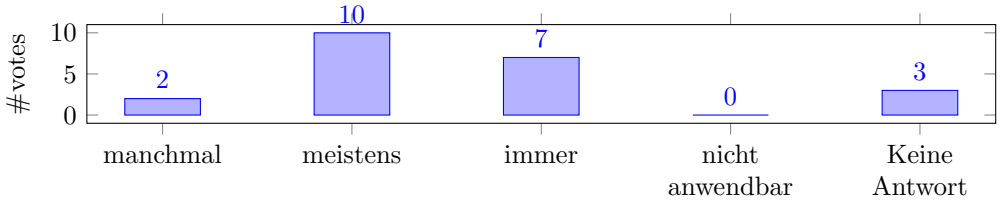
Modul: Computational Topology	**Semester:** WS 24/25

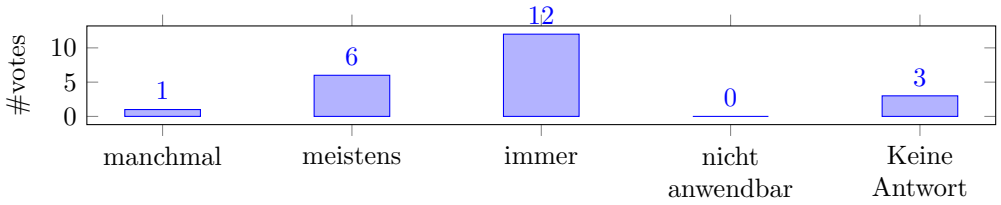
Ergebnis der Online-VLU. Die Umfrage fand in den letzten beiden Vorlesungswochen statt.

1 Bewertung der Vorlesung

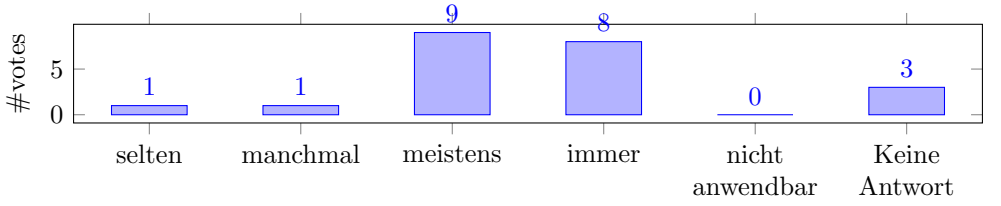
Wie oft hast du die Vorlesung besucht?



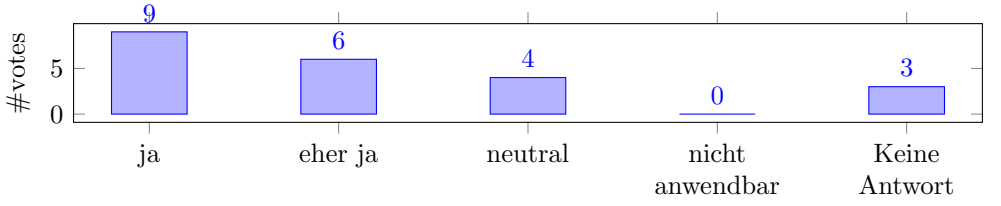
Wurden Themen durch Beispiele veranschaulicht?



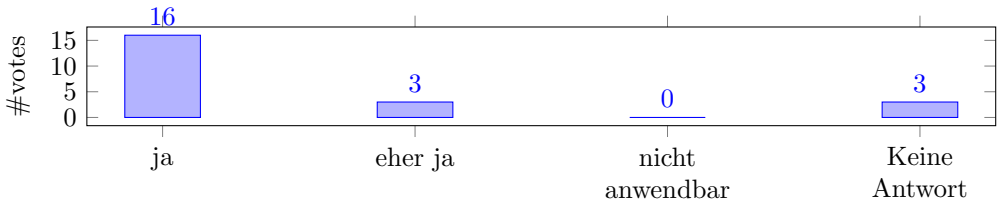
Wurden die Themen ausführlich genug erklärt?



War die Struktur der Vorlesung klar zu erkennen?

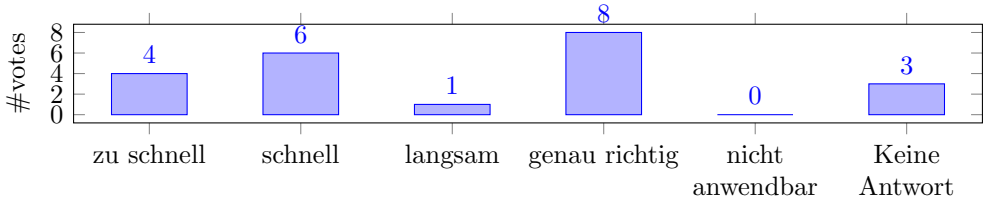


Waren die Folien/das Skript hilfreich?

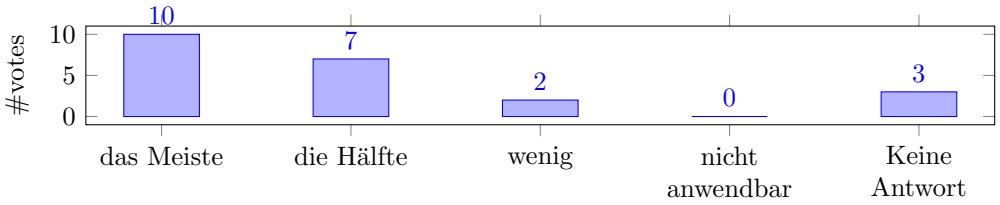


2 Bewertung der Dozierenden

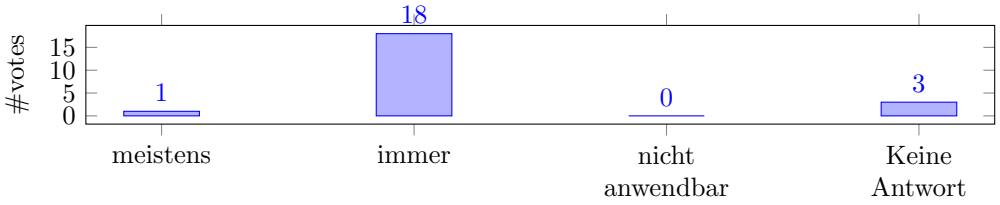
Die Geschwindigkeit der Vorlesung war...



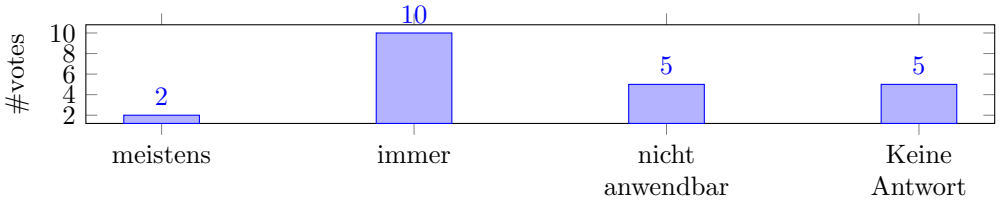
Wie viel verstehst du während der Vorlesung?



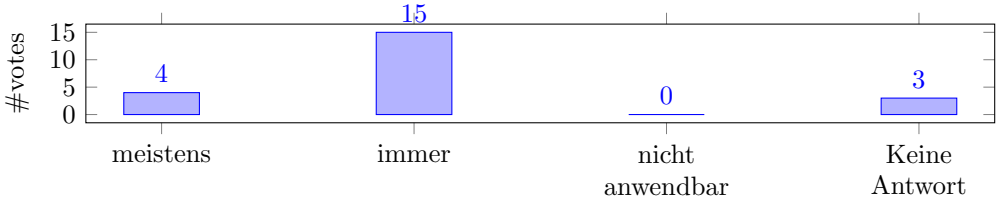
Ist der Dozent/die Dozentin gut auf Fragen eingegangen?



War der Dozent/die Dozentin außerhalb der Vorlesung für Fragen etc. erreichbar?

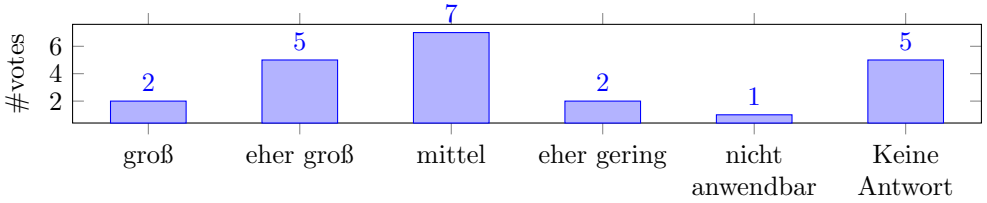


War die Dozentin / der Dozent akustisch gut zu verstehen?

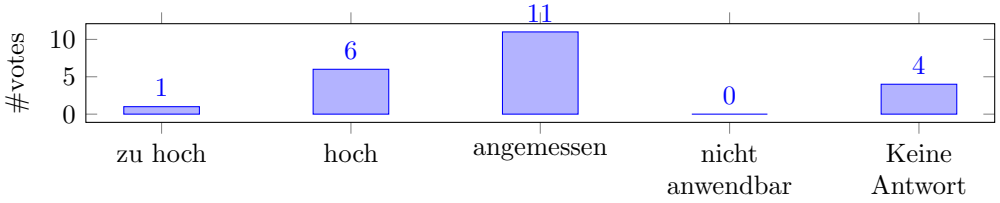


3 Bewertung des Moduls

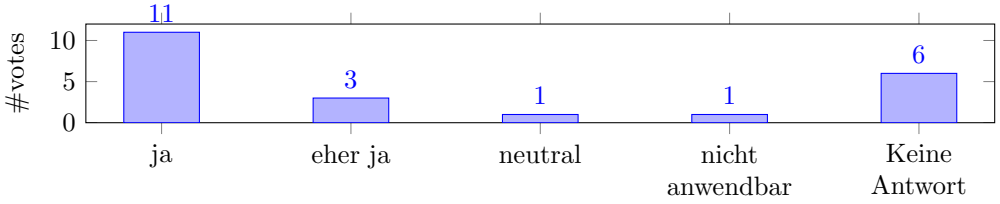
Der Praxisbezug war...



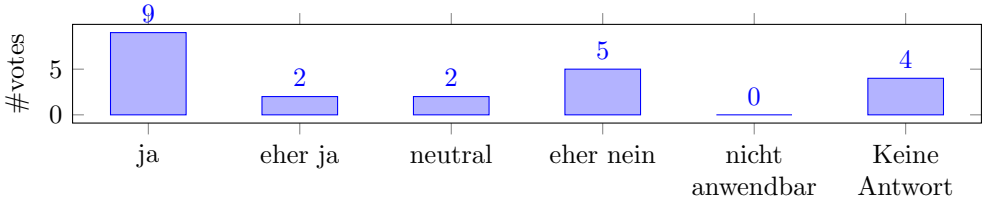
Ist der Arbeitsaufwand für dieses Modul im Hinblick auf die LP-Zahl angemessen?



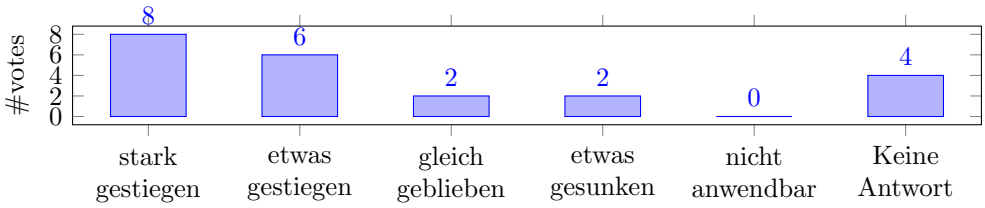
Findest du die verlangten Studienleistungen für dieses Modul angemessen?



Würdest du dieses Modul weiterempfehlen?

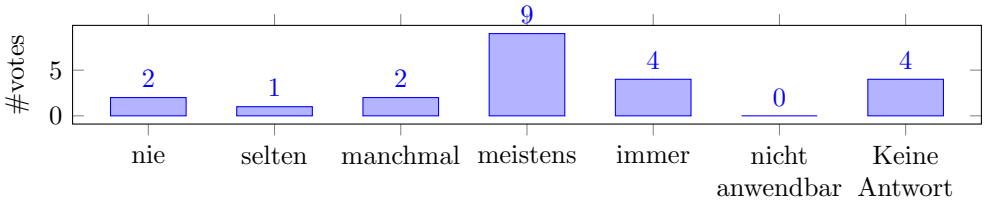


Dein Interesse für dieses Thema ist...

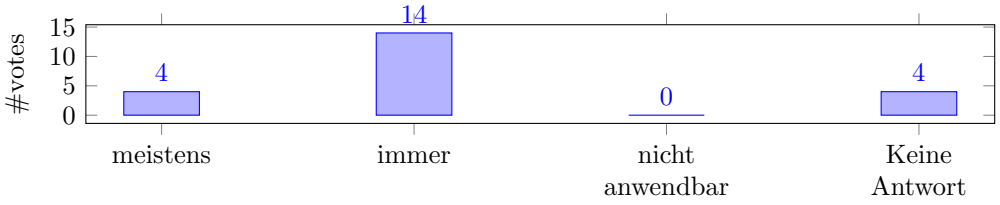


4 Bewertung der Übungsaufgaben

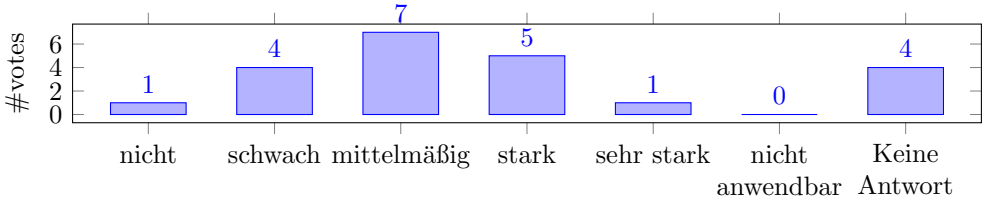
Wie oft hast du die Übungen besucht?



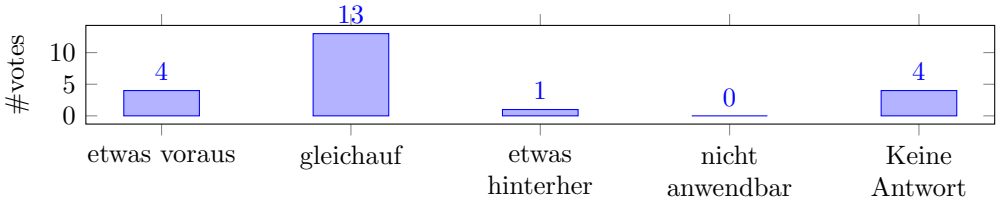
Wurden die Übungsaufgaben rechtzeitig zur Verfügung gestellt?



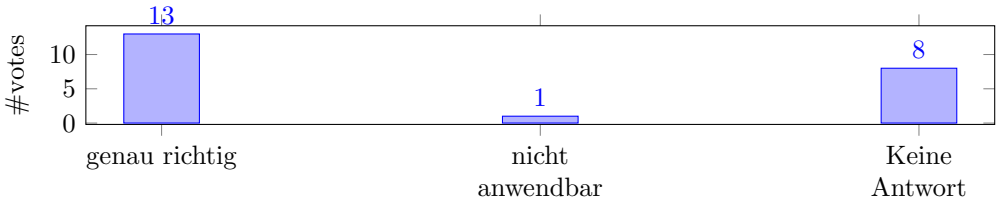
Die Schwierigkeit der Übungsblätter schwankte...



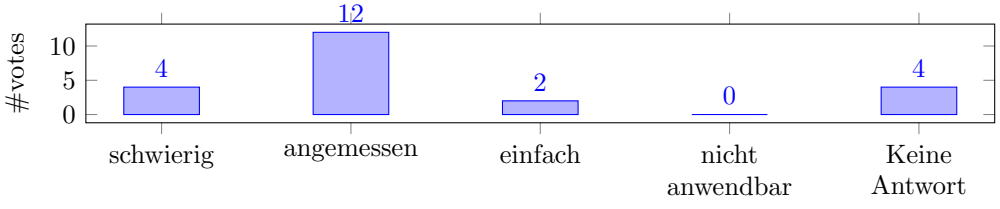
Die Vorlesung war...



Die Übungsgruppe war...

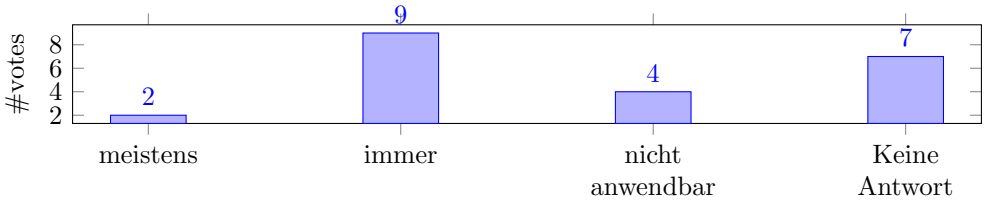


Die Übungsaufgaben waren meistens...

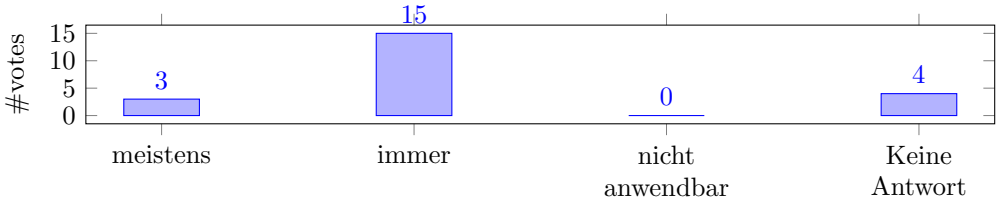


5 Bewertung des Tutoriums

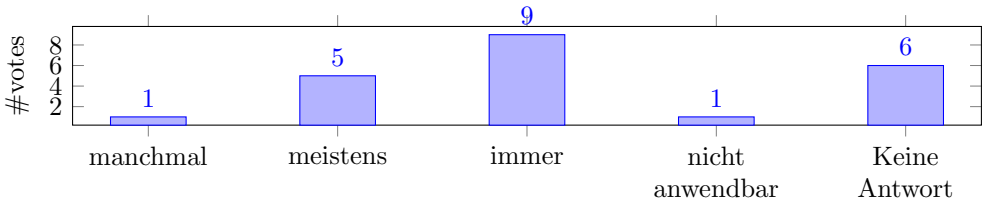
War der Tutor/die Tutorin außerhalb der Übung für Fragen etc. erreichbar?



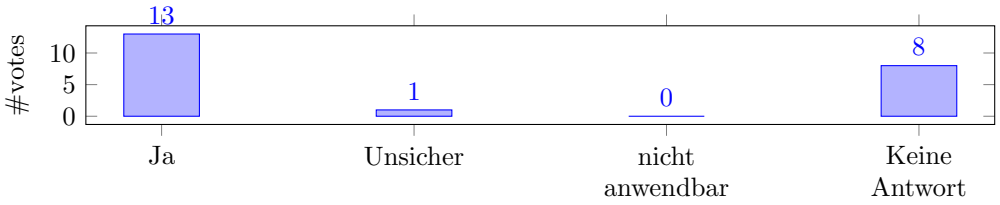
Waren die Korrekturen des Tutors/der Tutorin nachvollziehbar?



Wurde der Tutor/die Tutorin mit dem Stoff der Übung fertig?

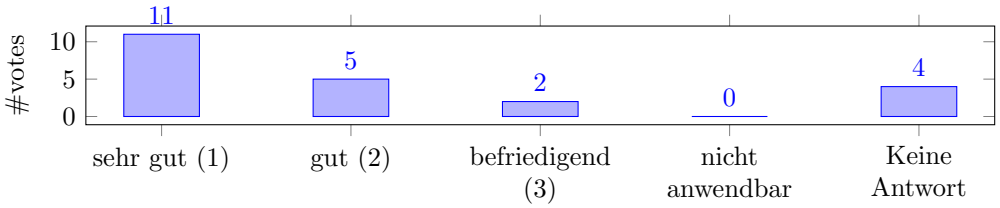


Lohnt sich der Besuch des Tutoriums?

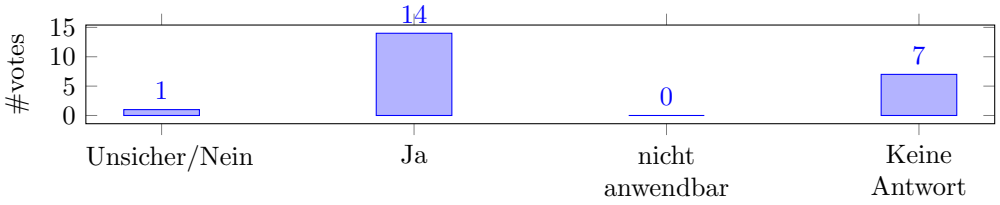


6 Abschließende Bewertung des Moduls

Note:



Hältst du die Vorlesung der Dozent:in für lehrpreiswürdig? Falls ja: wieso?



6.1 Kommentar

The lecture was very well organized and enthusiastically and understandably presented. The lecture notes are excellent, [lecturer] even updated them after questions during the lecture to make clarifications. For interested students there also was more material provided.
It was very clear that the professor was highly motivated about the topic and at the same time really cared about us students, he took the time to explain things until he was sure we understood it, he also provided a good recap - all in all I rarely understand as much of a lecture and have as much fun as I have in this lecture!

Dem Dozenten gelingt es sehr gut komplexe mathematische theorien kurz und verständlich aber nicht zu sehr vereinfacht darzustellen. Der Kurs ist ein schöner Blick aus einer praktischen perspektive in theoretische Gebiete. Auch abstakte Konzepte wurden intuitiv erklärt, so das man bei manchen teilen direkt tiefer in die Inhalte eintauchen möchte. Außerdem fühlt man sich sehr in die Vorlesung mit einbezogen anstatt nur zuhörer zu sein.
[Lecturer] cares a lot and puts in a lot of effort, so that the students can understand what is happening.
The lecturer is quite enthusiastic about the topic and really concerned with making the contents as accessible as possible by giving extensive explanations and motivation.
I think the lecturer does a wonderful job holding the lecture. He manages to make every lecture fun and is clearly passionate about the topic. I think due to the amount of prerequisites that need to be covered, this is a really hard course to do well but I think the lecturer achieves that. The lecture notes are also really good.
The lecturer had the rare and special kind of enthusiasm for maths and computer science that is contagious. He started his explanations from the big picture ideas and added more and more details until we students understood. If we did not understand, He would add a new and somewhat different explanation every time we asked. Also, he joked around a lot which kept the lecture interesting, I don't think I've had a lecturer who was similarly engaging, organized and still made me feel like he was one of us.

7 Freitextkommentare

7.1 Was hat dir an dieser Lehrveranstaltung gefallen?

Lots of Pictures helping a lot Great tutorial
The recaps at the beginning were very valuable to get an overview and see how things interplay.
Das Skript ist sehr gut und ich freue mich sehr über einen Dozenten der sich dabei so viel mühe gibt, weil ein gutes skript echt viel hilft. Wirklich schön ist auch, dass die Vorlesung so interaktiv ist, man fühlt sich sehr mit einbezogen.
Good lectures, well formulated and complete lecture notes, the tutorials were very helpful
I think the lecture manages really well to give you intuition about very different complicated topics. I also think that the topic of the lecture is really intersting and different from everything else that is offered in Bonn.
Very different perspective, much math, very hard for computer scientists, but very helpful tutorial
There was a very clear line going through the lecture. At almost every point I knew what we where doing and why. Since high level ideas were given, the hard maths was motivated. The lecture was very interesting and well presented.
- The extensive investigation and constructions of concepts and tools, which some CS courses lack - The deep, fundamental insights into topology and persistence
Almost everything

7.2 Was könnte noch besser gemacht werden?

It's a hard class for computer scientists, but I don't see how that could be avoided
time management could be improved, I personally didn't mind too much that we went over time often but I guess it could be problematic if students have other classes or appointments afterwards.

Die Vorlesungen wurden am Ende wirklich oft stark überzogen, dass ist ab und zu und in maßen kein Problem, aber in dem ausmaß ist es nicht schön für studenten. Das ist aber auch ein allgemeineres Problem, ich hatte zum Beispiel in diesem semester keinen einzigen Dozenten der nicht regelmäßig stark überzogen hat. Aufjedenfall führt das dazu, dass die Pausen zwischen Vorlesungen, die ja eigendlich zum essen oder kurz entspannen da wären, komplett wegfallen. Wenn man einen langen tag hat und garkeine Pause zum essen ist das am Ende nicht förderlich fürs lernen. Wie gesagt ist das eher ein strukturelles problem, aber ich habe immer mehr das Gefühl das eine Vorlesung die zu der korrekten Zeit endet eine seltenheit (zumindest in unseren Institut) wird. Allerdings weiß ich auch nicht wo man Inhalte der Vorlesung kürzer darstellen könnte um das umzusetzten.

For me personally the very long and technical proofs in the lecture did not work well. Not only had i trouble following the proofs after a certain amount of time, but i also did not have the feeling that i learned anything from watching someone else do these very technical proofs. That may however only be a me problem.

The time management of the lecture leaves a lot to desire. It often feels like explanations take much longer than expected; for example, when you say, “let me go on for 5 more minutes,” it sometimes ends up taking 15 minutes to wrap up the point.

I really appreciate the idea of doing a recap at the beginning of the lecture—it’s helpful to refresh our understanding. However, it might work better if the recap were kept shorter, so it doesn’t take up as much as 20 minutes.

Also students asking questions during the lecture is no fair excuse for going overtime.

I am not sure if this is still coming but I think it would be nice to spend some time appreciating the results we have come to. Maybe you could once again show the programs that you showed in the first lecture so that we can appreciate all that we have learned about them. And maybe you have a fancy program that shows the algorithms in action and demonstrates what you can achieve using them?
I also think sometimes not all of the questions asked in the lecture need to be answered in detail during the lecture. I personally think the questions that are answered in class should be questions about understanding the presented material. In my opinion we a few times spent too much time talking about whether an alternative proof idea that someone came up with could work and things like that.

The course as is, is simply not aimed at computer scientists. Even with a relative thorough background in mathematics and some experience in topology, it was a very hard course, with highly complex ideas and mathematics outside of the scope of a typical CS-major. The difference in the workload compared to other subjects of the CS studies is enormous. The course won’t be doable for most of the students.

- First of all as a CS student taking the course, I came to the conclusion early on that I am not technically fit to take the course as I was struggling each week putting many hours to understand the topics in the lecture, and barely having enough time to solve the assignment. However, I persisted due to my interest in the potential applications, and because I thought it would be very hard to commit myself to learn these same concepts outside of this comprehensive concepts, which I admit are very insightful and helped me build a mathematical stamina that I have not had before. That being said, I believe it would be better NOT to join together math and CS students in this class and have a seperate, gentle intro into topology with a more application-oriented course for CS students. That would be more favorable to both factions. In my own perspective, I had a weekly mental struggle whether or not to continue suffering in this course and feeling like an idiot in every single lecture, but I really enjoyed the algorithmic parts and the applications of shape analysis due to persistence. So if more lectures focused on other applications it would be less psychologically stressful to endure week after week of feeling like (as they say in my home country), a donkey lost in the sea of knowledge.
- In many cases, it felt like there was a huge gap between the introduction of a concept and its applications. For example, filtrations were introduced in Lecture 9, but it was at Lecture 16 that a concrete application with a height function and at lecture 20 when multi-parameter persistence was presented which was first mentioned also in lecture 9.
Maybe a more optimized flow of concepts with a temporally-near application to a key concept would have helped me.

The course covers a lot of ground. Sometimes, there would not be enough time to explain both the intuitive idea behind a construction and the detailed mathematics that make it work. Maybe one can treat fewer topics but do more in every topic?

Sometimes the exercises could be stated more precisely (e. g. write if we assume finiteness)

7.3 Hier hast du Platz für weitere Anmerkungen und Feedback zum Modul.

Als Mathematiker ist das modul noch von der Theorie her gut machbar, aber ich kann sehr gut nachvollziehen, wenn informatiker mit der Masse an theorie nicht mitkommen. Ich weiß aber auch nicht wie man das Problem lösen kann.

This was one of, if not the, best course I ever heard in pure mathematics. I highly enjoyed it and really appreciate the work prof. Kolbe put into teaching and explaining. I learned a lot and enjoyed the course.
However: this is not a CS course and I could not recommend it to any CS-majors i have met so far.

That being said, I am grateful for the rigor and the eye opening insights and discussions in this courses, even If I did not understand some of them completely because of the volume of unknown terminology to me during the course. Even though I probably will not pass the course, I still feel that my mathematical skills have been honed because of the challenge, and my goal of understanding references to TDA in AI and Data Analysis related papers has been achieved.