)
3	16 (44,4%)
4	5 (13,9%)
5	5 (13,9%)
Total	36 (100,0%)
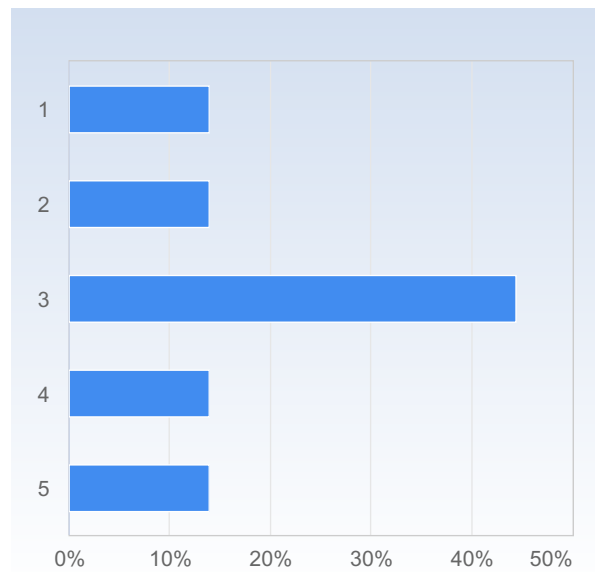
	Mean	Standard Deviation
The course has increased my ability to cooperate.	3,0	1,2

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	3 (8,3%)
2	6 (16,7%)
3	9 (25,0%)
4	9 (25,0%)
5	9 (25,0%)
Total	36 (100,0%)

	Mean	Standard Deviation
The course has increased my ability to search and process information.	3,4	1,3

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	2 (5,6%)
2	4 (11,1%)
3	5 (13,9%)
4	10 (27,8%)
5	15 (41,7%)
Total	36 (100,0%)
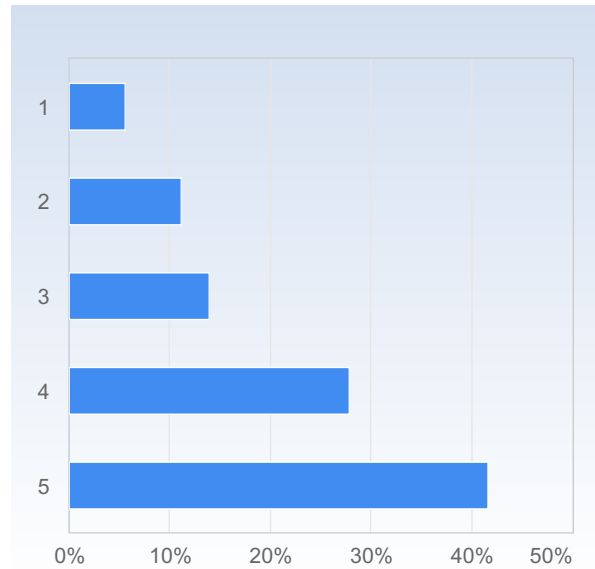
	Mean	Standard Deviation
The course has increased my ability to analyze and solve problems.	3,9	1,2

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	6 (16,7%)
2	3 (8,3%)
3	11 (30,6%)
4	10 (27,8%)
5	6 (16,7%)
Total	36 (100,0%)
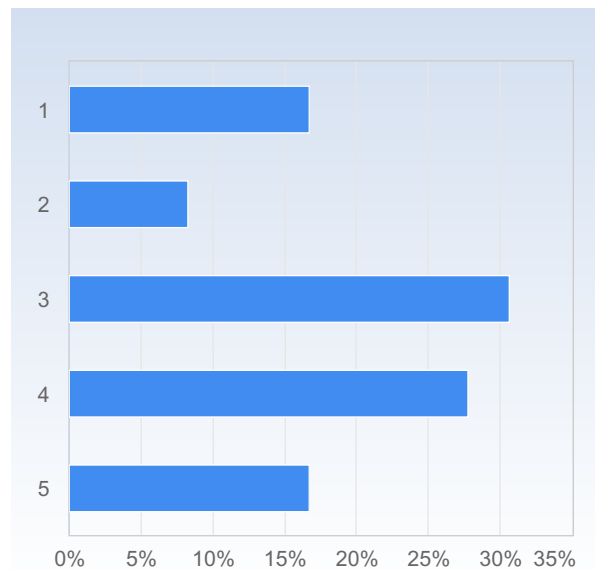
	Mean	Standard Deviation
As a result of this course, I feel confident about tackling unfamiliar problems.	3,2	1,3

The course has stimulated my overall interest for mathematics.

The course has stimulated my overall interest for mathematics.	Number of responses
1	4 (11,1%)
2	2 (5,6%)
3	10 (27,8%)
4	9 (25,0%)
5	11 (30,6%)
Total	36 (100,0%)
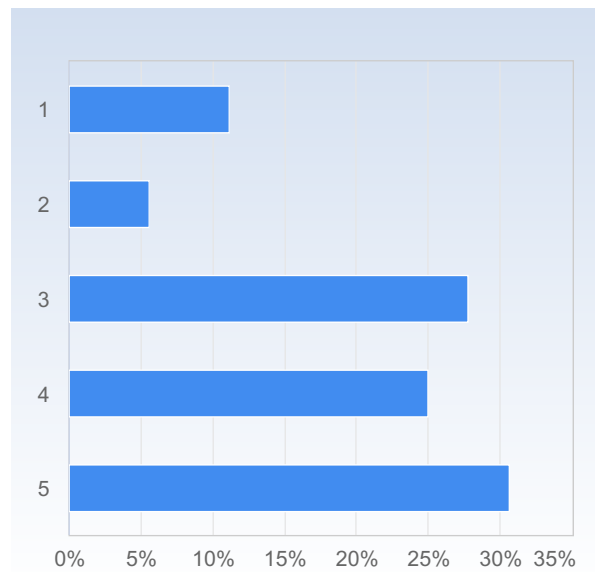
	Mean	Standard Deviation
The course has stimulated my overall interest for mathematics.	3,6	1,3

What did you appreciate most with the course?

What did you appreciate most with the course?
I appreciated that the lectures were directly tied to the contents of the course literature.
The way Jan-Fredrik taught us was very well
The online lectures and pre-recorded videos.
The textbook and the lectures. Very clear, and quite fun that not everything is just given in the book, instead one has to think a bit beforhand on one's own, through exercises to help in proving things. And then getting it explained in the lectures. I guess personally I might prefer Eskil's style, of not as much student interaction during the lectures, though, that might be because of the online, breakout rooms didn't really work too well for discussion.
SI+Exercise Meetings!!!
I think Don't Panic was a perfect mix between being educational and going deep enough while still not feeling too "academic" or "monotone", which i think helped alot with not losing interest or feeling like you couldn't follow what was being done. The lectures were also held at a good level, most often on the same level as the book but also going deeper on things which were harder and therefor required some more going-thorugh in person with questions etc. Both Jan-Fredrik and Eskil were engaging and easy to listen to.
Lectures on campus, the mentor groups, the challenging problems
The flexibility, both in terms of online/on campus, and how much and what I was studying, which allowed me to only focus my efforts on the new course contents, rather than the considerable amount I'd done in high school.
It was interesting to me to see an experimental course that is very different from the classic courses that I studied earlier. Looks like something postmodern.
How approachable the instructors were with questions.
Without doubt Eskils and JFs passion for the subject. Really thankful for the great discussions/explanations when asking questions post-lectures. Also liked the fact that the teachers are relaxed and joking around a little bit, there's no point in being serious when one could just have some fun.. wagmi anyway
the content, found it very interdasting
The course literature prepares the students very well for the lectures. If there's anything unclear in the text, it's always mentioned in the lecture, and vice versa.
The Don't Panic textbook has a good balance of serious and playful
The teaching notes
The Youtube films.
Youtube Clips, Lecture Notes
Having the chance to be taught by Jan-Fredrik Olsen at the very beginning of my studies at Lund was probably the most wonderful event of my first semester. His pre-recorded YouTube videos were extraordinary and it really gave me enough confidence to believe that everything is easily learnable, if one has the right resources and teachers.
The pacing. All of the content was covered without rushing at any point.
Fun course
It is very nice when the course literature is made for the course.

What do you think should be improved?

What do you think should be improved?
I think that it should be made clear what activities are compulsory / award points for teacher students as alot of us were expecting to get bonus points from the seminars.
Maybe adding more applications for non-maths students. So more students feel a need or want to learn the material more
Student-teacher communication. For instance there isn't any email if one wants to contact the teachers.
I think the lecture notes could use a proofrrading. Overall I think they were great, but especially towards the end more and more mistakes started to pop up.
The mentor groups most of all. Perhaps though this is mostly a fault of that mine was online, and on top of that we only ended up with three active students in the end... I didn't really feel like I got much out of it personally, but that can also be because I tend to function very well alone and had studied a bit of analysis prior... well, actually, toward the end we had a few nice chats about further studies and such, so that was nice.
This may have more to do with the administration of the course for teacher students. But i think the whole system with bonus points and seminar presentations might need to be looked over. Us teachers students got told different things a lot. In the beginning, we were not told much and so some people were under the assumption that we DID get bonus points from presentations, while other weren't. We were then told by seminar leaders that we DID indeed get points, while some people were told by Jan-Fredrik that we did not. So there was a lot of confusion there. It was also confusing what was obligatory for us and not. At least some of the mentors made it sound like presentations and CampusWire uploads were obligatory, while some said not. Which lead to the fact that many people did both, which i guess is not a bad thing. But then finding out that 1) id did not give us bonus points for the exam and 2) was not obligatory, was kind of annoying. Especially since i think a lot of us did all that, but we still only get 13HP for the course while Bachelors people get 15HP. And on top of that we took the Math Didactics course. So all in all, some of us feel like we did the same amount of work but got less for it. I think the rules for what applies for the teacher students vs Bachelors sgudents should be more clear and also more clearly communicated to the seminar leaders and mentors.
Make students participate more actively on seminars (just listening to other people's solutions isn't always very interesting)
Continuing the mentor group-centred seminar format - in which presentations was mandatory - during the second half of the course would probably be an improvement.
1. I would change the structure of the seminars to the following: the teacher talks about the method, then the students independently solve problems on the blackboard. 2. I would lengthen the course time (too much material and too short time). Earlier, when I studied this material at Moscow State University, it took 2 years (with the same intensity: 2 lectures and 2 seminars per week). What is now is quite suitable for those who are going to be teachers, but not for those who are going to become mathematicians.
I like the concept of creating a course book that's improved for every term the class is given. Hopefully it will converge to something great! :) My suggestions for the course book: - A proof of the completeness 'axiom' should be included, imo it would fit in nicely at the end of appendix B with a clear remark that it is probably a proof one should look into when Ch 1-8 have been fully understood. - I absolutely don't understand why the proofs in Ch 11 (Integrals) are left to the end of the chapter since everything else is built on them. Ch 8, fine, but at the point Ch 11 arrives we have enough machinery to prove things prior to their usage.
eskils gotta upgrade his pen-and-paper style since he replaces jan fredrik and his use of state of the art software, the bar is set tooo high for the pen-and-paper move
Keep the exercise group presentations throughout the whole course and don't stop it 1/2 way through. It was a good incentive to stay on top of lectures and seminars.
The communication about what information applied to the teacher students were very unclear. Everybody said different things about if we had to do the seminar presentations or not, if we got the bonus points or not, if we had to do the oral exam or not. This lead to a LOT of confusion and stress during the whole course.
Maybe explanations of more complex problems during seminars
For the last 4 chapters I also think Youtube films could be beneficial.
You didn't listen to what your students told you and the teacher student weren't prioritized
Solving difficult exam problems in the lecture as examples would be nice.
The second half of the course was taught by Eskil Rydhe and his teaching methods were not as well-formatted as Jan-Fredrik's. While Jan-Fredrik's approach was a purely pedagogical one, Eskil's courses seemed to be rather like quick revision sessions. As a result of this, I spent most of my time studying on my own and felt terribly distant from the lectures. Furthermore, mentor meetings and group presentations had a sudden pause after the midterm exam and what once was a good opportunity for teamwork and problem solving, sank into oblivion. Eskil is obviously a wonderful mathematician. What I'm trying to point out here is the teaching method in particular. The presentation slides made by Jan-Fredrik would make everything a bit more interactive and understandable, while Eskil's handwritten notes were sometimes difficult to follow. It would have been a lot better if Jan-Fredrik and Eskil had [almost] the same teaching method, in order to avoid this sudden change of format during the course.
I found the lectures to not always be very helpful. The method of running through a bunch of proofs was sort of useful sometimes, but it mostly just lead to me confusing myself.
The lectures, especially the second half with Eskil, where mostly very long and very complicated proofs that were hard to follow and seemed irrelevant. For example, we proved the theory on integrals before we actually applied it. This makes it very hard to understand what it is you are actually proving. In addition to that, Eskil's teaching methods were not very enticing. It was mostly writing proofs on a sheet of paper for 2 hours, with very little examples, discussion or ways to relate the theory to real world problems. The lectures at the beginning of the course with Jan-Fredrik were better, as he used interactive power points, discussion and more appliances of the theories we were actually proving. This is not to say that Eskil is a worse lecturer than Jan-Fredrik, it could also simply depend on the material that each of them discussed.
Nothing comes to mind at time of writing.

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.)?
Teacher students were asked to do the same seminar presentations as the bachelors students. While they were awarded both 2hp and 10 bonus points for the exam, we were given nothing and were instead asked to do an additional written assignment in our didactics course over christmas to get the bonus points.
I have not experienced any of that, the courses staff and teachers were absolutely great.
No.
No
Try to teach more details about how to make proofs.
No
No
No.
No
No
gm
actually yes
No
no
No
No
No, not at all.
No.
No
No!
No

What further opinions about the course would you like to share?

What further opinions about the course would you like to share?
I thought that both Jan-Fredrik and Eskil were very good lecturers. I also thought that the transition between them was very smooth and that Eskil did a good job picking up where Jan-Fredrik left off.
None.
To be honest I don't seem to like analysis that much :/
All in all i am very satisfied with the course
I enjoyed trying to solve the challenging problems posted throughout the course
It managed to make a lot of repetition really enjoyable.
I'm quite satisfied with how I learned (remembered after 30 years) the material of the course and with my result on the exam. I believe that the potential opportunities associated with CampusWire are not fully implemented. I think it would be useful to give bonus points to those who are active there. Thanks a lot!!!
Unfortunately it feels like the course ends right at the point where things become interesting and one begins to understand the basics of analysis.
workload too light, lots and lots of spare time

more assignments

more presentations |
| Thank you Jan-Fredrik and Eskil! /a physics student |
| I don't feel kvalified to fill out this |
| I would like for for recordings of lectures and online lectures to continue to be an option. |
| There's nothing more to say, except that I'm truly thankful for everything that this course provided for my learning. |
| None in particular. |
| Its hard :) |