

Individual Report - Sp21-MATH-0135-01-Real Analysis I - Robert J Lemke-Oliver

Project Title: **Spring 2021 AS&E Course Evaluation**

Courses Audience: **49**

Responses Received: **44**

Response Ratio: **89.80%**

Summary of Results

The Course

Question	Course		Subject (MATH)	
	Mean	Standard Deviation	Mean	Standard Deviation
1. How would you rate the success of the course in accomplishing its objectives as stated on the course syllabus?	4.34	0.86	4.10	0.92
2. How would you rate the use of class time (lectures, discussions, demonstrations, labs, studio work, etc.) to promote your learning?	4.36	0.97	3.91	1.07
3. How would you rate the use of out-of-class activities (reading assignments, homework, papers, projects, studio art practice, etc.) to promote your learning?	4.27	0.85	3.94	0.97
4. How would you rate the way the course engaged your interest?	4.20	0.93	3.73	1.12
5. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the course.	4.36	0.75	3.93	0.98
Overall	4.31	0.87	3.92	-

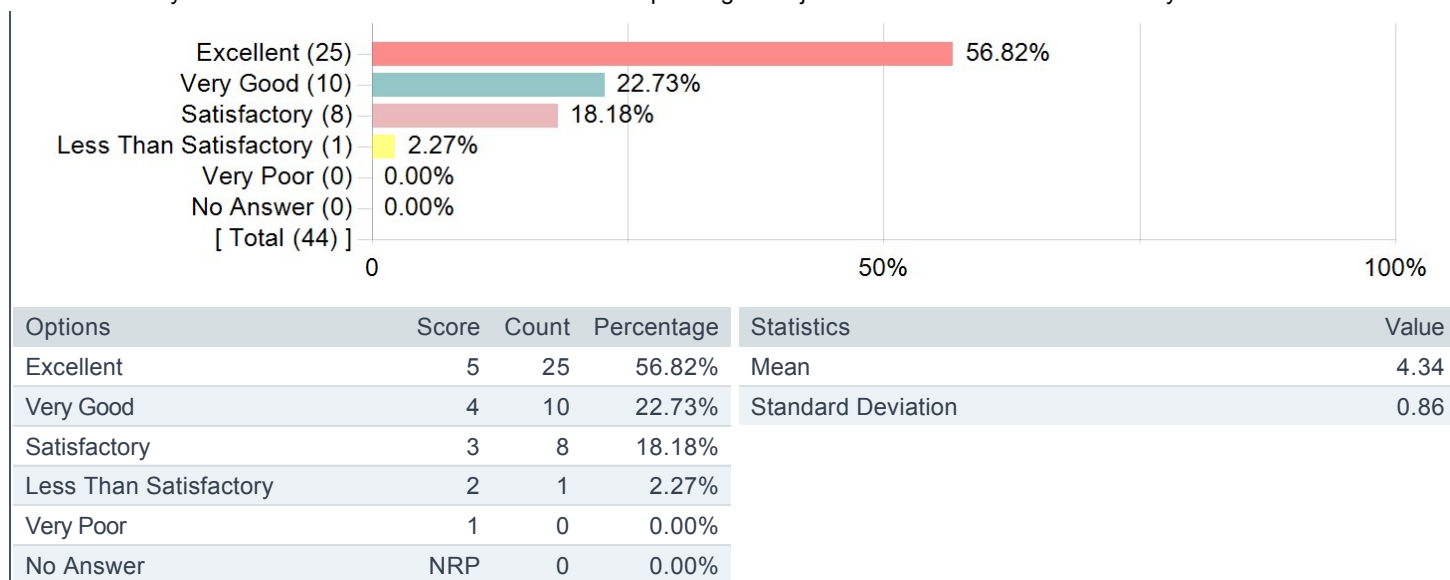
The Instructor

Question	Course		Subject (MATH)	
	Mean	Standard Deviation	Mean	Standard Deviation
9. How would you rate the instructor's organization of each class?	4.45	0.85	4.13	0.99
10. How would you rate the instructor's success in explaining concepts and ideas?	4.57	0.73	4.08	1.03
11. How would you rate the timeliness of the instructor's feedback on assignments, exams, and other work?	3.59	1.21	4.06	1.00
12. How would you rate the usefulness of the instructor's feedback on assignments, exams, and other work?	4.14	1.01	3.95	1.03
13. How would you rate the instructor's success in creating and maintaining an inclusive class, respectful of all students?	4.72	0.67	4.38	0.86
14. How would you rate the instructor's communication with you outside of class?	4.48	0.95	4.21	0.98
15. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the instructor.	4.43	0.82	4.18	0.93
Overall	4.34	0.96	4.14	-

Detailed Results of Course Evaluation

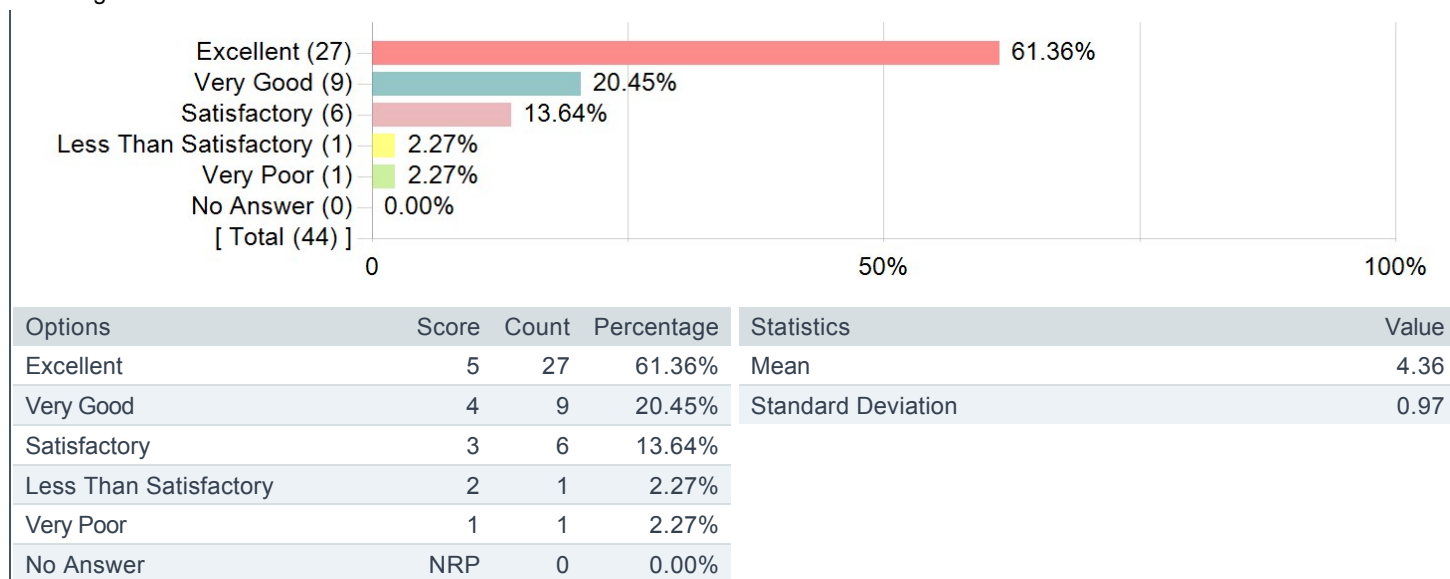
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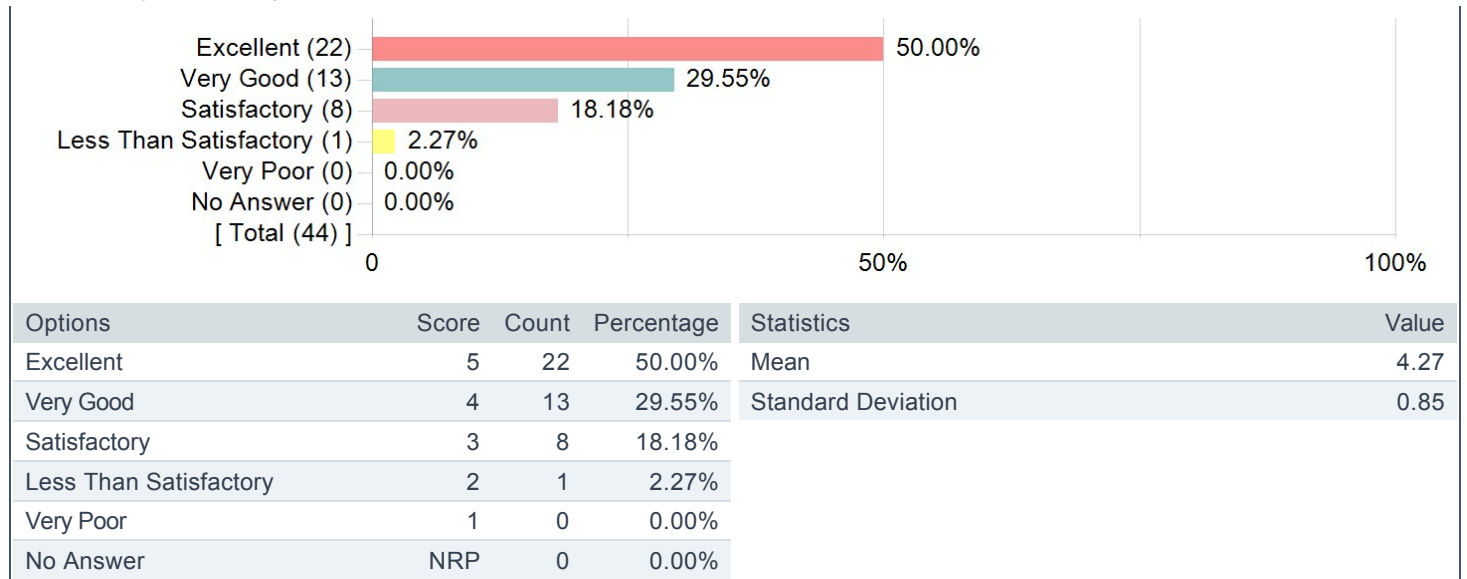
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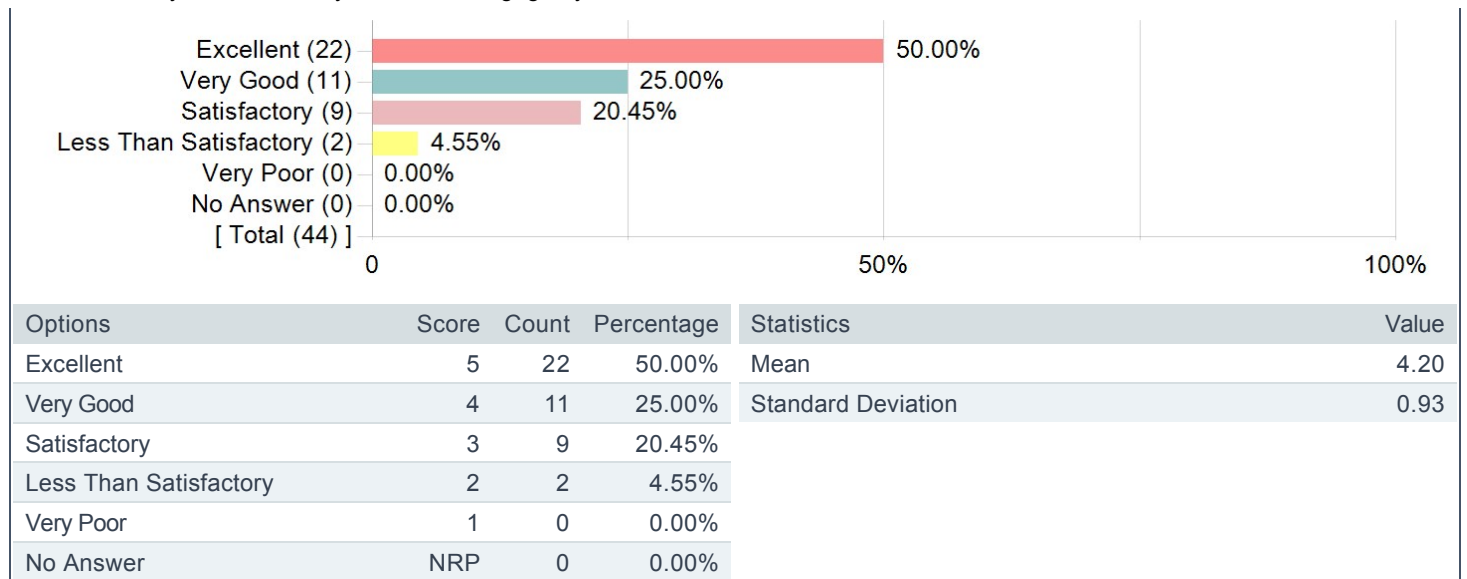
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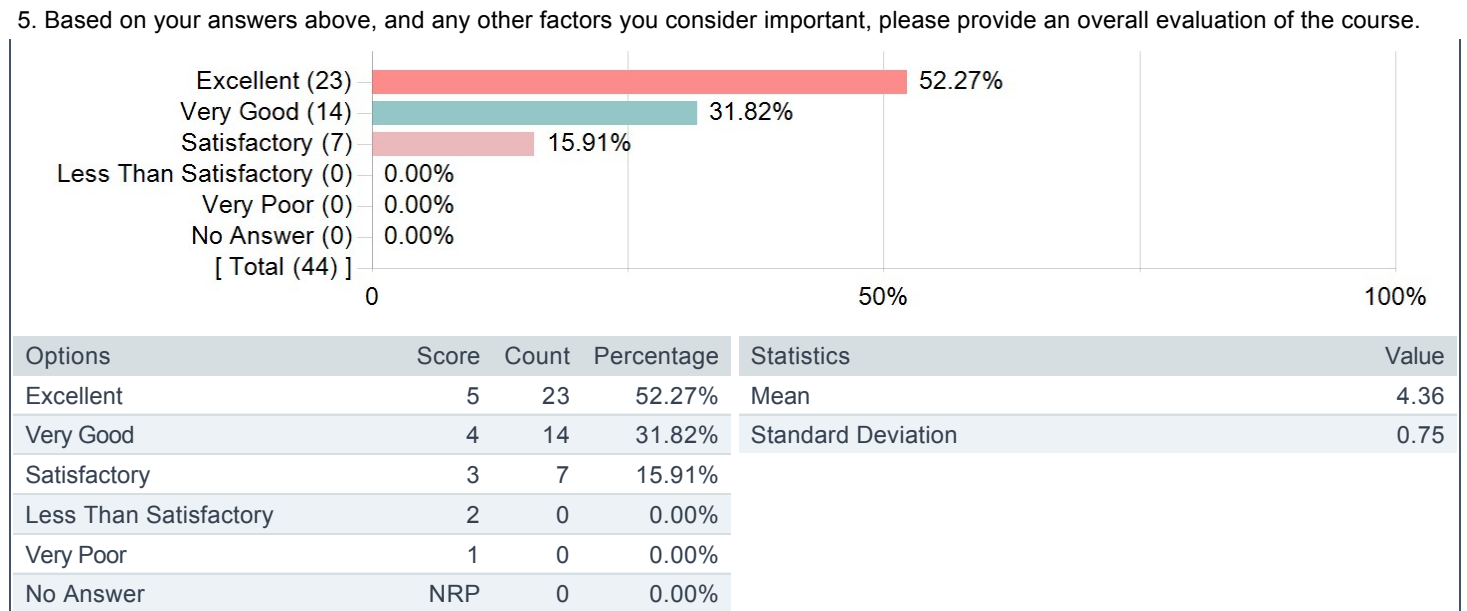


4. How would you rate the way the course engaged your interest?

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5. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the course.



6. In what ways has this course made you think differently or more deeply? Please provide examples.

Comments
I had to think a lot of the whys behind math. EX: we learned calculus from the ground up
Made me think more deeply about simple ideas such as the many constructions or the Extreme Value Theorem.
metric spaces are f a s c i n a t i n g
I love \mathbb{R}^n
Analysis has allowed me to consider sequences and series more generally and how that can be used to understand things about spaces and functions, and also constructed from other functions and spaces.
The homework usually makes me think more about the theorems I learned.
I mean, math itself, this course did a great job of taking incredibly simple topics in mathematics namely the EVT and IVT and exploring how some of the fundamental principals of mathematics lead to the conclusions. Things we take for granted
Very precise proof analysis.
This course made me see a completely new side of mathematics. I saw how to rigorously prove theorems used in many calc classes before, which gave me a greater appreciation for mathematicians. I feel more confident in writing proofs. With that, I now have a new way of thinking towards proving something is true.
I liked the graphs and diagrams in this class; they always helped me understand the concepts better.
I have never taken a proofs course, but now I think of my other classes in terms of proofs, which I think is cool.
This course has deeply affected my thinking, in that I now feel I understand how math works: we construct some axioms, and see where they can take us. In classes like calculus, it feels as though we're given tools and problems to solve, but where did the tools come from! Why do these things make sense? Real Analysis I, has helped me understand just how remarkable these tools are, and how we use existing tools to construct more tools. When I say tools, I now know I mean equivalences and implications (a system of logic).
Real analysis is very hard. I have respect of math majors
The entire class was a journey into a brand new way of thinking about math.
First exposure to proofs through this course, so it did a good job of helping me develop some intuition for what constitutes as a rigorous proof. I appreciated the flow of the class where continuity/convergence was the main theme that we kept building up and generalizing as the course continued. We had this road map throughout, but it also would've been helpful to have it at the onset. It was most helpful when there were visuals associated with proofs, when the prof would go over the "idea" before charting out what would happen in the proof. This helped me understand that proof-based math is tied to visualizing the problem (vs. computational math which seems more rote?).

7. What aspects of this course worked best to facilitate your learning?

Comments
I liked the lectures being recorded.
Homeworks
Prof. Lemke Oliver was great even though class was online. He used technology (specifically writing on an iPad) to simulate real class and it's immensely helpful. Every teacher should do this. Also the FIVE MIN BREAK is much appreciated and should be normalized across other math class. Its tough to focus for over an hour (especially online)
Lectures were good and clear.
I appreciated the modality of the course — there were live class sessions that provided opportunities to engage with the material and lectures in real time, but it was also very easy to catch up if I was unable to make it to a class.
I've only taken proof writing courses virtually, and I think they work well on the ipad. It'll be interested to see what happens when we transition back to in person.
The way of the exams.
THIS COURSE WAS INCREDIBLE BECAUSE HE DIDN'T TRY TO DO A FLIPPED CLASSROOM!!!!!! I hate those and they do not facilitate learning, and I do not feel like I am actually learning from a professor. The professor instead gives incredibly well planned and material packed lectures with plenty of opportunities to anonymously ask questions during class. Best lectures I have had at Tufts hands down.
Also lenient about due dates when the need arose, and fantastic in office hours.
The professor did a good job of teaching the large amounts of material by giving a 5 minute break and he listens to the students needs for hw due dates. He accommodated every student well during virtual schooling.
The lectures were amazing. I would watch them at my own pace. Professor Lemke Oliver does a great job explaining as he writes the notes.
I liked that the recordings of the lectures as well as the lecture notes were available after class.
The problem sets.
The lectures were very helpful, in large part because Professor Lemke Oliver tried to convey the motivation and underlying idea behind the material, in addition to the rigorous aspects. Sometimes it feels as though notation and proofs can obscure what's going on, and Professor Lemke Oliver was very cognizant of this.
The lectures
The use of lectures, the posting of lecture notes, the perfect difficulty of homework and tests, the leniency when needed, all of these things and more made it a great experience
Having the chat box to ask questions was really helpful. Lowered the barrier for me to ask small questions and lessened the fear of asking something that may be obvious to others. During zoom, having students not have their videos on and audio muted actually helped me focus a lot more compared to classes where I needed to have both on. Also appreciated that the prof always paid attention to the chat and would acknowledge questions as they were coming in, even if he was in the middle of writing something. Also appreciated that the prof made office hours available and was very willing and enthusiastic to help me understand the material.

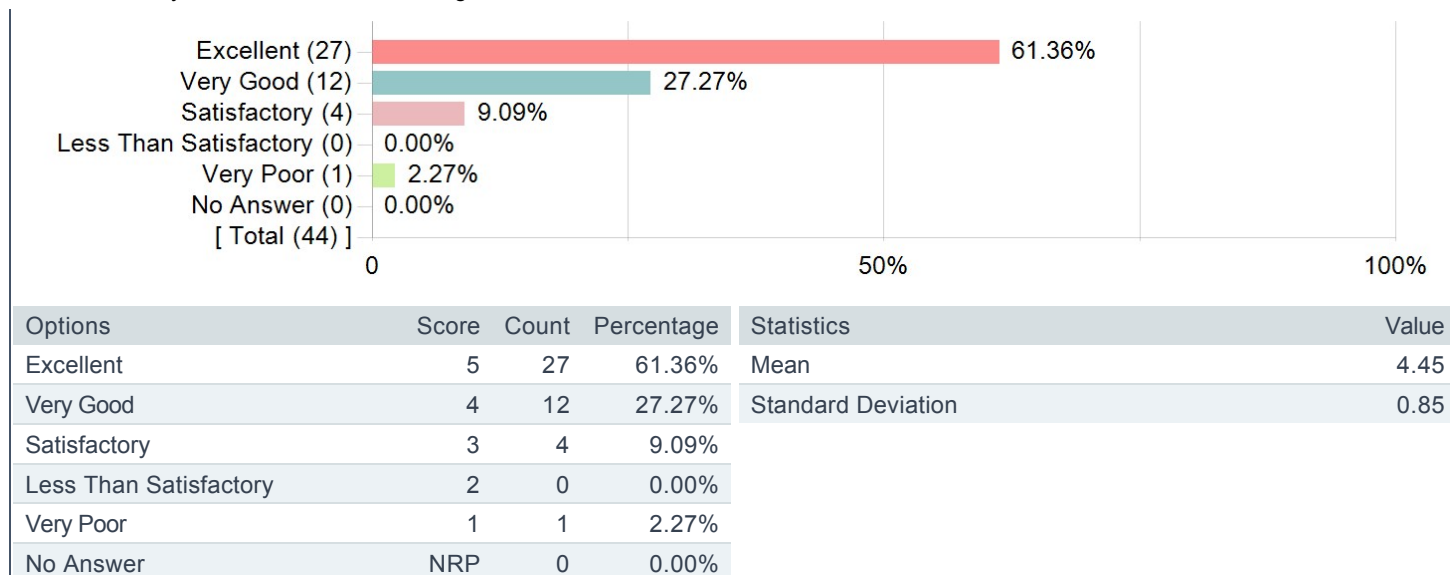
8. What suggestions do you have for improving this course?

Comments
Have a document that details what each individual class will cover topic wise.
Recitation sections. Even upper level CS and engineering classes have these. It can get really easy to get lost in the abstraction of higher math without concrete examples and problems to do. Yes, homework is there for this reason but it's hard to get to doing something you have no practice with or haven't seen an instructor or TA do as well.
Slowing down a bit.. although I understand there's a lot of material to cover.
Maybe a scheduled recitation to work through problems slowly and with a guiding hand would be nice.
Less times of homework, but longer time for each homework.
be in person...but honestly thats it
The lack of talking to the professor made it very hard for me to stay engaged. Please allow for people to ask questions by voice! :)
The return grades for the second exam were promised by April 12th and have not been returned back yet and it is April 27th.
More homework related examples during class
This course was wonderful. The second exam however was incredibly long. Other than that, I wouldn't change a thing.
Post covid, just more interaction with the professor.
My only suggestion is to make the homeworks a bit more difficult as the semester progresses. At first, a lot of the difficulty comes from not understanding the nuances of how one makes an argument and how to present it. One instance of this was me not understanding that I should fix $\epsilon > 0$ at the beginning of the proof, and that it's problematic if you don't. But, once this becomes natural, it would be nice if the later homeworks required some more complicated thinking. Otherwise, the course is excellent.
The notes were very difficult to read and it is painfully tough to focus on zoom.
None
One of the things that as challenging was not having a regular schedule with when the assignments would be posted and their grades. However, the prof was always accommodating with extensions and acknowledging when there couldn't have been sufficient time to complete an assignment because it was posted later. In general, would be helpful to have a syllabus at some point that charted which chapters of the book corresponded with the lecture. I think given the fatigue a year into the pandemic, this course was run in a way that tried to be flexible with students. Not sure if this was just the case for me but maybe the time estimates for how long it takes to do the homework and finish the exam were on the low end (as in they took me much, much longer especially given the difficulty to focus at home). It would've been helpful also to have full solutions posted for the assignments, especially given that only 2 problems were graded rather than the full assignment.
One thing that the prof did during the course was omit the names of mathematicians associated with theorems/props and he explained his motive for doing that, but as someone new to math, it felt a bit like not having the tools to look up concepts to explore them more deeply outside of class. Math should absolutely stand on its own, but a big part of building a career in math and math-adjacent fields is having the language to properly engage with others.

Detailed Results of Instructor Evaluation

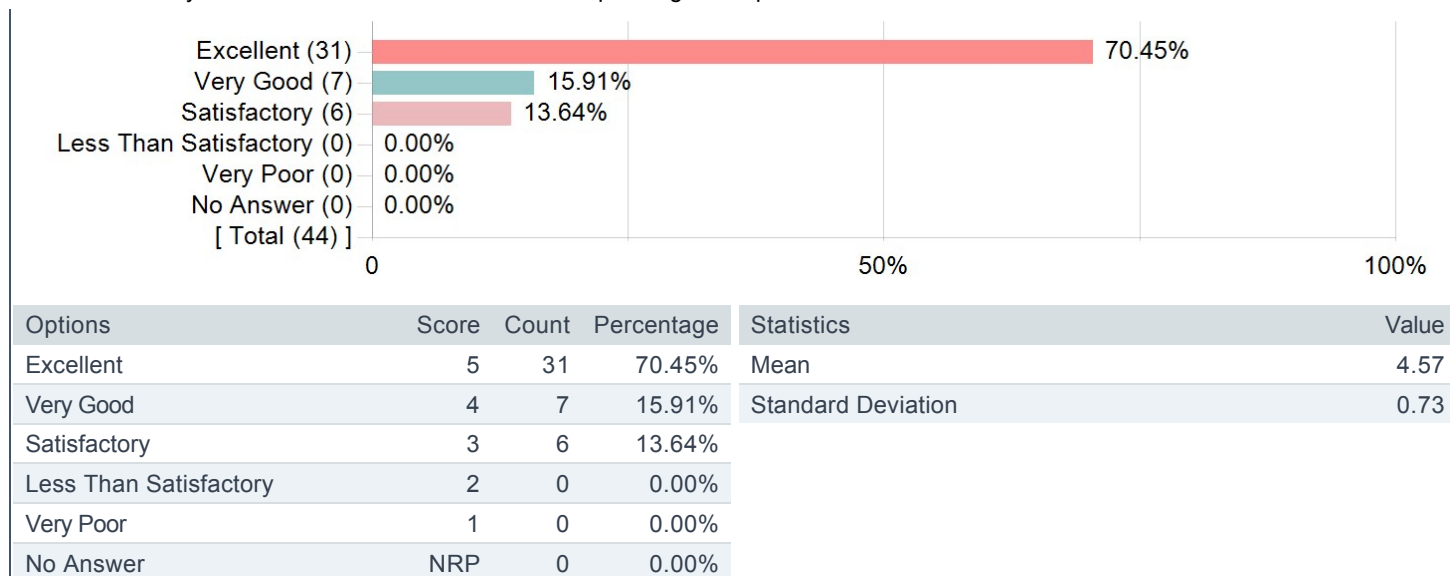
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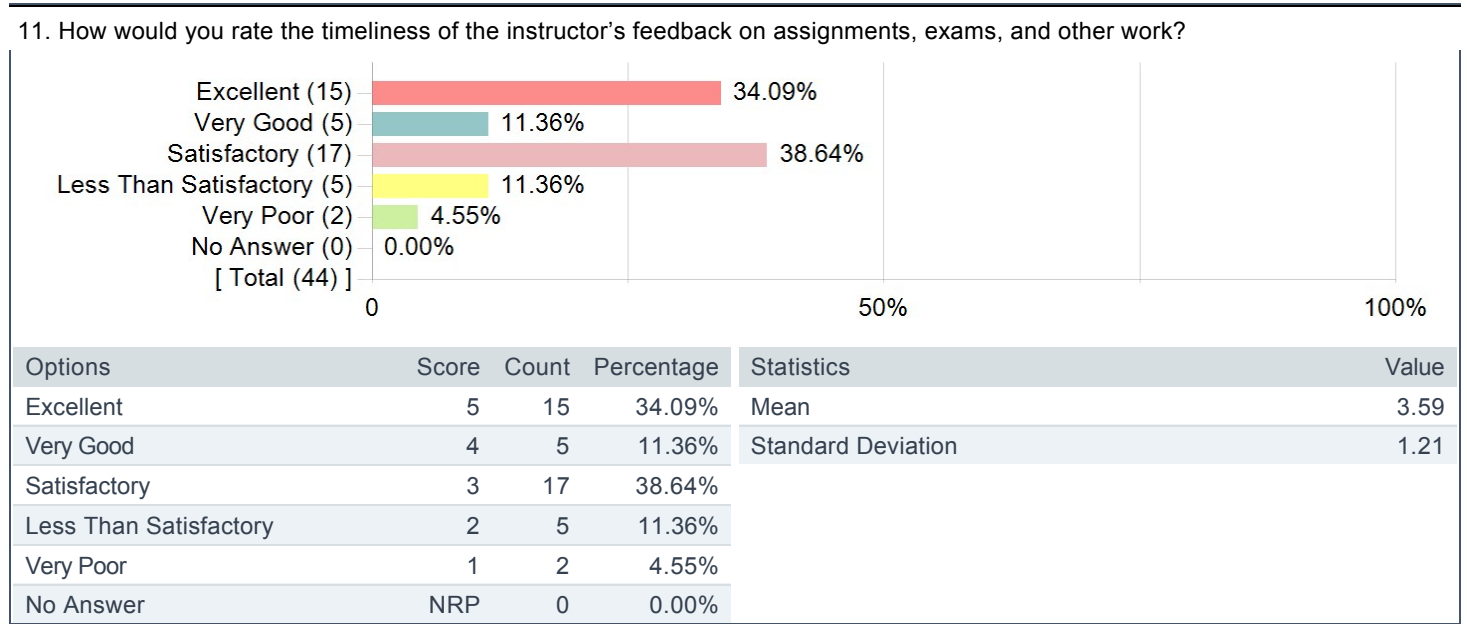


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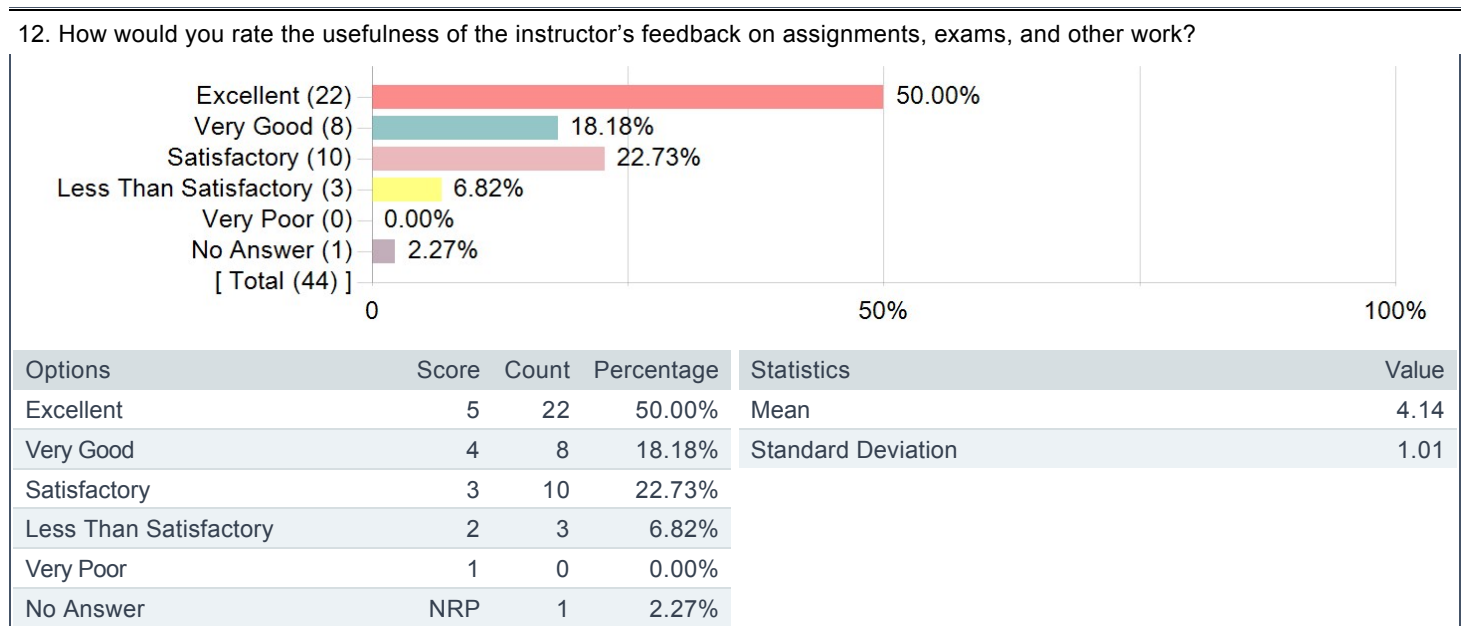
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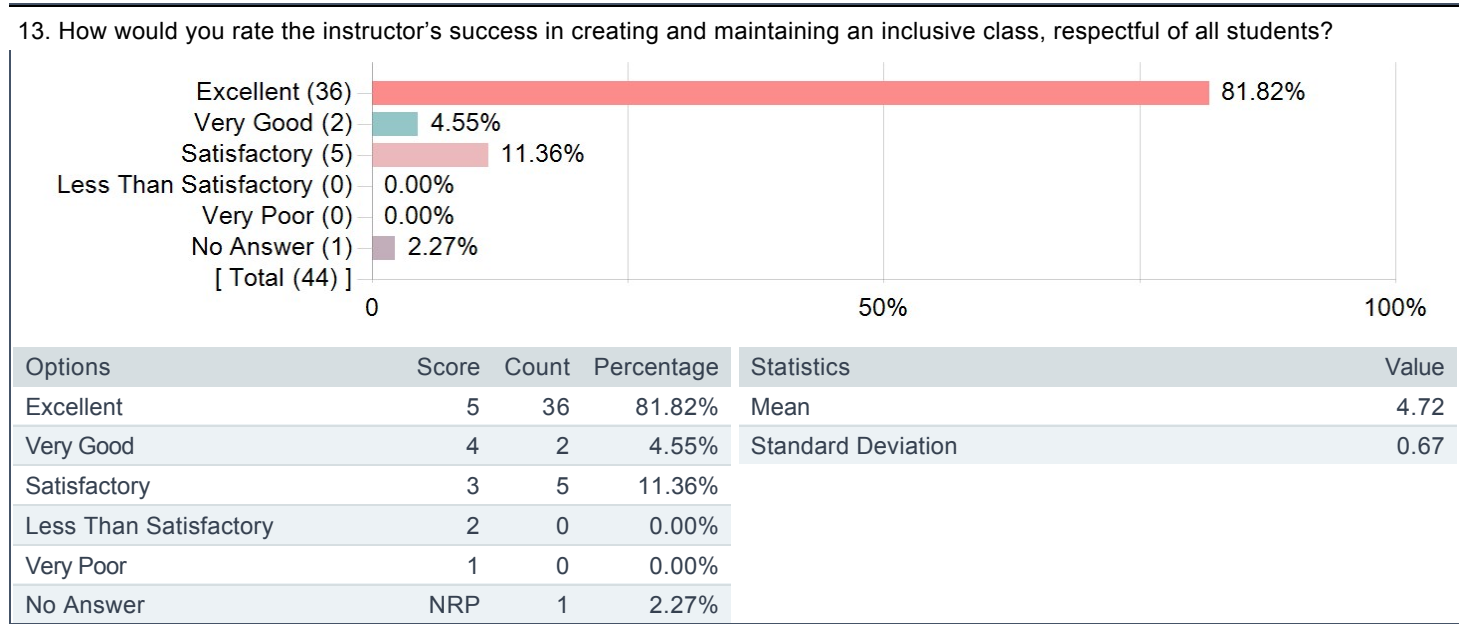
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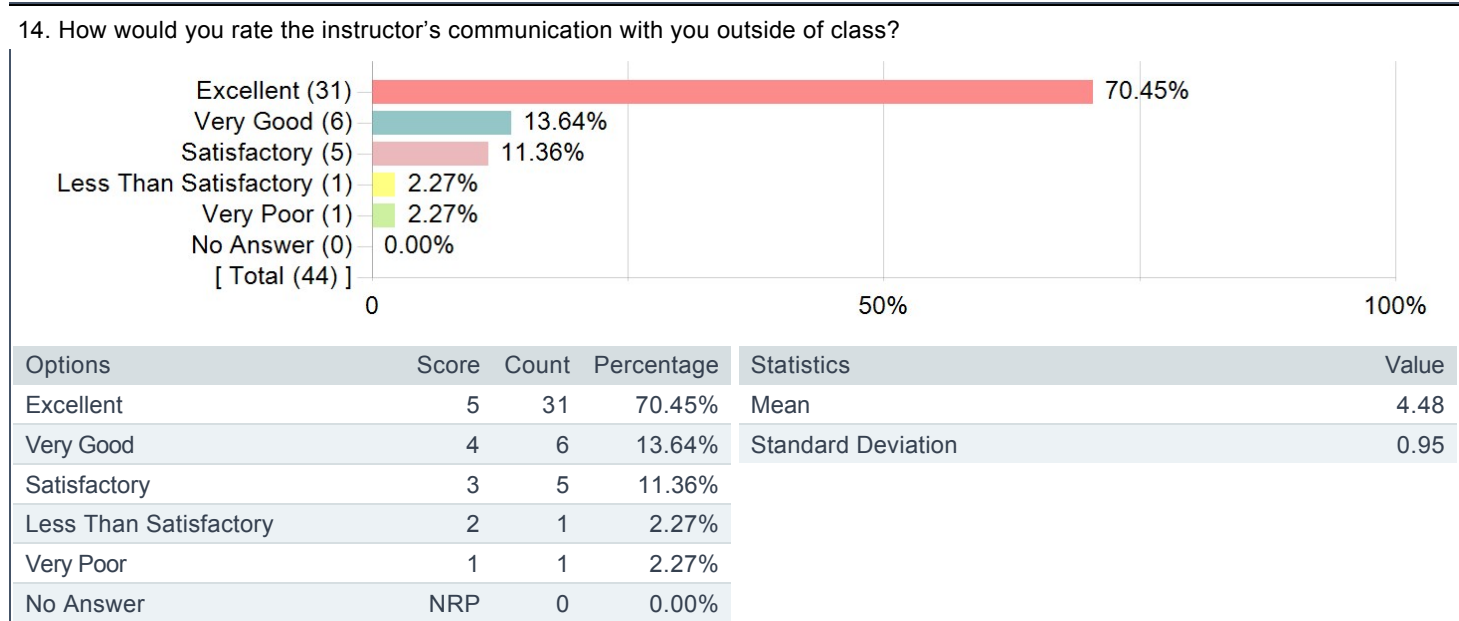
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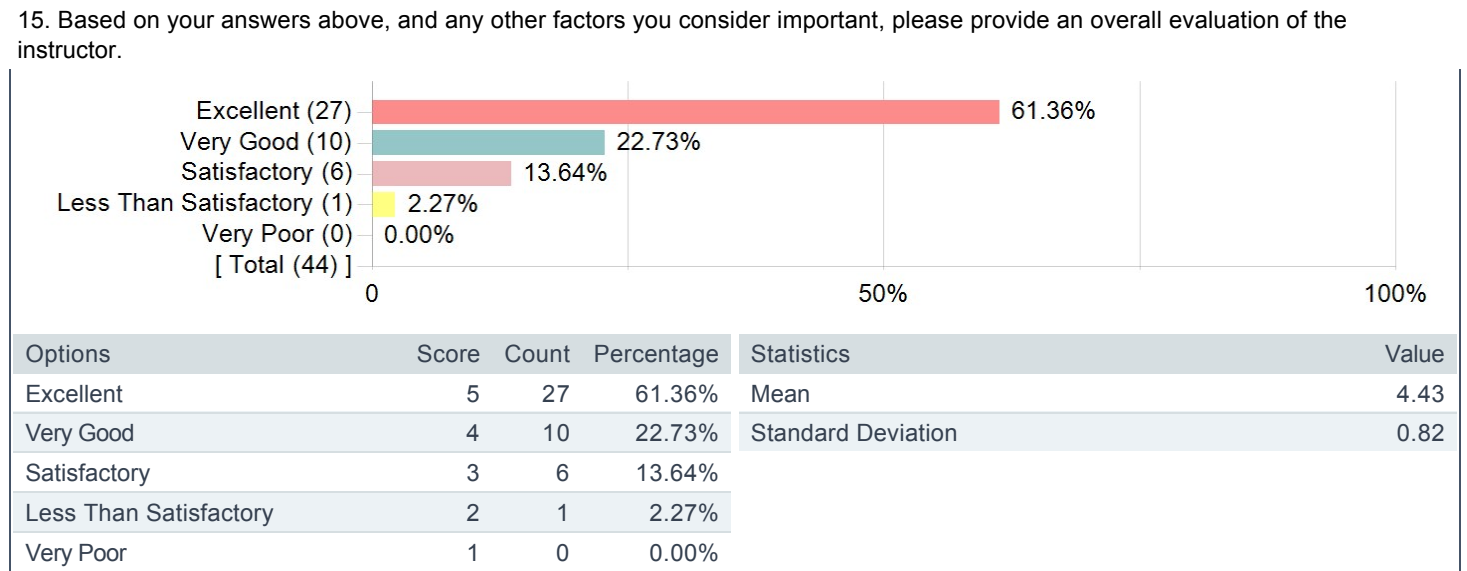
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14. How would you rate the instructor's communication with you outside of class?



15. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the instructor.



16. Please provide any additional comments regarding the instructor.

Comments
Would like to have my emails responded more often
Organized chores and lectures
While it wasn't my favorite math class based on material (and being quite tough). Prof. Lemke Oliver IS my favorite math teacher which goes to show how great he was. On top of being a great teacher he is understanding and supportive.
Our professor is very good at teaching. He explained concept well. I will definitely take his courses again
Thanks for a nice semester!
Robert is one of the most thoughtful and fair professors I've had throughout college. The lectures are straightforward and easy to understand, and homework and exams are comprehensive and reflect what has been taught in class. Online school is rough, but this class has reminded me how much I enjoy math.
The exams are really nicely organized.
Fantastic professor, incredibly knowledgeable, kind, and taught really well.
Professor Lemke Oliver is one of the greatest professors. He makes such difficult content understandable and interesting. Real Analysis makes sense because of him.
I know that organization can be hard during COVID, but it would have been good if the professor could have at least emailed as soon as he knew he was going to make a change in the homework schedule so that we all could adjust our schedules to accommodate. It was frustrating to spend all week making sure I would have time to do the homework only for it to not be released for another 2–3 days, or not be released at all. Also everything took super long to grade which made it hard for me to learn from my mistakes.
Also as a side note, sometimes it would be hard to follow if he would scroll up on the page of notes and add or change something, because it was hard to tell where in my notes this previous section was.
He always had the student's best interest in mind, and made allowances where he could in regard to the difficult semester without ignoring important content in the class.
He loves to help students which is awesome.
Professor Lemke Oliver is one of the kindest and most caring professors I've had at Tufts. It felt as though he actually wanted to know us students (in spite of covid and zoom learning), and was very accommodating. This is in addition to being a clear and efficient communicator of mathematics, of course!
I have no complaints. He was always very clear with what he expected. However, he insisted that cameras and mics were off. It basically incentivized me not to pay attention.
As with almost every math professor I've had, this professor was amazing, and he made very difficult material seem easier and more interesting with his teaching ability.
It's clear that the prof is passionate about math and being taught by someone who loves their course material is always a treat. This experience helped nurture an environment where I could see the beauty in math. Also appreciated the prof's openness during office hours to acknowledge that the course is challenging for everyone, regardless of the depth of their math background. I also want to say that the prof has consistently been very sympathetic, fair, and accessible to his students. And it's been a really enjoyable course because of that.
Prof. Oliver is a great educator and cares about the needs of his students a lot.

17. How would you rate the space in which instruction occurred (classrooms, laboratories, etc.)?

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