Tufts UNIVERSITY
School of Arts and Sciences
School of Engineering

Individual Report - Fa22-MATH-0136-01-Real Analysis II - Robert J Lemke-Oliver

Project Title: **Fall 2022 AS&E Course Evaluation**

Courses Audience: **26**
Responses Received: **18**
Response Ratio: **69.23%**

Creation date of the Report: **Friday, January 06, 2023**

Summary of Results

The Course

Question	Course		Subject (MATH)	
	Mean	Standard Deviation	Mean	Standard Deviation
5. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the course.	4.56	0.86	4.08	0.95
Overall	4.56	0.86	4.08	-

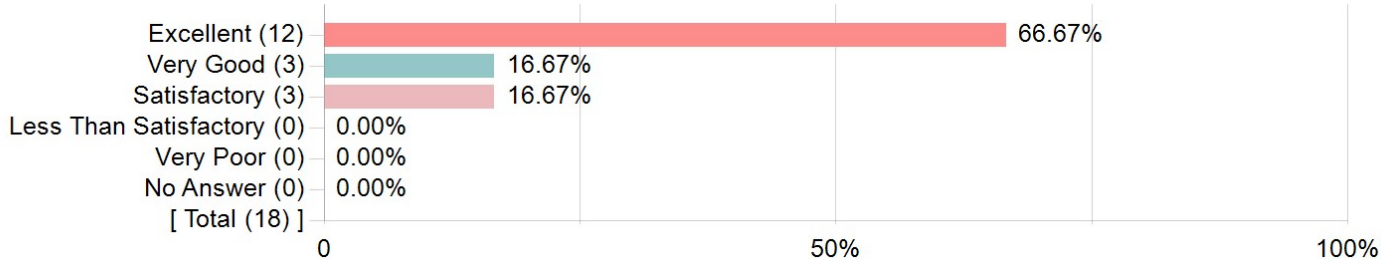
The Instructor

Question	Course		Subject (MATH)	
	Mean	Standard Deviation	Mean	Standard Deviation
15. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the instructor.	4.56	0.70	4.25	0.94
Overall	4.56	0.70	4.25	-

Detailed Results of Course Evaluation

1. How would you rate the success of the course in accomplishing its objectives as stated on the course syllabus?

1. How would you rate the success of the course in accomplishing its objectives as stated on the course syllabus?

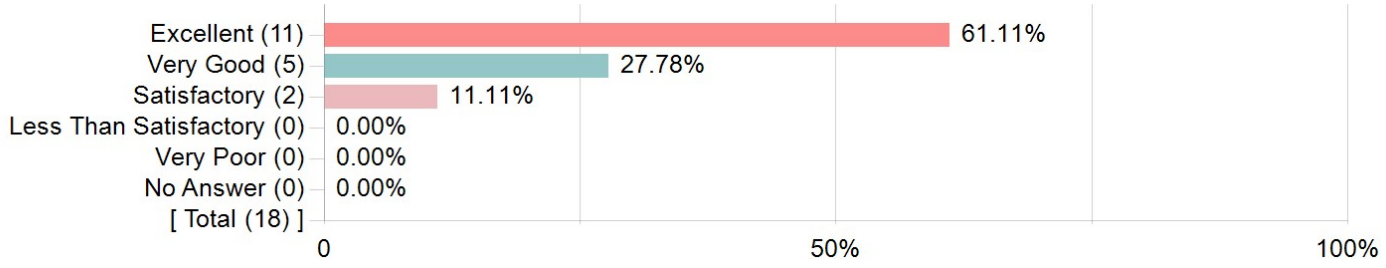


Options	Score	Count	Percentage
Excellent	5	12	66.67%
Very Good	4	3	16.67%
Satisfactory	3	3	16.67%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.50
Standard Deviation	0.79

2. How would you rate the use of class time (lectures, discussions, demonstrations, labs, studio work, etc.) to promote your learning?

2. How would you rate the use of class time (lectures, discussions, demonstrations, labs, studio work, etc.) to promote your learning?

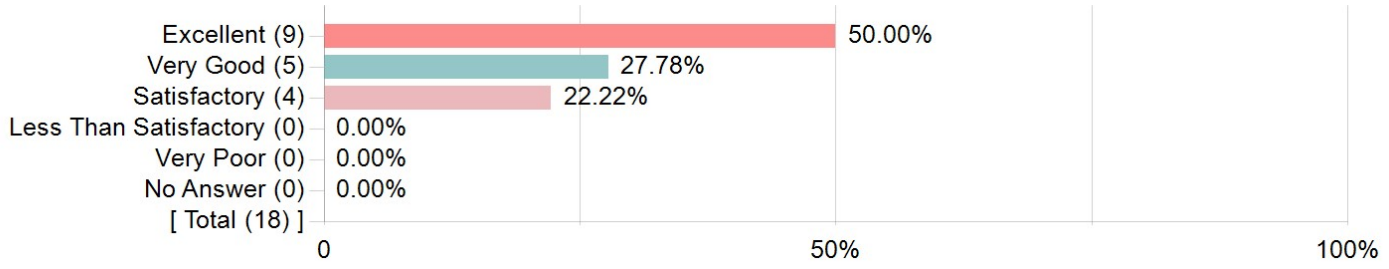


Options	Score	Count	Percentage
Excellent	5	11	61.11%
Very Good	4	5	27.78%
Satisfactory	3	2	11.11%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.50
Standard Deviation	0.71

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?

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?

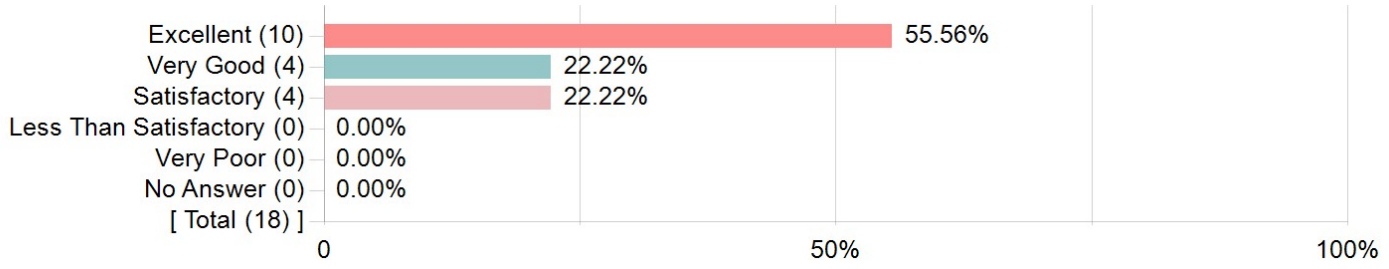


Options	Score	Count	Percentage
Excellent	5	9	50.00%
Very Good	4	5	27.78%
Satisfactory	3	4	22.22%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.28
Standard Deviation	0.83

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

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

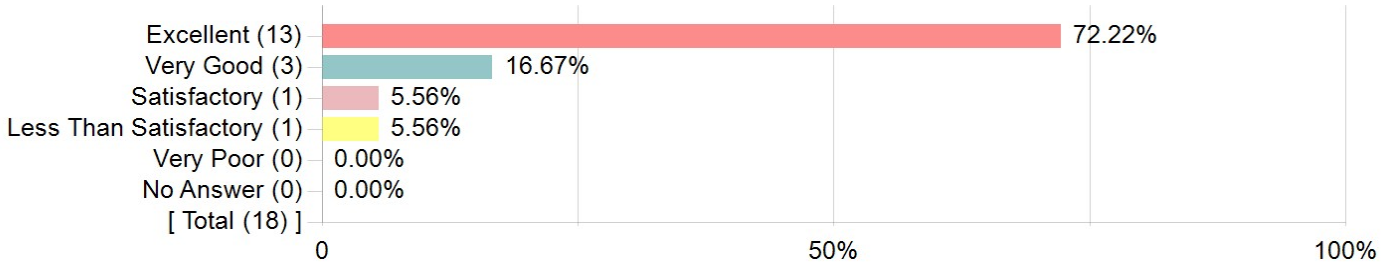


Options	Score	Count	Percentage
Excellent	5	10	55.56%
Very Good	4	4	22.22%
Satisfactory	3	4	22.22%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.33
Standard Deviation	0.84

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

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



Options	Score	Count	Percentage
Excellent	5	13	72.22%
Very Good	4	3	16.67%
Satisfactory	3	1	5.56%
Less Than Satisfactory	2	1	5.56%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.56
Standard Deviation	0.86

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

Comments
A continuation of the concepts taught in Real I, except diving a bit more deeply into calculus. I think this class really made me think about how mathematics as a field overall is structured, and how intuition cannot be a substitute for rigorous proof. For example, the unique tent function that was continuous but not differentiable anywhere was very interesting to consider.
I think my proof writing got better. There were some easier homework questions than I've had in other of the advanced math classes here, which gave me confidence to be able to do proofs– sometimes I get so anxious looking at a long problem that I can't even start, so I appreciated the variety in homework difficulty.
I thought the problem sets were done incredibly well—they were really hard, but graded generously. I spent a lot of time on them but never felt like I was doing busywork, since the questions were interesting.
Every way in real analysis
The course is all about examining concepts from the Calculus sequence, particularly differentiation and integration, in a rigorous way. I was first introduced to most of these concepts back in high school (over 10 years ago) in very shallow and unjustified manner, so revisiting these important ideas in a deliberate and methodical manner has been fantastic.
The assignments made by the professor pushed my understanding of mathematical concepts to its limit. It is largely because of this course that I now understand the elegance and power of real analysis!
This course has helped me reflect upon the formalism behind integration and differentiation, two concepts that we've spent years learning about numerically but not abstractly.
This class has fully bridged my mind into the realm of upper level mathematics. The large scale proofs on the homework shed light on how we may choose to apply our learning in the future.
Analysis is a deep thought subject.
The homework problem sets were never 'easy'. They were always challenge, and truly require you to think critically to try and figure out how to solve them. Every new topic in this class made me uncomfortable and feel lost and confused, but solving the assignments would help hammer the nail and better understand what exactly is going on in lectures.

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

Comments
Classroom proofs were easy to follow.
As I said I liked that the problem sets were hard, and part of why I appreciated it was that extensions were freely given, so I always had space in my schedule to give them time.
OH
The course lectures are very well designed, and Professor Lemke Oliver does an excellent job delivering the lecture. The homework assignments are also thoughtfully designed to enhance and stretch our understanding of the class lecture concepts while providing some scaffolding. I never felt like the homework was arbitrarily difficult for no reason and could always sense the final goal(s) of each assignment.
The homeworks were really helpful in deepening my understanding of the context. I didn't feel as though they were busy work– it all had purpose
The assignments and professors way of explaining fundamental concepts.
I thought the 5 minute breaks were very helpful as they gave me time to reflect on what we just learned, organize my notes, and ask clarifying questions.
The whole structure! Especially the flexibility for extensions
the extensions. some of the material is really hard to grasp in a designated amount of time and I am someone who needs their brain to breathe with this stuff.
The Homework problem sets.

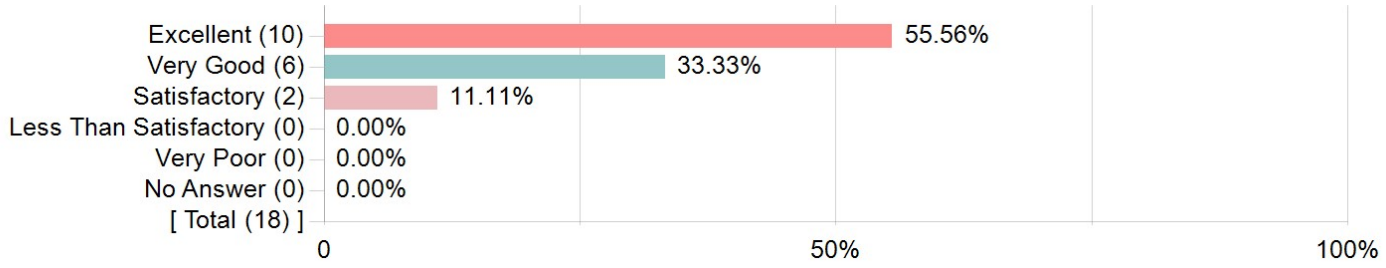
8. What suggestions do you have for improving this course?

Comments
Maybe having more explicit links to the textbook? Classroom notes were made available online from previous semester, but for someone that wanted to use the textbook to supplement learning it might've been useful to have explicit page numbers for what we're learning.
I understand the usefulness of doing out long proofs, but there were a couple of really long whole–class or two class proofs that felt like we could have just done an outline and spent the class time better. Also, the HW extensions were much appreciated, but oftentimes the homeworks came out MInday and were due Friday (Sunday with extension) and I think we should get a week + 2 days for the extension. It's too hard to get the homework in during the week, so we're kind of forced to take the extension. If it came out the Friday or saturday it would be much more doable.
Maybe more Fourier Analysis?
None
I would suggest emphasizing/suggesting outside sources that might help reinforce theorems and proofs we learned in class, as this class has no set textbook.
More of an emphasis on definitions and proof–writing techniques. But, most importantly, homework solutions.

Detailed Results of Instructor Evaluation

9. How would you rate the instructor’s organization of each class?

9. How would you rate the instructor’s organization of each class?

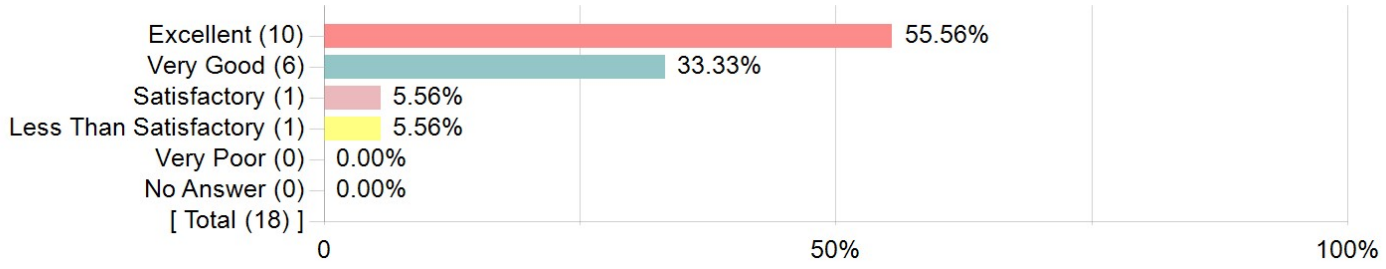


Options	Score	Count	Percentage
Excellent	5	10	55.56%
Very Good	4	6	33.33%
Satisfactory	3	2	11.11%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.44
Standard Deviation	0.70

10.How would you rate the instructor’s success in explaining concepts and ideas?

10. How would you rate the instructor’s success in explaining concepts and ideas?

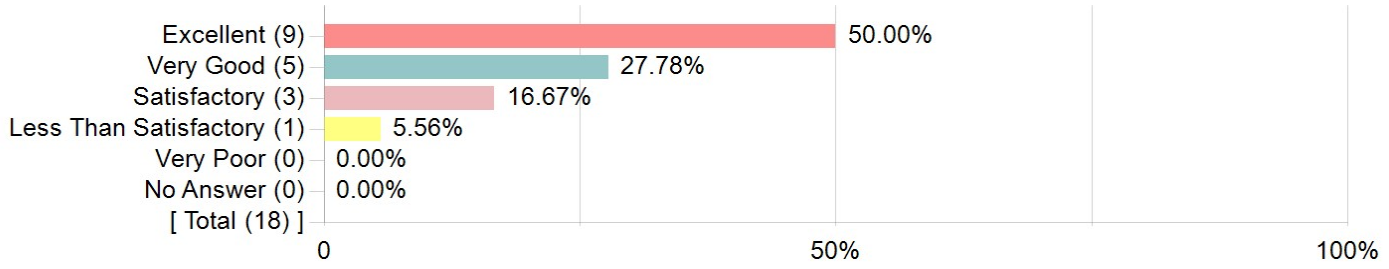


Options	Score	Count	Percentage
Excellent	5	10	55.56%
Very Good	4	6	33.33%
Satisfactory	3	1	5.56%
Less Than Satisfactory	2	1	5.56%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.39
Standard Deviation	0.85

11. How would you rate the timeliness of the instructor's feedback on assignments, exams, and other work?

11. How would you rate the timeliness of the instructor's feedback on assignments, exams, and other work?

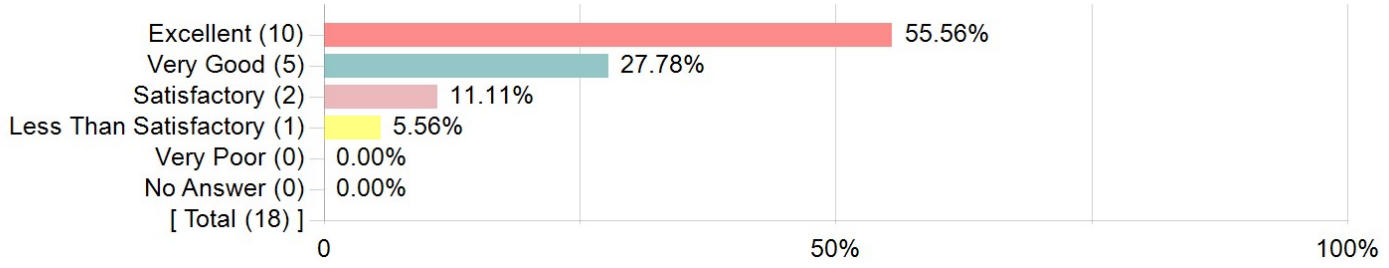


Options	Score	Count	Percentage
Excellent	5	9	50.00%
Very Good	4	5	27.78%
Satisfactory	3	3	16.67%
Less Than Satisfactory	2	1	5.56%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.22
Standard Deviation	0.94

12. How would you rate the usefulness of the instructor's feedback on assignments, exams, and other work?

12. How would you rate the usefulness of the instructor's feedback on assignments, exams, and other work?

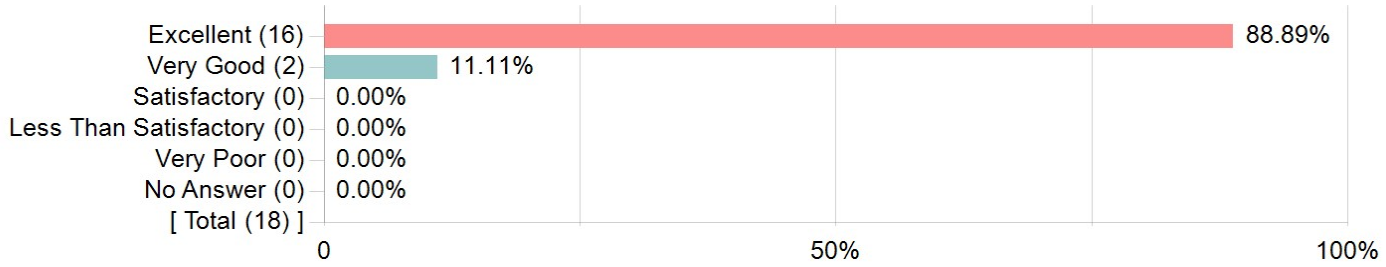


Options	Score	Count	Percentage
Excellent	5	10	55.56%
Very Good	4	5	27.78%
Satisfactory	3	2	11.11%
Less Than Satisfactory	2	1	5.56%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.33
Standard Deviation	0.91

13. How would you rate the instructor's success in creating and maintaining an inclusive class, respectful of all students?

13. How would you rate the instructor's success in creating and maintaining an inclusive class, respectful of all students?

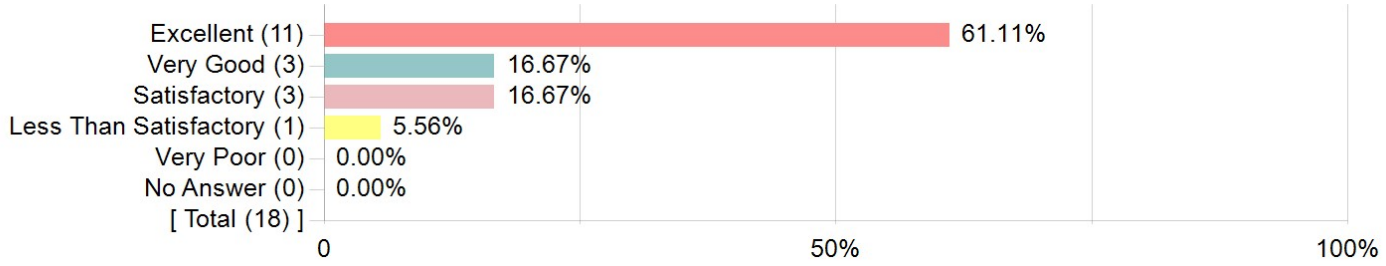


Options	Score	Count	Percentage
Excellent	5	16	88.89%
Very Good	4	2	11.11%
Satisfactory	3	0	0.00%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.89
Standard Deviation	0.32

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

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

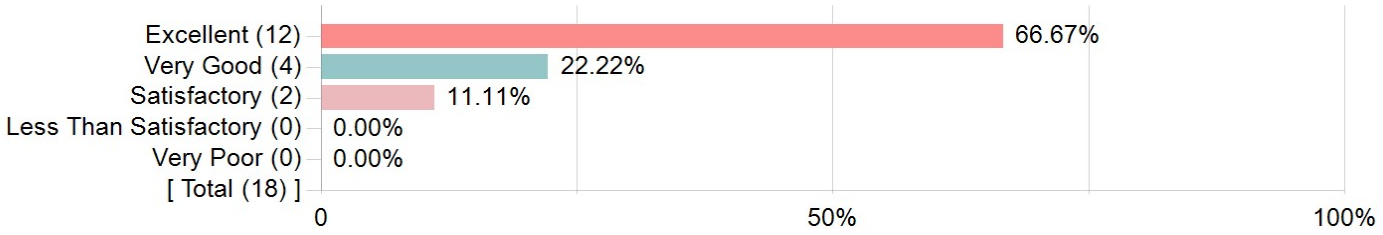


Options	Score	Count	Percentage
Excellent	5	11	61.11%
Very Good	4	3	16.67%
Satisfactory	3	3	16.67%
Less Than Satisfactory	2	1	5.56%
Very Poor	1	0	0.00%
No Answer	NRP	0	0.00%

Statistics	Value
Mean	4.33
Standard Deviation	0.97

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

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



Options	Score	Count	Percentage
Excellent	5	12	66.67%
Very Good	4	4	22.22%
Satisfactory	3	2	11.11%
Less Than Satisfactory	2	0	0.00%
Very Poor	1	0	0.00%

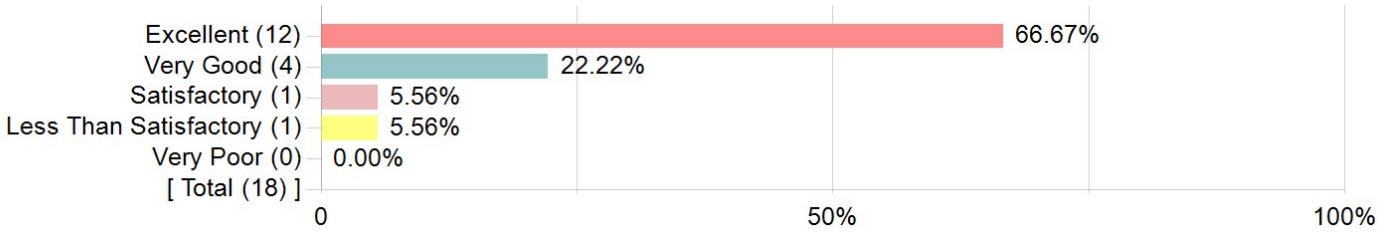
Statistics	Value
Mean	4.56
Standard Deviation	0.70

16. Please provide any additional comments regarding the instructor.

Comments
No complaints. Very clear professor that cares a lot about the class.
The concepts were well–explained which made a really big difference for me. I actually finally understood a lot of concepts from previous classes just because they were connected in a way that made sense.
Great TA this semester
Professor Lemke Oliver is great! I took MATH 70 with him in Fall 2021 and was very happy to see him teaching this course. He is very organized and clear in his lecture, which is so important in a potentially convoluted course like Analysis. I felt like my understanding of MATH 136 is significantly better than the predecessor course, MATH 135.
This was my favorite course I have taken at Tufts and it is largely because of Professor Lemke–Oliver. He was flexible and understanding when it came to deadlines, and truly wanted to see his students succeed in their deep understanding, not just being able to work through the mechanics. He was very helpful in drawing out pictures for confusing concepts and very clear in his explanations of how proofs work and what we are looking to accomplish. He was also very organized and transparent, which I found helped create the right environment for my learning. One of the best professors I've had at Tufts.
Inconsistently posted homeworks, often posting assignments such that the deadline was before his next office hours.
I learnt more about real analysis and linear algebra through Professor Lemke Oliver’s guidance than any other single source. Absolutely amazing. He emphasises upon conceptual understanding rather than rote learning. Proud to have received his guidance!
Amazing professor! Thank you for furthering my excitement in math!
Really nice, which is cool.
Prof. Lemke Oliver was a great professor, willing to discuss various topics in the course and help break down and understand what is happening. His problem sets were extremely useful to facilitate learning and understand the concepts of what the complicated theorems are actually doing. My only complain would be as a whole the class felt 'disorganized' in the sense that assignments would never release as discussed, and every week would be a different due date of sorts causing inconsistencies and confusion.
It seems like when we (students) had questions, you were trying to balance not giving everything away and letting us figure out things on our own. I appreciate this and understand this is a hard balance to find. I appreciate it because I don't want my professor to simply speak at me for 75 minutes and rather come to learn things on my own as well. One suggestions I have is to make the lectures more interactive, say, by, before starting a proof, asking people/giving us 2–3 minutes to think about how one might go about proving the theorem at hand. That being said, there was a lot in this course that was not readily intuitive, so perhaps this is not always possible (which is why I appreciated the hints on the homework). Maybe working on this balance and having classes be more interactive would allow the instructor to gauge better what was and what was NOT intuitive for students.

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

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



Options	Score	Count	Percentage
Excellent	5	12	66.67%
Very Good	4	4	22.22%
Satisfactory	3	1	5.56%
Less Than Satisfactory	2	1	5.56%
Very Poor	1	0	0.00%

Statistics	Value
Mean	4.50
Standard Deviation	0.86