



CAPP 30271 1 - Mathematics for Computer Science and Data Analysis - Instructor(s) Timothy Ng

Project Title: **Graduate Course Feedback - Winter 2024**

Number Enrolled: **32**

Number of Responses: **19**

Report Comments

Opinions expressed in these evaluations are those of students enrolled in the specific course and do not represent the University.

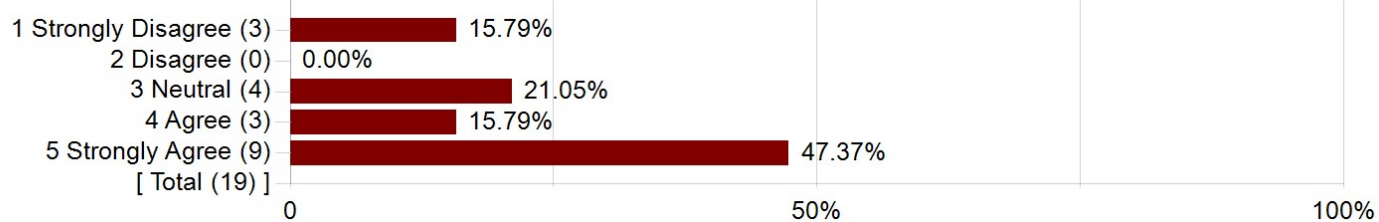
Creation Date: **Wednesday, April 10, 2024**

Please review and evaluate your work in this course overall.

Comments
I think I have done well at the assessments but struggle a little with the proofs and had a rough week one. In terms of comprehension, I find this class difficult.
I'm sad this topic was my favorite math course during my undergrad. After this course, I was so confused. I know it would be useful in future courses, but still, I didn't get out of this course with satisfaction.
It was challenging to complete every assignment on time while studying for the weekly quizzes and also finish cap 122 assignments, but I really enjoyed this course since it showed me basic linear algebra applications
This is a great course to understand the get deeper in python (understand the structure and blahblah).
I really liked the structure of Linear Algebra. Having weekly quizzes and iterative homework in Prairie Learn gave me the structure I needed to invest a consistent amount of time in reviewing the class content each week. Professor Ng is very knowledgeable and periodically reminded us that we had resources at our disposal to support our learning (like office hours and Ed).
I think I didn't learn as deeply as I could have because I was taking discrete at the same time. I learned so much in this class, probably more than in any class at uchicago so far.
This class has been the most challenging one in the CAPP program so far. I learned a lot, but I seriously hated the subject. Linear algebra as a subject is super dense and it's super tedious to solve some of the problems... My dislike for the subject is not the professor's fault of course. I think he did a pretty good job with the lectures and incorporating Prairie Learn, the online learning platform, into the curriculum.
This class was a lot of work but useful.
I feel that I learned so much from the course. The concepts are very interesting and Tim is an amazing professor. I can tell that he put a lot of effort into the course and tailored it such that it is not too easy and not too hard for students with different backgrounds. PrairieLearn system is fine for reviewing the exercises and sometimes it can be a bit tedious – I do not know if I actually understand the concepts or I just keep doing it repeatedly until a point I figure out how to bypass the system to get the correct answers. Nonetheless, I appreciate Tim's acknowledge of students' concerns from the previous years about how it can be tough calculating inverses by hand. It is the effort that counts. Two months is definitely not enough to master all the concepts but the course helped me continue doing so with a more comfortable mindset.
Given the nature of the CAPP program itself, I think it would be better if there's an applicability aspect given in the lectures. We're talking about linear algebras and how matrices can be transformed or decomposed or factorized but it's hard for me to just swallow it without understanding why I should understand it in the first place. The weekly assignments and quizzes were really stressful, but I think it's worth it.
To be honest I really learn a lot from this course and have a strong intuition about vector space and how those vectors are combined, discarded and transformed. I used to learn linear algebra before but it's mostly focused on how to calculate determinants instead of understanding the abstract operation on vectors. Tim is very nice and has a very organized teaching materials. And the pictures in the materials are very vivid and useful. The only thing which need improvement is that I think there is no enough time for us to digest SVD since it was taught at the end of the quarter and the time between the last last course and final exam is less than one week.
The course's difficulty curve becomes excessively steep after the midterm, introducing numerous concepts without sufficient detailed guidance. This situation is somewhat understandable, given the extensive content covered in a single quarter. I struggled in remembering the calculation, but don't have enough time for application.

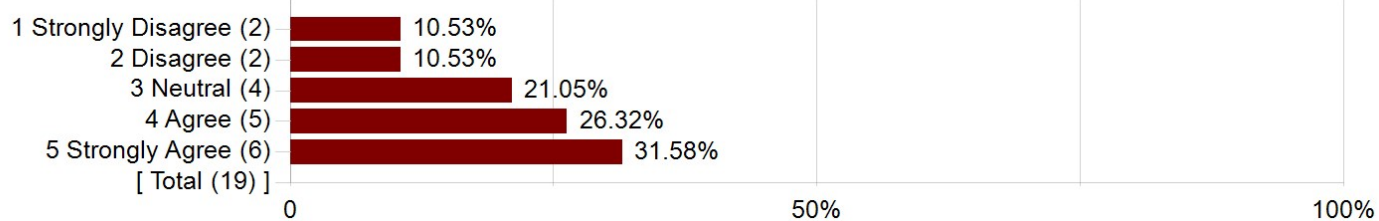
Please review and evaluate the course on the following:

1. I took away useful tools, concepts, knowledge, or insights from this course.



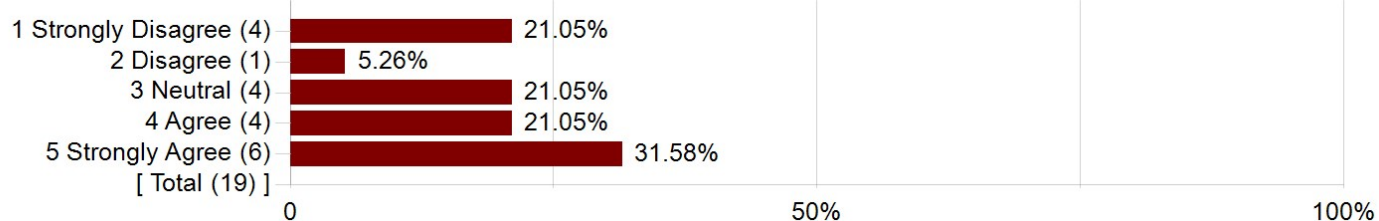
Statistics	Value
Response Count	19
Mean	3.79
Standard Deviation	1.47
Standard Error (base on SD)	0.34

2. I received regular, effective feedback to help me understand where I was in the learning process.



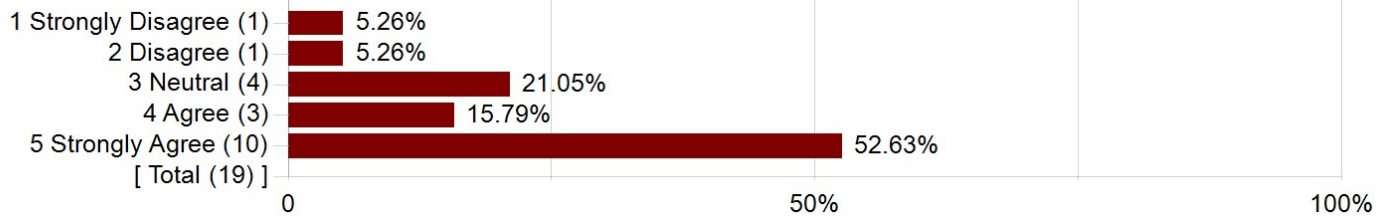
Statistics	Value
Response Count	19
Mean	3.58
Standard Deviation	1.35
Standard Error (base on SD)	0.31

3. I would recommend this course to other students.



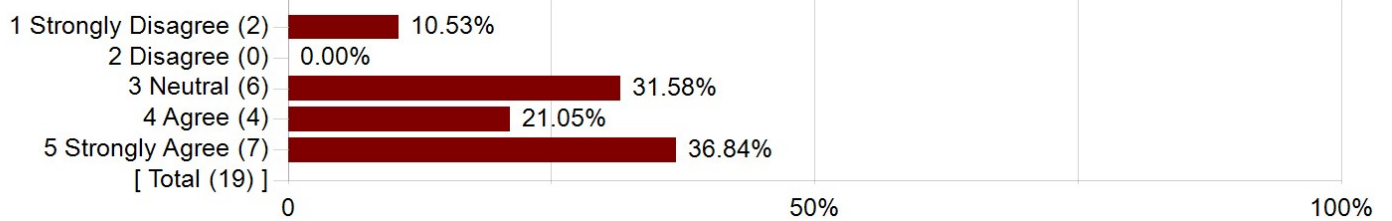
Statistics	Value
Response Count	19
Mean	3.37
Standard Deviation	1.54
Standard Error (base on SD)	0.35

4. The material in this course was constructively challenging.



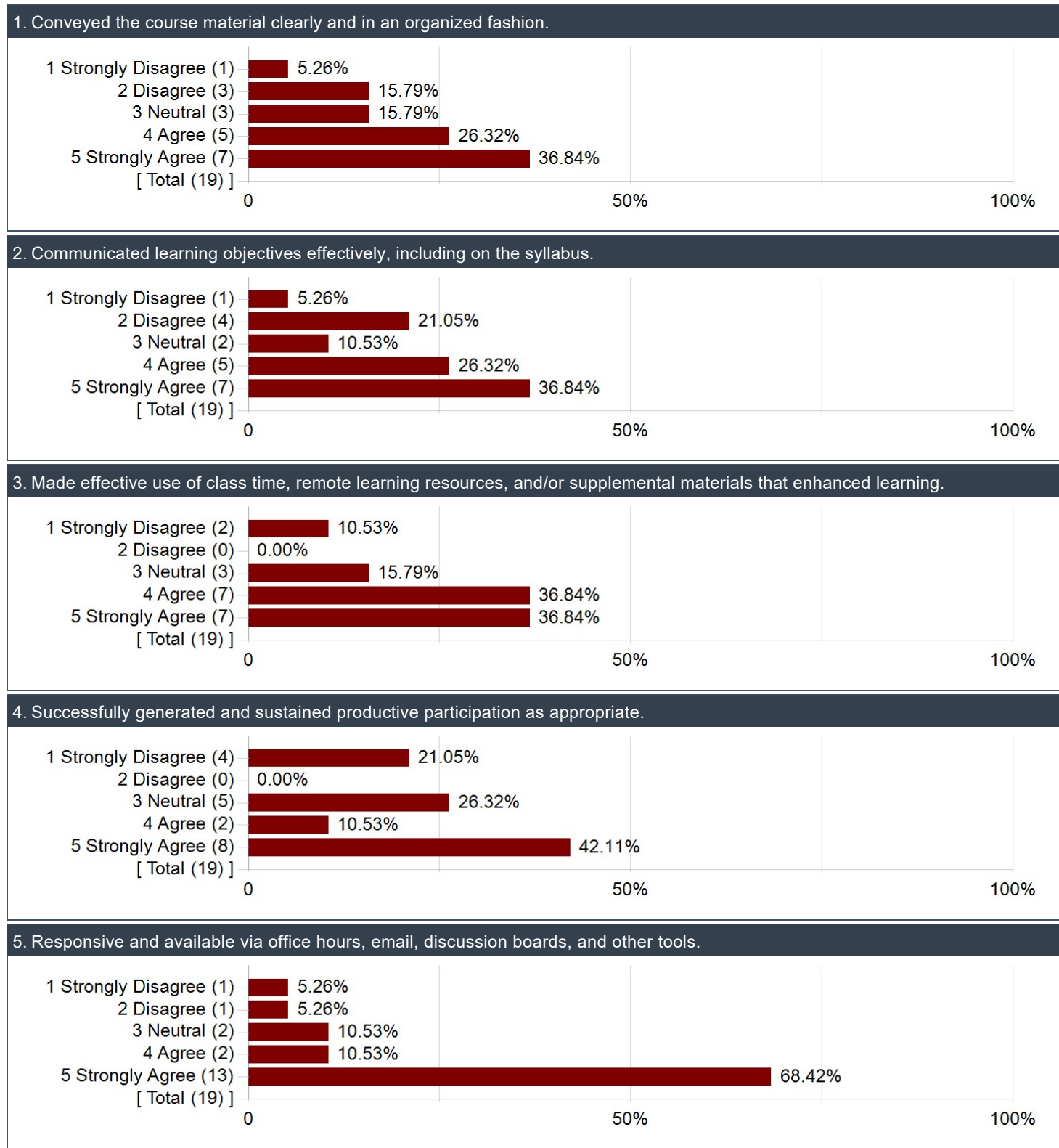
Statistics	Value
Response Count	19
Mean	4.05
Standard Deviation	1.22
Standard Error (base on SD)	0.28

5. I felt that the classroom was an inclusive learning environment for me.



Statistics	Value
Response Count	19
Mean	3.74
Standard Deviation	1.28
Standard Error (base on SD)	0.29

Please review and evaluate the faculty on the following:



Please elaborate on any of your responses above.

Comments
The lectures are confusing and hard to follow. In general the pace of this class is intense, if I find myself misunderstanding one thing, it becomes hard to gain more out of the lecture. I think it would be helpful if students were encouraged to read before class and if notes were published on canvas ahead of schedule.
I really appreciated that the course was focused on theory and using numpy instead of doing operations by hand. Prairie learning was an amazing tool to practice for weekly quizzes. The professor is super organized and is easy to follow the material
As I mentioned, I really liked the structure with which the course is designed.
Some of the lectures could've benefited from videos or visuals. For example, when we were learning what a basis was, a video with a visual could've been helpful during lecture rather than just writing out the mathematical definition on the board.
It was a very inefficient math class. The style was not to provide explanations of the solutions to the problems, but to force students to ask questions during office hours. The professor seemed to believe this approach was the best, but it is completely wrong. Not only is this inefficient, but it also leads to the situation many parts of the course are left uncomprehended because they just happened to arrive at the answer. Unfortunately he will never change his style.
Tim really did a good job in teaching this course. The ml example like recommendation system and pagerank is really interesting and useful to help us understand the relationship between ml and linear algebra. The examples in lecture notes are also very useful to help us grasp the concept.
Prof Ng was incredibly organized and extremely available for support
I found it hard to connect this class with the program, which in turn, made it difficult to find the motivation to learn about topics I am not very interested in
The workload is overwhelming, with homework, quizzes, and final exams. Notably, the quizzes mirror the homework assignments, casting doubt on their necessity.

What aspects of the instructor's teaching contributed most and least to your learning?

Comments
Prairie learn is well used through quizzes and homework to help students understand what they need to grasp. In general, it can get turned into a game for some units, so it does not cover all of student comprehension. But it does a good job.
Tim taught an extremely clear proof-based math course. Of the proof-based courses that I've taken, his explanations have been most clear, and he directly supported students to understand the logic, intuition, and importance of key concepts in-class and outside.
His organized way to use the three different boards of the classroom allows to take notes and keep track of the class. He is also extremely clear explaining concepts and responds fast to every question in Ed.
Keep it simple
He's mastering of the topic and his notes were what most contributed to my learning.
extremely good lectures and organization. a lot of us felt behind, overwhelmed, inadequately supported, etc. during this course, mostly because of the 9-week time frame. using discussions productively would help. maybe 2 1 hour discussions per week so we can cover more content.
Incorporating Prairie Learn into the course was very helpful.
Professor Ng was helpful in explaining concepts during office hours.
Most: lectures, especially the lecture notes, office hours, Ed, homework, quizzes Least: the final exam (it was a bit long for me!)
Prof Ng is really responsive and active to invite students to ask questions, come to office hours, and seek for helps anytime we find something difficult about the lectures. Sometimes he went a little bit too conceptual in explaining the materials, so I feel like a specific topic seems harder than it actually is, but I think his goal is to really make us understand the building blocks of it instead of just touching the surface and being good at doing mathematical operations. There are moments when I understand a topic from other sources on the internet better than from the classes.
Lecture notes, and he usually gives patient and detailed explanation when asking him questions
Took each question seriously and responded to them thoroughly during class and during office hours. Appreciated how lots of office hours were offered during the quarter- which allowed me to understand the correct answers.
While the course offers numerous practice opportunities to understand its content, these exercises are introduced later in the timeline.

Please suggest any changes that could improve this course (e.g., class material, class structure, assignments, inclusive pedagogy).

Comments
I think encouraging reading and publishing notes in advance would be helpful.
Learning both new material and a new pedagogy (proofs) was challenging for many. Having weekly quizzes to learn and apply concepts was helpful. However, it felt like an extreme learning curve at the start of the quarter. Although time is tight, starting TA sessions earlier with the mechanics of proofs (how to start, what expectations are for sufficiency, and the basic language of writing proofs) would help me be more successful in participating in class and learning the assignments.
I would say that the assignment requirements were not that 'clear'. I'm not sure how the data structure are sometimes
I don't think I would change anything from the course.
prairielearn has many issues, some of which have been addressed. our strongest request is for there to be explanations on homework problems for why we got a certain problem wrong. other more minor requests are accepting a row vector as the right answer even if it's supposed to be a column vector, or having matlab/python response formats for most problems while specifying the expected size of input instead of having multiple response windows that are annoying to fill out all of them. people don't use ed because they're not used to the format and the categorization/UI is a barrier. love the many office hours offered, although I think some students don't take advantage because we forget about them and/or aren't aware when and where they are. you should require all tas to have slides because in the beginning we didn't do anything during discussion.
More visual examples to explain some of the fundamental concepts would've been helpful. I know we could seek out those visual examples on our own, but I think it would be more useful to present those during the lectures.
I think having a quiz every week was really tiring, especially amid a challenging quarter overall. I think this class would work better with having a midterm instead of quizzes. Another issue was that especially early on in the week, TAs sometimes did not know how to provide help on HW problems. It would be nice to give TAs answer keys/additional info, because it was really hard to figure out the HW without that help. I also experienced some frustration on the HWs due to my lack of experience with numpy. For the final, we got a reference sheet of numpy formulas. I struggled with quizzes because we didn't have that info. I think it'd be good to provide that info at the beginning of the course and on any assessments.
I am aware that it is hard to create the most perfect learning system for the students. For now, I think PrairieLearn is great. I think more examples like PageRank that are very realistic can make all of us feel very excited to learn because we can connect the theories to the practical work.
It would be better if there's an applicability aspect in the lectures, so that students can be more motivated and have a clear path why this is so important in the first place.
Provide explanations for problems on Prairie.
Some mistakes around scientific notation, precision of numpy output should be decreased since most of my time are spent on dealing with this kind of issue. And I also hope that there can be more time for us to review the final exam which I can greatly benefit from.
I think if the lectures could be based on more PrairieLearn questions that would be great (including useful NumPy code). I think in the TA sessions, there should be a walkthrough of how to set up working Jupyter notebook files as well to ensure there aren't any tech issues/file deletions/etc.
It would be better to have access to class material in a pdf format. I also think the pedagogy of the class could be improved. Participation was low mainly because it was hard to keep the pace of the class.
I believe the quiz component could either be eliminated or integrated into the homework assignments, as they are essentially identical. There seems to be little justification for convening weekly just for 30 minutes' quizzes. The course often lacks guidance on improvement, and occasionally the teacher may struggle to explain certain questions, promising to return to them in the next class or opting to skip them altogether. This approach disrupts the continuity of concept learning.

Please comment on how respected, valued, and included you felt as a participant in the course.

Comments
I feel respected and valued (but it wouldn't hurt to learn our names!).
I appreciated Tim's approach to provide feedback through Socratic methods, written course notes, and feedback on homework. It's a lot of time and something that let me learn in whatever way was needed.
I felt respected every time I participated in class
Very much
I always felt respected, valued and included as a participant in the course.
I felt respected and valued.
I felt respected and valued.
I always feel respected, valued, and included
He answered our questions enthusiastically, but always in the middle (I know he wants to make the students think), and in the end we're not sure if our ideas are correct.
I felt valued since the instructor took each question seriously and responded to them thoroughly during class and during office hours
Participating in it is acceptable.

Please include the name of the TA you are evaluating. What aspects of the TA's teaching contributed most to your learning? What could the TA modify to help you learn more? Please include any additional feedback for the TA.

Comments
I have mostly worked with Divij Sinha. He works hard to help students during office hours and is very attentive to student needs. One thing I think all TAs in this course struggle with is leading an effective TA session on Friday. By that point we have been studying very hard for the quiz, just taken the quiz, and it is hard to focus on new material. All TA's have tried to think of new lectures or rely on the worksheets but we really need to be helped a long for the hour after the quiz. Many of us are tired and it is hard to switch gears to next week's material.
Contrary to CAPP122, the TA from this course was really good.
Manuel & Divij were great! They made it so much more possible to complete the assignments by reinforcing what was taught in class and working through practice problems.
Yujie Jiang. She is the best
My TA was Divij Sinha. The thing that contributed the most was that he masters the contents of the subjects and is able to explain the topics from different perspectives. I would simply have liked to review code during the dicussions, since it was required to many of the homeworks.
jaskirat is a good ta. the discussions started out less helpful but increased greatly in helpfulness and organization as the quarter went on. nice work. slides helped and I appreciated the thoughtfulness about inciting participation from students and letting us take charge of our learning. I think that the quieter students were still super lost so maybe some lecture before the collaborative problem solving. also requiring us to work in partners maybe?
The logistics of the TA sessions were terrible. The room in which they were in was not conducive to learning. The desktop computers in the room made it hard to see what the TA would write on the whiteboard. Also, there would never be enough seats in one of the TA sessions. The TA sessions in the first half of the quarter felt like they were all over the place and the TA seemed unprepared and like he was just winging it. Some of the TA sessions in the second half of the quarter were much better because they started going over material that was prepared beforehand. The TAs also lacked authority since a lot of people would start having their own loud conversations during the session, but the TAs never did anything about it.
N/A
Divij is a great TA! He is almost like a proper professor because he knows all the answers and knows how to help students with the right direction.
Sarik. I find TA sessions are more helpful than the classes.
Manuel Mendez. Really liked how he worked through the problems together during office hours from start to finish and provided explanations about the steps to get to the correct answer. Maybe he can do a VS Code walkthrough during his TA session to properly set up Jupyter notebooks in light of tech issues? Overall, he did very well.
Manuel Hernandez was an amazing TA. Every TA session he would solve all our questions, gave us advice on how to approach problem sets, and even managed to make TA sessions fun. His job as a TA was what I liked the most about the class.
The TA significantly aids in explaining concepts and guiding us through the proof process, which is quite helpful. However, this support still falls short of adequately covering the vast content of the course.