

Kurssammanställning NUMA41 "Numerisk Analys: Basic Course" vt 2020

Course responsible: Philipp Birken

Other teachers: Peter Meisrimel, Miko Lea Versbach

Number of students: 45 registered students

Grades: 8 UK, 10 G, 18 VG.

Evaluation

I. Summary of Course Evaluation

Total number of answers: 9

Short summary of the result: Overall, the students were satisfied with the course (3.9 average) and as usual, the assignments and the project were considered to be very useful for the learning process. One notable thing is that students spent less time on the course than in previous years.

This course was moved online on short notice, due to the COVID-19 epidemic. Lectures and orals were online. At the beginning, students were asked to provide a superbrief presentation of themselves to the other students, to improve the overall atmosphere. The students appreciated the ability to watch the recorded lectures with requests to provide such even when the course is not given online. They also said that they struggled with the situation, both in focussing but also in communicating with staff and other students. Some students criticized that some assignments and the project were not very clear.

II. Evaluation of changes since last time the course was given

Given the situation of moving the course online on short notice, I am very happy with the outcome.

III. Proposed changes to the next time the course is given

We will try to obtain videos this time that can be used in future course. The course will be given online again this time, and we will try more means to foster communication between students and staff. One example can be an unsupervised but scheduled zoom room that students can use to interact. From the comments and the course, it becomes clear that many students struggle with the concept of a numerical experiment. We will spend even more time to make this more clear.

2021-03-03, compiled by Philipp Birken

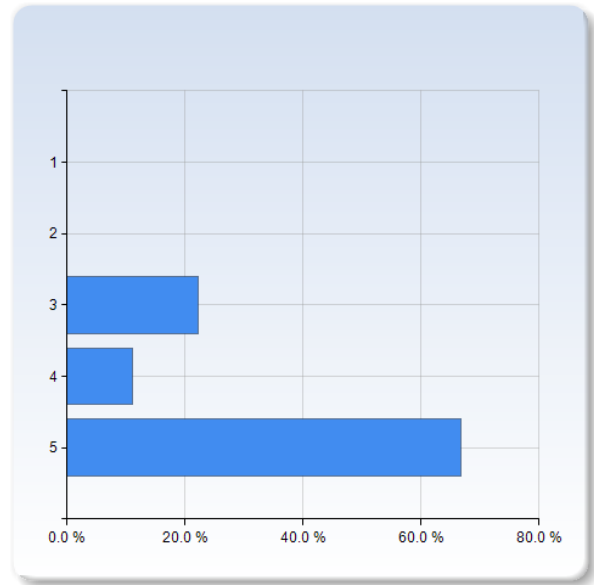
NA Basic Course 2020

Answer Count: 9

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

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

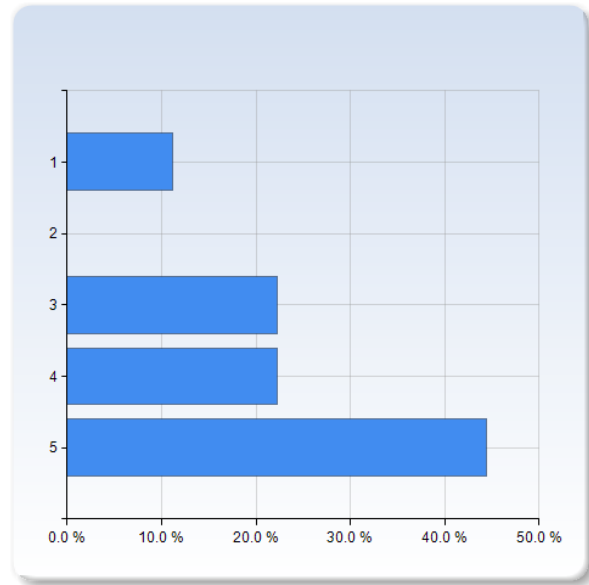
2. My prior knowledge has been sufficient to assimilate the contents of this course.	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (22.2%)
4	1 (11.1%)
5	6 (66.7%)
Total	9 (100.0%)



	Mean	Standard Deviation
2. My prior knowledge has been sufficient to assimilate the contents of this course.	4.4	0.9

3. I have participated actively in the course.

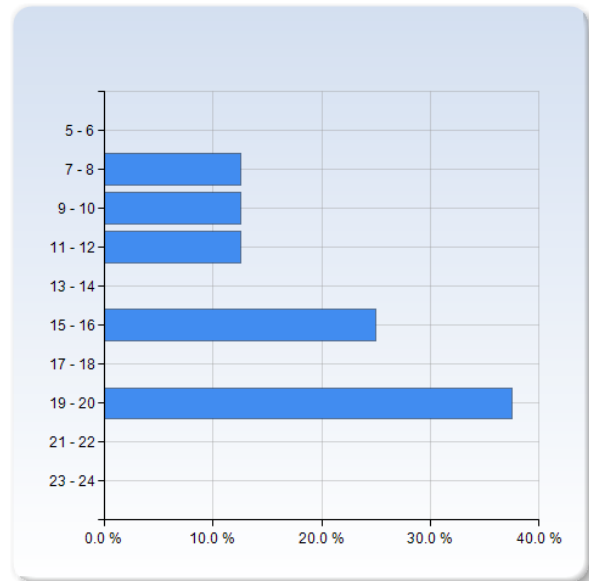
3. I have participated actively in the course.	Number of Responses
1	1 (11.1%)
2	0 (0.0%)
3	2 (22.2%)
4	2 (22.2%)
5	4 (44.4%)
Total	9 (100.0%)



3. I have participated actively in the course.	Mean	Standard Deviation
	3.9	1.4

Average number of hours spent in total on the course per week (including scheduled activities):

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5 - 6	0 (0.0%)
7 - 8	1 (12.5%)
9 - 10	1 (12.5%)
11 - 12	1 (12.5%)
13 - 14	0 (0.0%)
15 - 16	2 (25.0%)
17 - 18	0 (0.0%)
19 - 20	3 (37.5%)
21 - 22	0 (0.0%)
23 - 24	0 (0.0%)
Total	8 (100.0%)



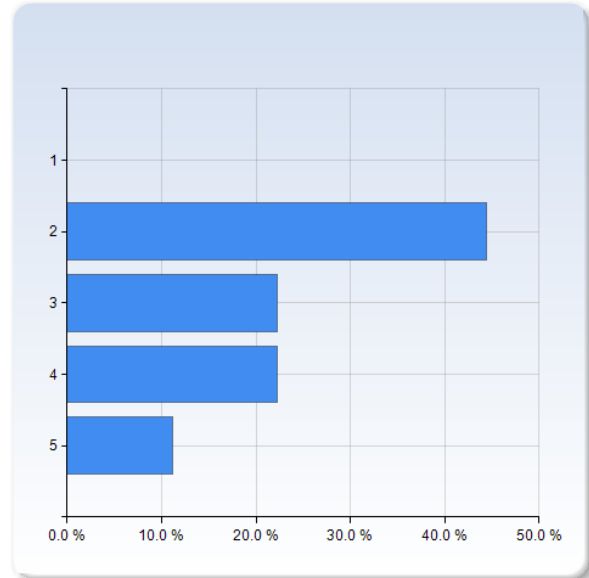
Average number of hours spent in total on the course per week (including scheduled activities):	Mean	Standard Deviation
	15.0	4.8

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.

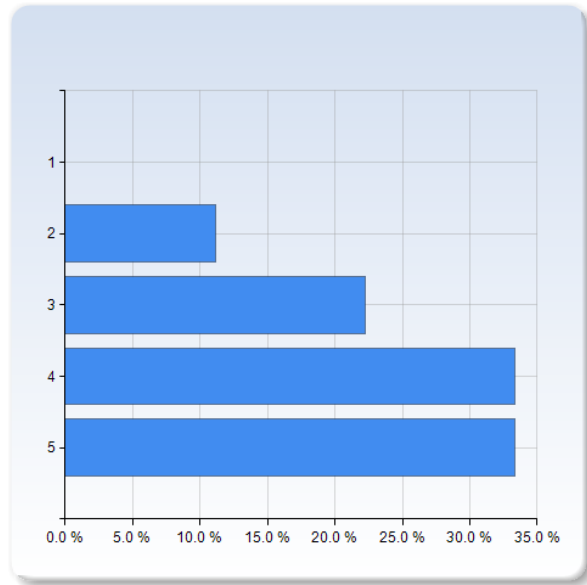
The way the course was taught and organised suited me.	Number of Responses
1	0 (0.0%)
2	4 (44.4%)
3	2 (22.2%)
4	2 (22.2%)
5	1 (11.1%)
Total	9 (100.0%)



	Mean	Standard Deviation
The way the course was taught and organised suited me.	3.0	1.1

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

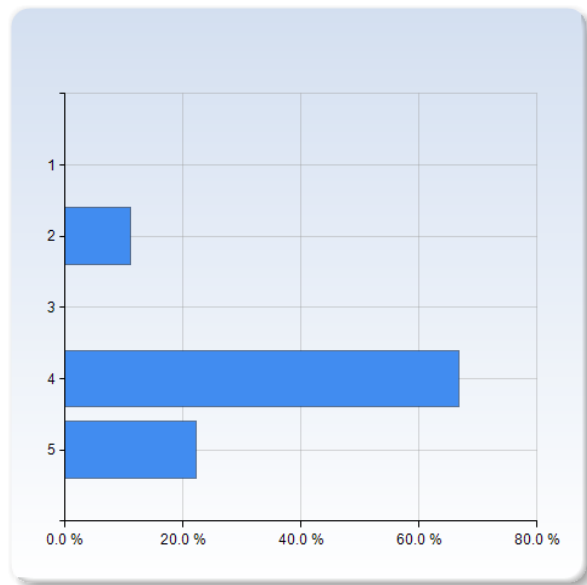
The number of teacher lead activities (lectures, seminars etc.) has been satisfactory.	Number of Responses
1	0 (0.0%)
2	1 (11.1%)
3	2 (22.2%)
4	3 (33.3%)
5	3 (33.3%)
Total	9 (100.0%)



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

The lectures were valuable for my learning.

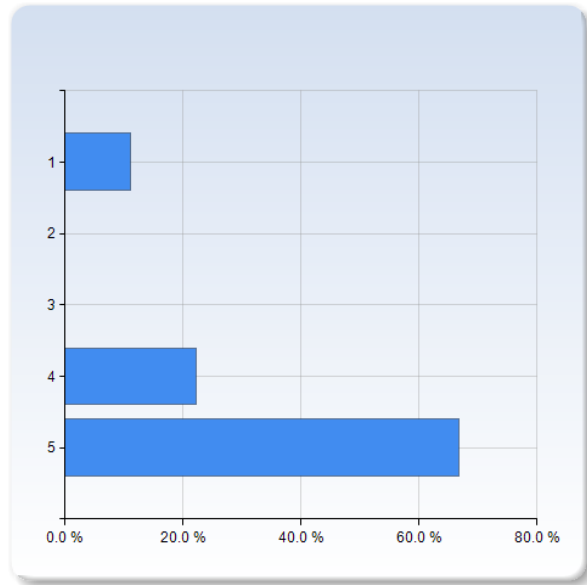
The lectures were valuable for my learning.	Number of Responses
1	0 (0.0%)
2	1 (11.1%)
3	0 (0.0%)
4	6 (66.7%)
5	2 (22.2%)
Total	9 (100.0%)



The lectures were valuable for my learning.	Mean	Standard Deviation
	4.0	0.9

The assignments were valuable for my learning.

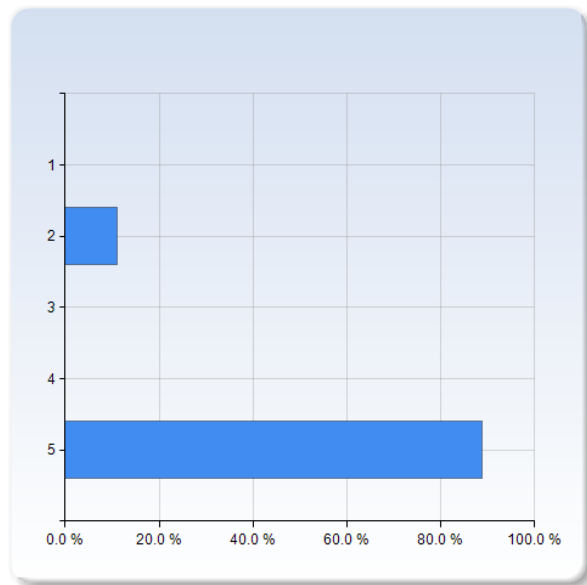
The assignments were valuable for my learning.	Number of Responses
1	1 (11.1%)
2	0 (0.0%)
3	0 (0.0%)
4	2 (22.2%)
5	6 (66.7%)
Total	9 (100.0%)



The assignments were valuable for my learning.	Mean	Standard Deviation
	4.3	1.3

The project was valuable for my learning

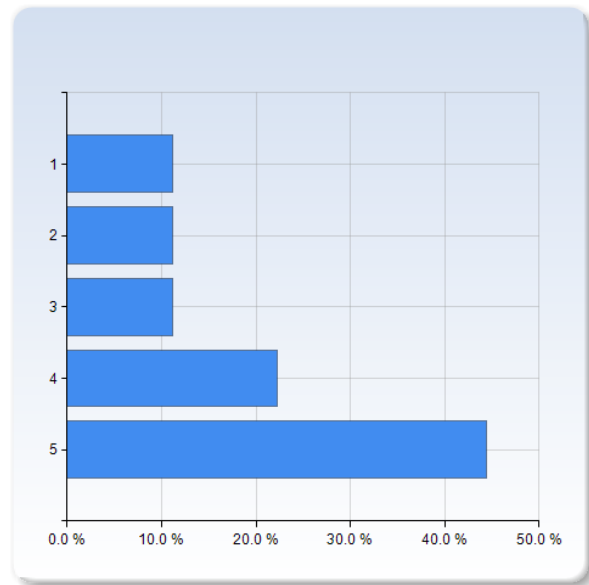
The project was valuable for my learning	Number of Responses
1	0 (0.0%)
2	1 (11.1%)
3	0 (0.0%)
4	0 (0.0%)
5	8 (88.9%)
Total	9 (100.0%)



The project was valuable for my learning	Mean	Standard Deviation
	4.7	1.0

Studying on my own was valuable for my learning.

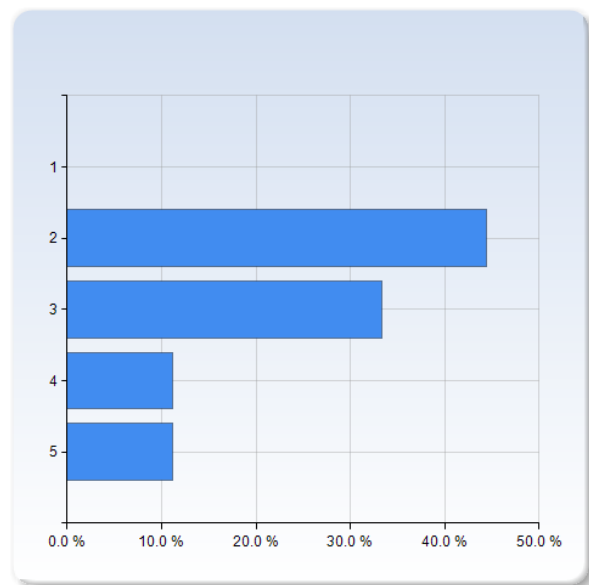
Studying on my own was valuable for my learning.	Number of Responses
1	1 (11.1%)
2	1 (11.1%)
3	1 (11.1%)
4	2 (22.2%)
5	4 (44.4%)
Total	9 (100.0%)



	Mean	Standard Deviation
Studying on my own was valuable for my learning.	3.8	1.5

The course literature/material was a valuable learning resource.

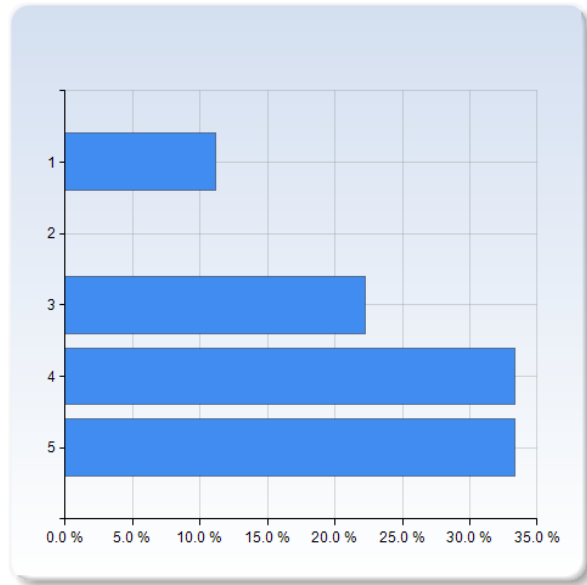
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2	4 (44.4%)
3	3 (33.3%)
4	1 (11.1%)
5	1 (11.1%)
Total	9 (100.0%)



	Mean	Standard Deviation
The course literature/material was a valuable learning resource.	2.9	1.1

The information I received before the course start was satisfactory.

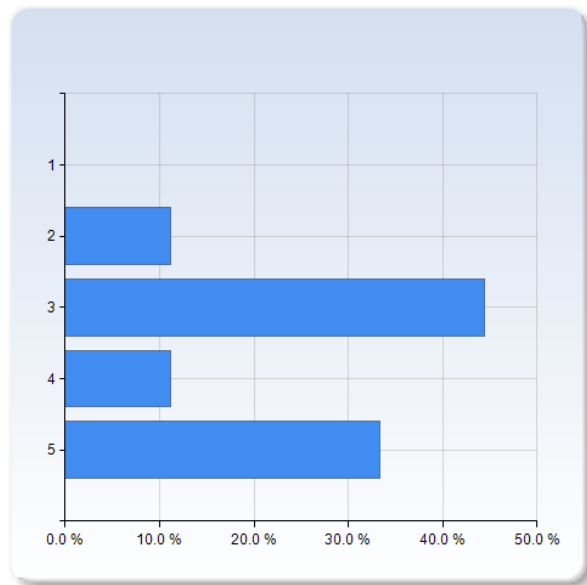
The information I received before the course start was satisfactory.	Number of Responses
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	Mean	Standard Deviation
The information I received before the course start was satisfactory.	3.8	1.3

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

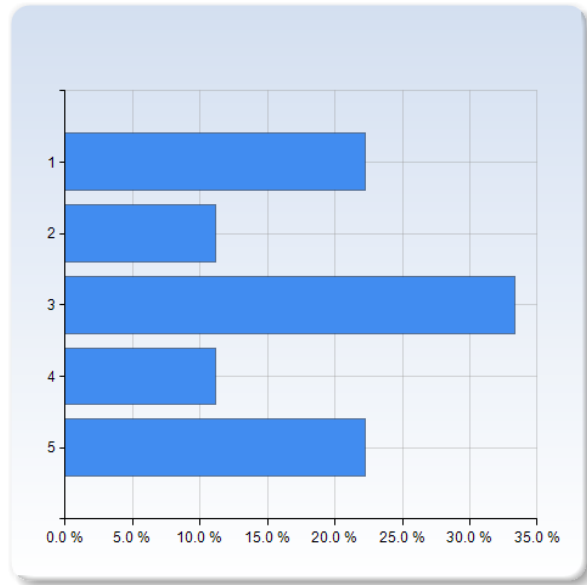
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5	3 (33.3%)
Total	9 (100.0%)



	Mean	Standard Deviation
The communication with the teaching staff during the course was good.	3.7	1.1

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

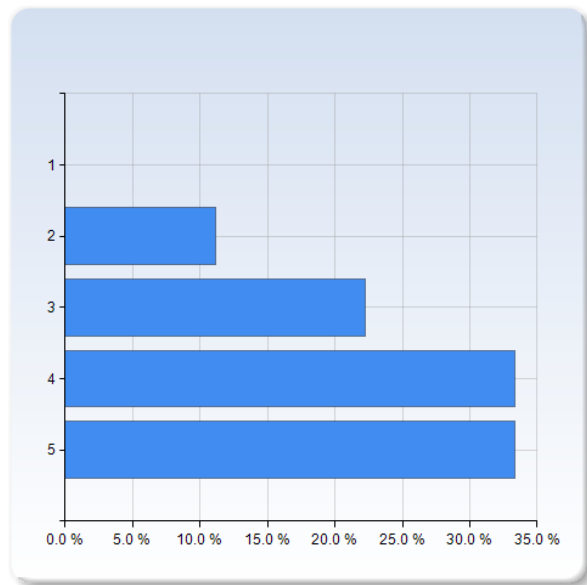
It was clear throughout the course what was expected of me.	Number of Responses
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5	2 (22.2%)
Total	9 (100.0%)



	Mean	Standard Deviation
It was clear throughout the course what was expected of me.	3.0	1.5

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

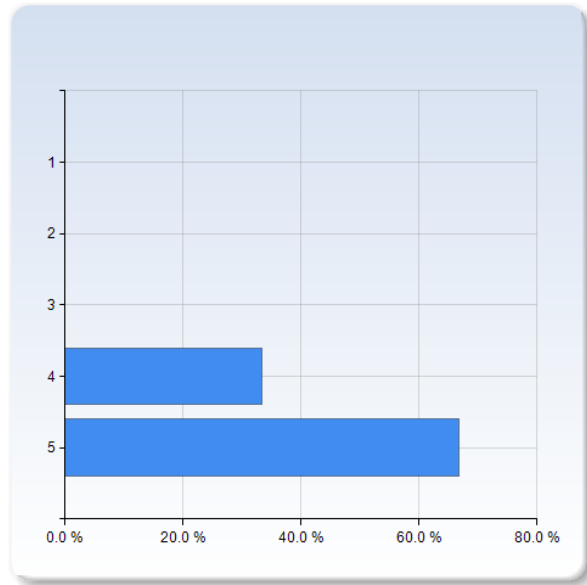
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	Mean	Standard Deviation
I have received valuable feedback from my teacher/teachers during the course.	3.9	1.1

The course had a reasonable workload.

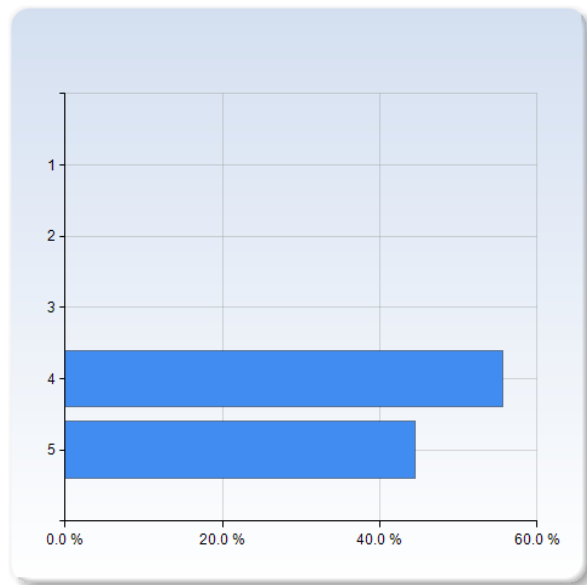
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Total	9 (100.0%)



	Mean	Standard Deviation
The course had a reasonable workload.	4.7	0.5

The examination matched the contents and level of the course.

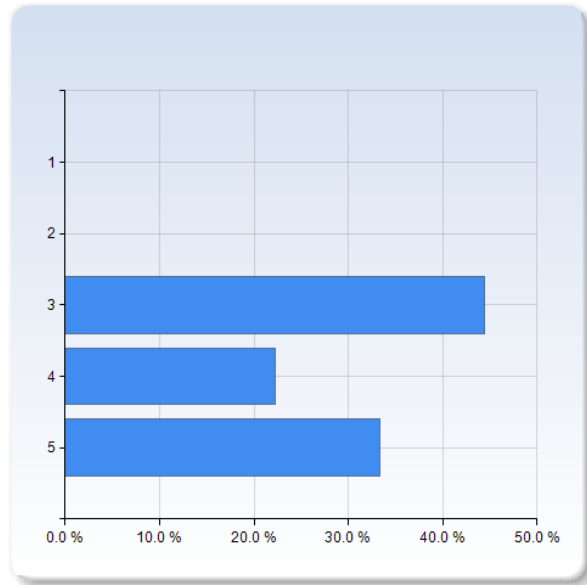
The examination matched the contents and level of the course.	Number of Responses
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	Mean	Standard Deviation
The examination matched the contents and level of the course.	4.4	0.5

Overall, I am satisfied with the course.

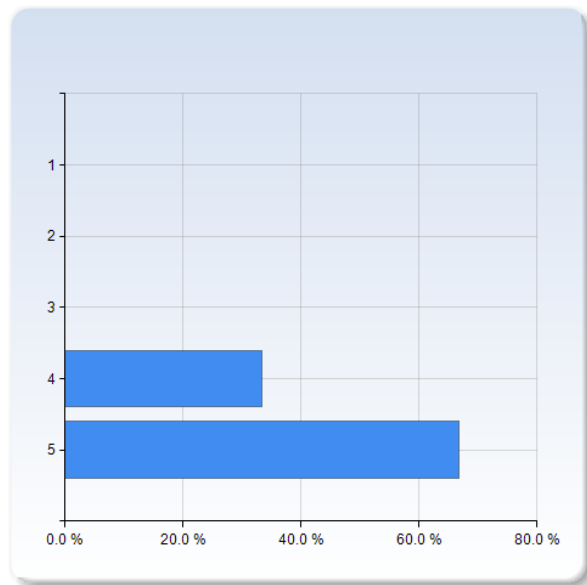
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	Mean	Standard Deviation
Overall, I am satisfied with the course.	3.9	0.9

The workload was evenly distributed throughout the course.

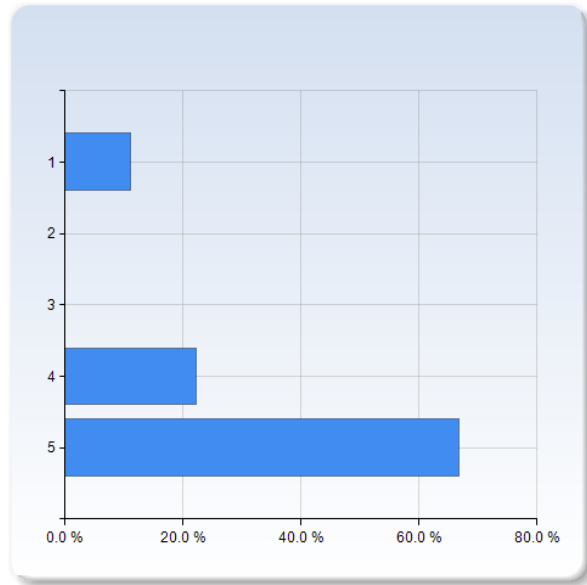
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	Mean	Standard Deviation
The workload was evenly distributed throughout the course.	4.7	0.5

I watched the uploaded lectures

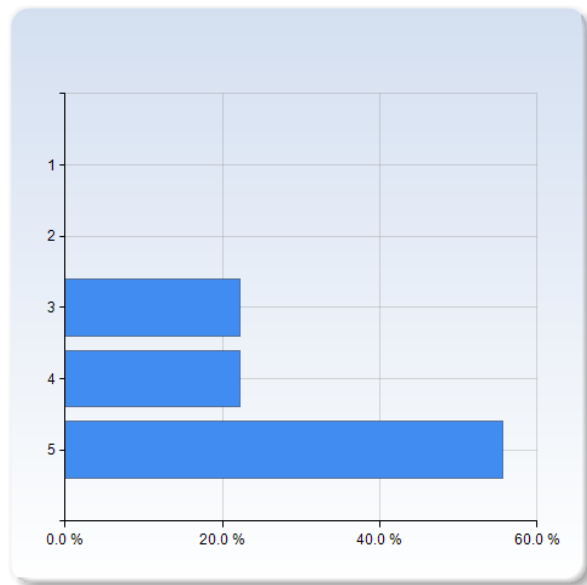
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I watched the uploaded lectures	Mean	Standard Deviation
	4.3	1.3

The uploaded lectures were valuable for my learning

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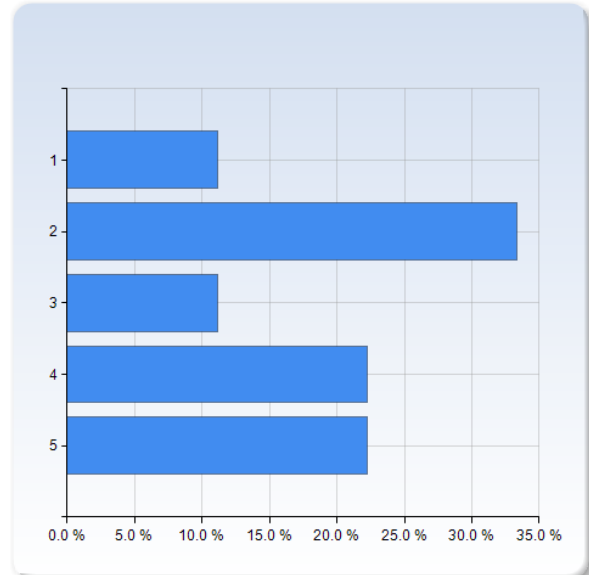


The uploaded lectures were valuable for my learning	Mean	Standard Deviation
	4.3	0.9

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.

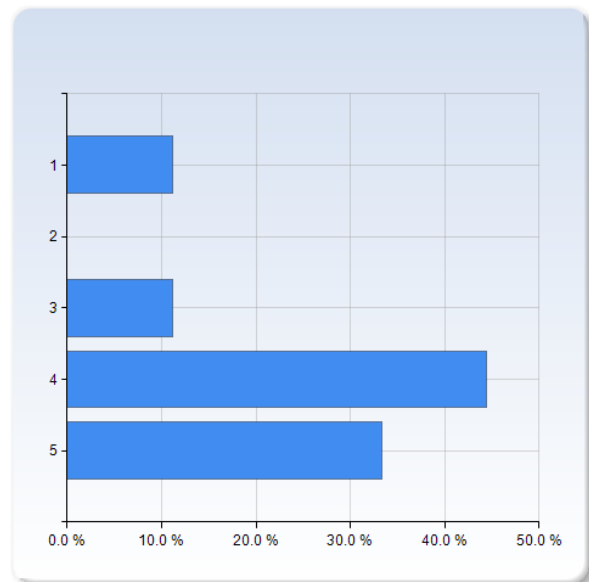
The course has increased my ability to read a mathematical text.	Number of Responses
1	1 (11.1%)
2	3 (33.3%)
3	1 (11.1%)
4	2 (22.2%)
5	2 (22.2%)
Total	9 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to read a mathematical text.	3.1	1.5

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

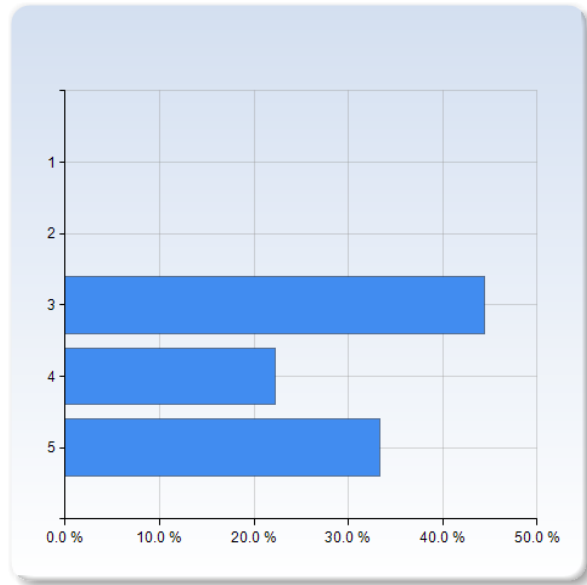
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Total	9 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to communicate the subject in writing.	3.9	1.3

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

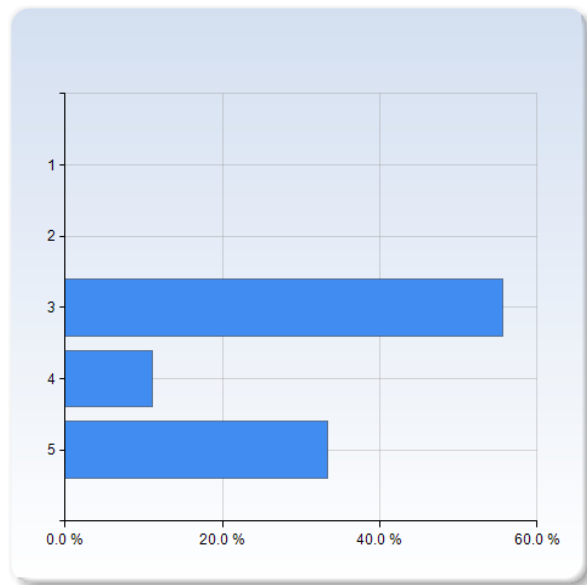
The course has increased my ability to communicate the subject orally.	Number of Responses
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5	3 (33.3%)
Total	9 (100.0%)



The course has increased my ability to communicate the subject orally.	Mean	Standard Deviation
	3.9	0.9

The course has increased my ability to collaborate.

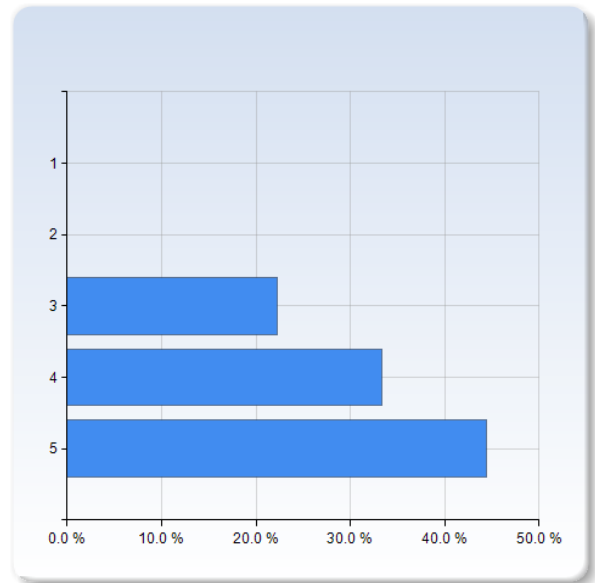
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2	0 (0.0%)
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4	1 (11.1%)
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Total	9 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to collaborate.	3.8	1.0

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

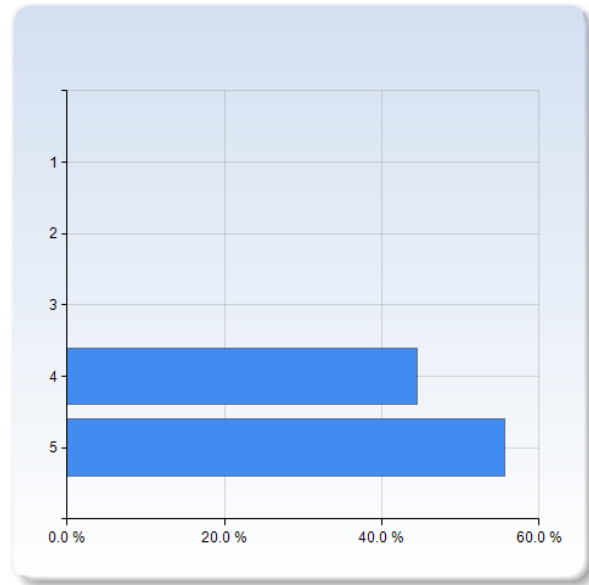
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2	0 (0.0%)
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4	3 (33.3%)
5	4 (44.4%)
Total	9 (100.0%)



	Mean	Standard Deviation
The course has increased my ability to search and process information.	4.2	0.8

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

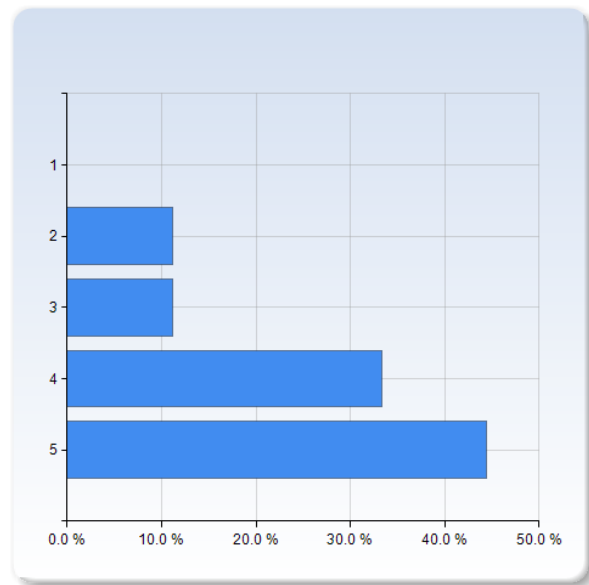
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4	4 (44.4%)
5	5 (55.6%)
Total	9 (100.0%)



The course has increased my ability to analyze and solve problems.	Mean	Standard Deviation
	4.6	0.5

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

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1	0 (0.0%)
2	1 (11.1%)
3	1 (11.1%)
4	3 (33.3%)
5	4 (44.4%)
Total	9 (100.0%)



As a result of this course, I feel confident about tackling unfamiliar problems.	Mean	Standard Deviation
	4.1	1.1

How did the online learning work for you in this course?

How did the online learning work for you in this course?

Not well at all, and that is reflected in my evaluation. I am certain that if I was taking this course in person and not online all my evaluation points would have been higher.

I have a hard time focusing at home and have spent nowhere near as much time on the subject as I would normally have. I am however aware that this problem lies with me and my own abilities.

I watched all the lectures except one live. Before the exam I went back and re-watched most of them. I should have done it earlier but I just didn't make the time. A lot of things were much clearer seeing it again. I know it sounds obvious, but I didn't really consider it. I have been depressed a lot and felt as if I hardly understand anything of the course. A lot of things 'clicked' when we did the project, but I do wish it did so sooner. And I think it would have during "regular times".

I have however spoken with others who liked this way of teaching, so maybe making all lectures available online (as a supplement) would be a good idea. Maybe not as interactive, but maybe filmed with a stationary camera coupled with the notes from some student with good handwriting.

I feel a bit unfair for the points I gave. Know that I believe my "Overall satisfaction" would most likely have been a solid 5 had it not been for this. Also the question regarding "The way the course was taught and organised suited me." is weighted heavily by this.

It was very hard, especially since we didn't have a text to read, everything relied on the lectures. Having them recorded was good, because I could then review whatever was unclear as many times as I wished. Other courses where we have a coursebook that everything is based on has been no issue, but I found the online format for this course to be a lot more stressful. It was hard to organize my selfstudies.

It worked great for me

I found myself more hesitant to ask questions and naturally prefer real lectures.

Also the distraction (other applications) when sitting in front of the computer is high, but that is probably my own fault.

On the other side it was really useful that I could easily re-watch lectures and so deepen my understanding.

The online learning went well for me. In my opinion, it could even be a good complimentary for when there are physical lectures.

Uploaded videos were great since then you can rewatch them if there was anything you felt that you didn't understand fully. I wish the university continue making videos and uploading them so that the students can re-watch them during the course.

Online course was better than I expected. It was more flexible and efficient.

It worked very well.

The videos of the lectures were very helpful. I could watch them again at any time and rewind and skip where needed. I do not like the breakout rooms, forced collaboration within such a short timespan simply doesn't work. Apart from those things the lectures were just like live lectures.

What did you appreciate most with the course?

What did you appreciate most with the course?

The subject is super exciting, I am happy I picked this course.

It is also clear that Philipp really enjoys it. You can tell that he wants us to learn it and it is not a just a 'chore' for him to teach us.

The same can also be said for Claus.

It was nice that Claus held the lectures on splines, as (if I understand correctly) Philipp do not like the method :)

I have also gotten quick and good responses to all my questions over email.

The ability to review the lectures

Even distribution of the workload

I liked the examination form. It was nice to have a project, which basically was like reviewing the course again. And for the oral exam we had a lot of time to discuss within our group and with others about our projects, justification for using certain methods etc. I really liked this, since the grade isn't just based on a 5 hour exam.

The assignments were really fun to do and always had a theory and a programming part which was really good.

The writing was a bit tedious in the beginning but I think it is a good exercise to practice.

The topic itself was also really appealing to me so I felt motivated during the whole course and never thought the content was boring.

Especially after the assignments and the final project pieces started to fall together and a lot of things made sense for me. It was also really nice to use different things learned in the course (interpolation, ODE, ...) all together in the final project.

The subject!

The homeworks were also a very good addition.

The way the oral was conducted made it a learning experience.

Lectures mostly solving PDE's numerically.

The course scope under the subject of numerical analysis.

The assignments and the final project helped illustrate the topics and helped my understanding of them. This is really a subject where knowing the proofs and working with their results are two very different things so you really have to work with both to fully understand the subject.

The videos of the lectures (see question 5).

The course was organized well and emails were replied to quickly and in a very good way.

What do you think should be improved?

What do you think should be improved?

I personally felt during almost every assignment it would have been better if they were shifted by one lecture. So that by the time we started working on it we had the tools to complete it. As it were now the lecture we had on the Friday gave us the tools to finish it in four days, two of which were the weekend which I would rather have spent with my family.

As I have understood it, during previous years the students had as much time to spend on the assignment, but with having four weekdays to complete it instead. I can see how I would have liked that much better.

In the beginning of the course a few of us set up a zoom-group to hang out and talk after the lectures. It was barely used, regrettably. If the course is given in the same fashion again, it could be nice for something like that to be officially organized. As analog to people sitting together, working and helping each other in the classroom after the lecture. I know it was encouraged from the start that we should do it ourselves, but I think more would use it if a zoom-space already made for the purpose was available.,

Since only parts of the course was covered by the coursebook, small notational/sign mistakes made rather easy concepts hard to understand. I found it very easy to see these mistakes when I had learnt the concept at hand, but getting introduced to the concept with these notational/sign mistakes made it unnecessarily hard to understand at first. I found it frustrating and causing a lot of unnecessary stress.

Maybe frequently smaller exercises outside the lectures, like exercise sessions. Also that the students present solutions to homework. The questions and break out rooms during the lectures were ok, but I felt somehow under time pressure and often had not digested the lecture yet. So I had rather time outside the lectures to think about problems and discuss them the next day or so.

I barely used the textbook, so maybe emphasize that a bit more.

Lastly the we barely received feedback for the programs, so some tips how to improve our implementations and speed them up would be nice too, I think most students used python anyway, so could be python/numpy specific.

I hope this is seen in light of constructive criticism.

1. The subject is very intuitive, but the way it has been introduced in this course was a failure in adhering to the students very useful intuition. This was due mainly to the way the lecturer introduced the various topics with excessive and unnecessary formalism (indexing) rather than giving a clear picture beforehand that he could return to at each step.

To overcomplicate something this clear creates an unnecessary frustration that shifts the weight away from learning.

2. The experience has been that the lectures did not have any "red thread" and lacked a kind of pedagogy. Oftentimes there were question pauses that did not make sense as they were asking for the very obvious. They confused the students rather than helping in their understanding. There should have been more discussion pauses for when students asked a question, but instead that was brushed away or answered with the same set of sentences.

Questions should be welcomed otherwise what is the point of attending lectures.

3. The lecturer did not encourage implementation in code of the methods introduced, which aid in understanding and long-term memory of the topics. This was at heart, a failure. This subject has not only theoretical value but also practical and this course completely failed in highlighting the latter.

A suggestion would be to discuss implementation concretely in at least the last 5-10 minutes of the lectures. Related to this, is that implementation would also allow to discuss more complicated examples that would be impossible to work out by hand. That is intriguing!

4. The final project was quite easy once one understood what it was asking for. The language that was used was confusing and took away from the time that one could have spent experimenting with the project.

To sum up:

The points above, made the course quite understimulating.

Definitely review the assignments and projects and more specifically what question they ask and how to solve them those question ask in those problems since it was VERY unclear what one was supposed to do at each assignment and project and ALOT of time went into interpret what was asked in a lot of the questions.

The course literature maybe? Some minor contents of the course were not included in the textbook.

The feedback on the assignments was good, however it does not prepare you for the rather harsh and pedantic/nitpicky feedback on the final project. Either the feedback on the assignments needs to be more harsh (and the criteria for U, G, and VG need to be more clear upfront) or what would be better: make the feedback on the project more similar to that of the assignments: more focused on the subject and content. If I had known the final project would be judged this way then I would have written a different report.

The questions during the lectures do not work, everybody has difficulty understanding what the lecturer is asking for or even what kind of answer he is after. This is not May-illness, this would also happen at the start of the academic year. He either needs to rethink the way he phrases his questions or make them more specific. You can take Claus' lecture as an example where the questions work much better.

This is maybe also an attitude thing, or the way attitude comes across to the students. With Claus you feel treated as an adult, a colleague almost. With Philipp you feel treated more like a highschooler, which does not help.

The course book is not really used. It would be better to use a book that better matches the lecture notes or to make the lecture notes available as course literature.

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. Neither personally nor towards others.

For the purpose of objectivity I volunteer the information that I am a white, heterosexual, cisgendered man.

No

No

No

No

No