



School of Arts and Sciences  
School of Engineering

# Individual Report for Sp20-MATH-0051-02-Differential Equations (Robert J Lemke-Oliver rlemke01)

Project Title: **Spring 2020 AS&E Course Evaluation**

Courses Audience: **87**

Responses Received: **82**

Response Ratio: **94.25%**

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Creation date of the Report: **Friday, May 01, 2020**

## 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?	4.45	0.63	4.05	0.96
2. How would you rate the use of class time (lectures, discussions, demonstrations, labs, studio work, etc.) to promote your learning?	4.59	0.59	3.96	1.05
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?	4.17	0.94	3.89	1.01
4. How would you rate the way the course engaged your interest?	3.98	1.08	3.61	1.18
5. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the course.	4.37	0.75	3.87	1.02
Overall	4.31	0.84	3.88	-

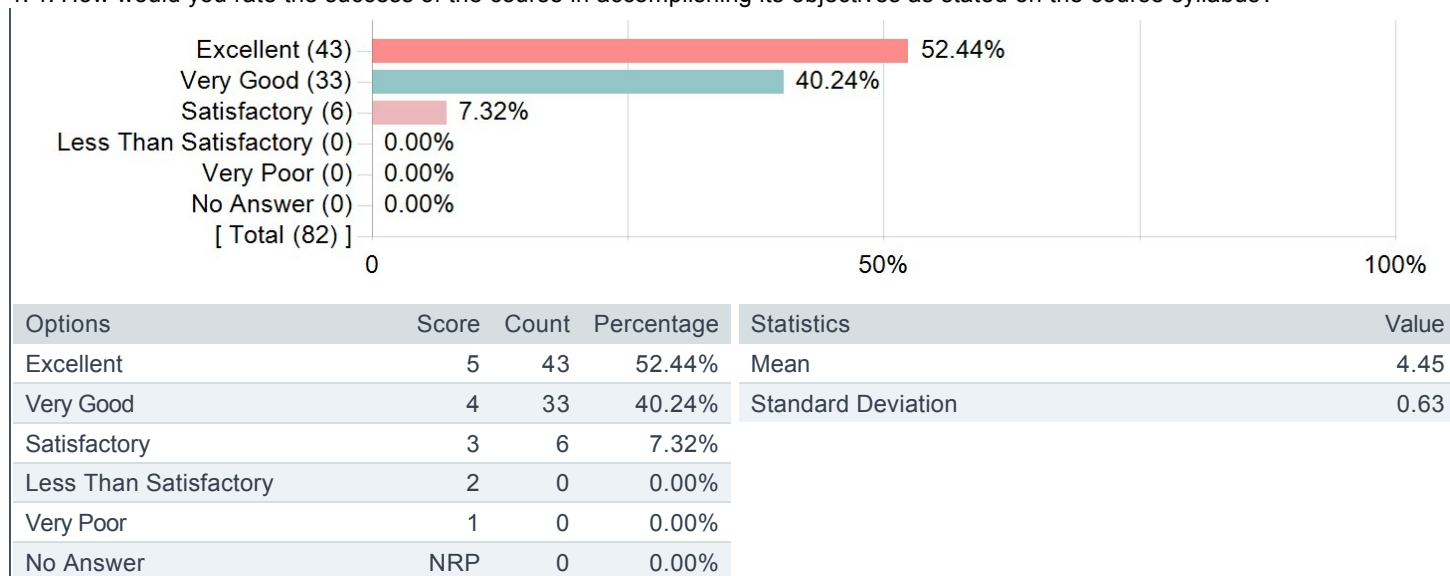
### The Instructor

Question	Course		Subject (MATH)	
	Mean	Standard Deviation	Mean	Standard Deviation
9. How would you rate the instructor's organization of each class?	4.77	0.48	4.13	1.04
10. How would you rate the instructor's success in explaining concepts and ideas?	4.67	0.55	3.95	1.16
11. How would you rate the timeliness of the instructor's feedback on assignments, exams, and other work?	4.42	0.83	4.17	0.93
12. How would you rate the usefulness of the instructor's feedback on assignments, exams, and other work?	4.07	0.95	3.96	1.02
13. How would you rate the instructor's success in creating and maintaining an inclusive class, respectful of all students?	4.70	0.53	4.43	0.84
14. How would you rate the instructor's communication with you outside of class?	4.58	0.71	4.07	1.09
15. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the instructor.	4.72	0.48	4.09	1.03
Overall	4.56	0.70	4.11	-

## Detailed Results of Course Evaluation

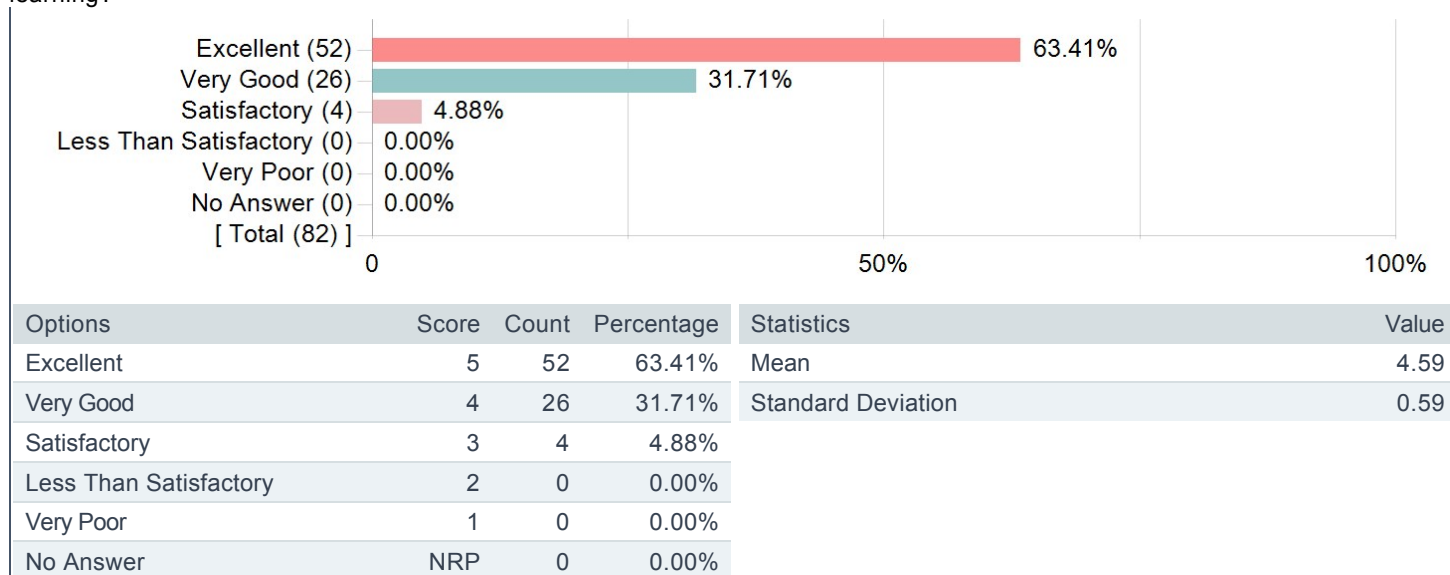
### 1. How would you rate the success of the course in accomplishing its objectives as stated on the course syllabus?

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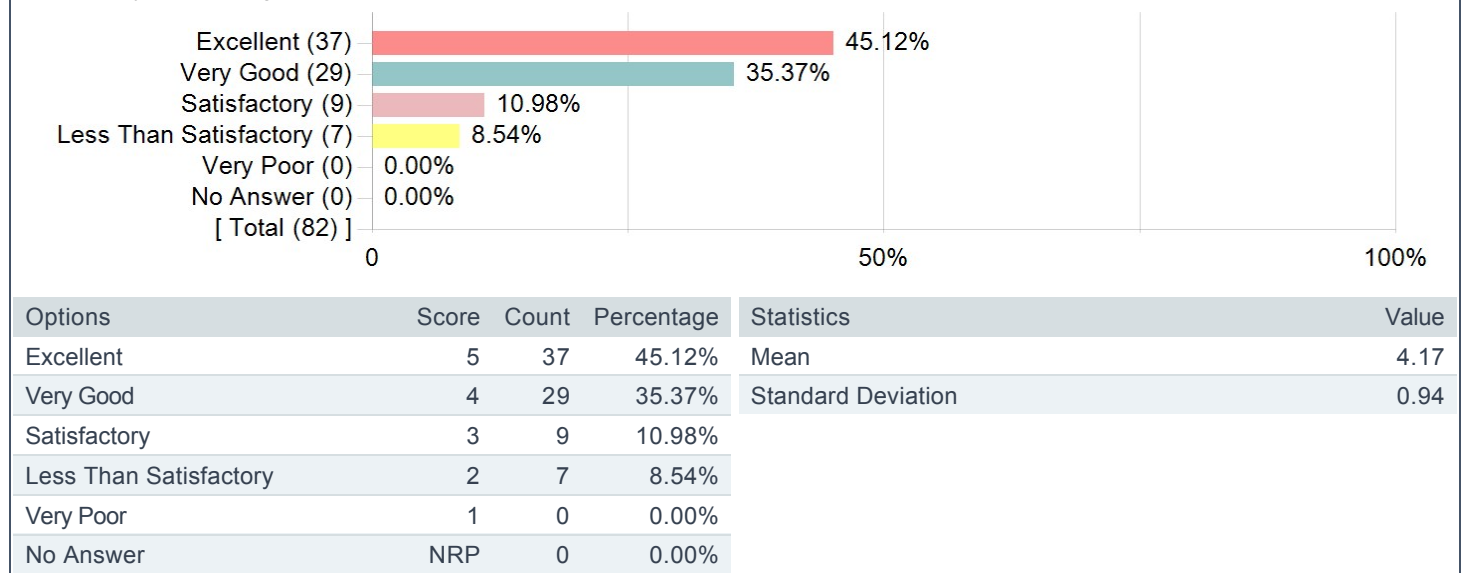
### 2. How would you rate the use of class time (lectures, discussions, demonstrations, labs, studio work, etc.) to promote your learning?

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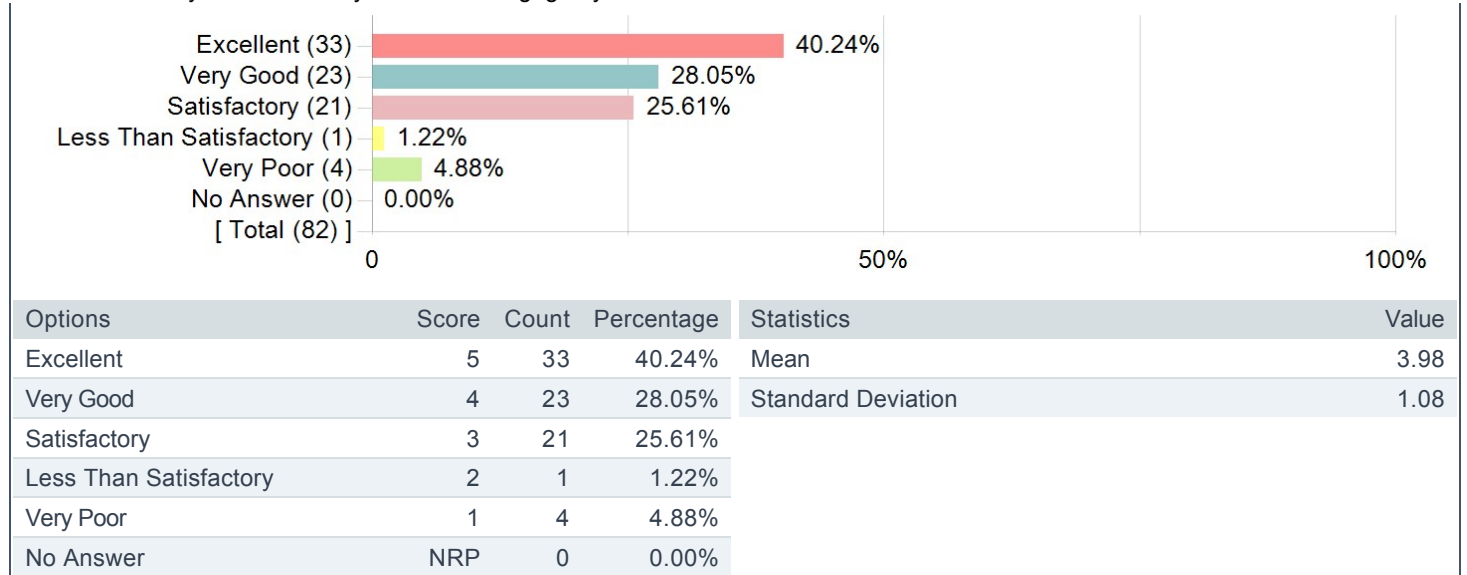
### 3. How would you rate the use of out-of-class activities (reading assignments, homework, papers, projects, studio art practice, etc.) to promote your learning?

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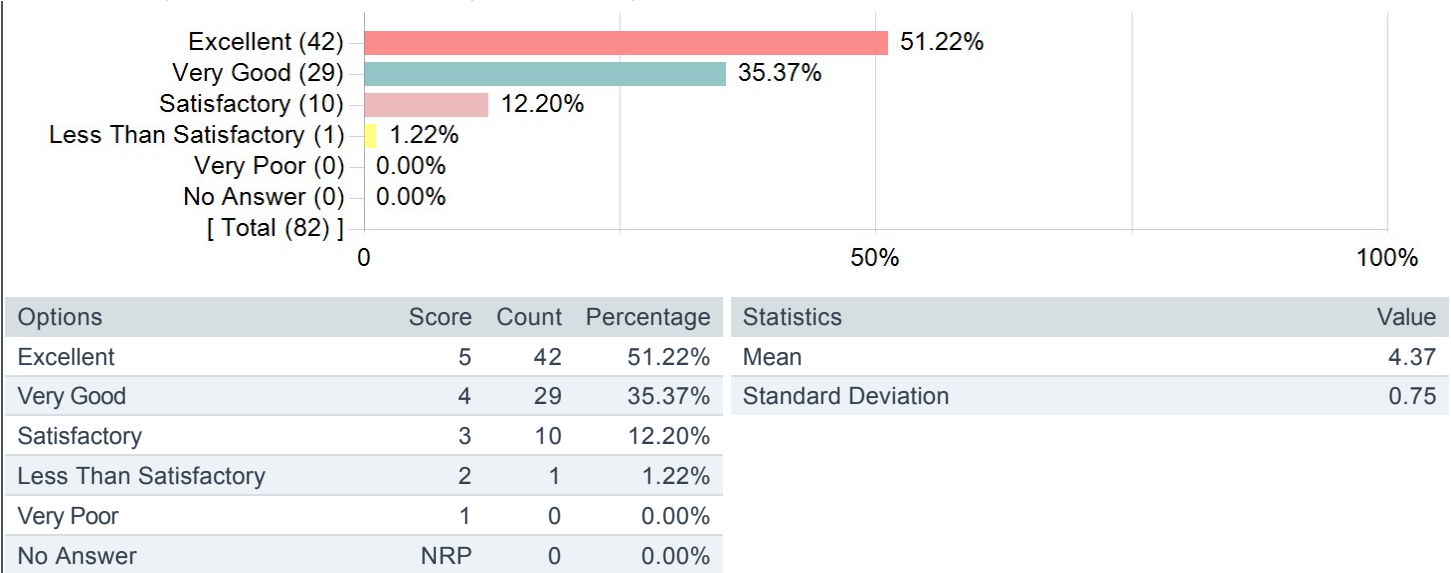
### 4. How would you rate the way the course engaged your interest?

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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.

1. 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
This class was a new kind of math for me, so I had to think deeply to understand the new concepts. There can also be a lot of room for mistakes, so I had to be able to look at the answer and decide if it seemed correct or not.
This course taught me helpful problem solving techniques to approach differential equations.
By explaining why the methods for solving various differential equations work.
Homework questions were more difficult when compared to examples done in lecture, requiring students to think deeper and apply themselves.
This course has made me think more deeply about which math courses I choose to enroll in.
It connects physics and math that I have learned before.
Differential equations allowed us to explore relevant math concepts and I really enjoyed when we did real life examples. Would only ask that more of these examples be included.
The lectures were great at explaining concepts and preparing me for the assignments
with the matrix aspect of differential equations it made me think about coding.
This class was great for anybody who really likes hard numbers, linear thinking, or algebraic math. So I found it really interesting and complicated to see the complexities of differential equations—something I didn't think was a very large field of mathematics.
This course allowed me to apply my understanding of concepts in many ways and encouraged me to think more deeply about why the concepts we learned made sense.
It made me like math a little more after the other calculus classes. It's straightforward. It also showed the importance of math in real life
it has made me study in different more productive ways
I think that Professor Lemke–Oliver did a good job of explaining the concepts and derivations before doing examples.
I have appreciated the way we looked at change over time of functions, which I felt was valuable
The homework problems required me to reach a fairly deep understanding of the material in order to complete.
It didn't. I don't feel like I learned any math. I feel like was forced to learn a bunch of recipes, and when to regurgitate them on a test. I have nothing but a surface level understanding of what I was taught, and this has been a constant through all the Calc courses I've taken at Tufts.
It's definitely made me question my math abilities.
Not applicable
Lectures were really clear and understandable, class was challenging but well–paced. I learned a lot about matrices and new ways to think about calculus.
I think the class increased my problem solving ability and ability to think through questions.
I still don't really understand the practical applications of differential equations, but I did enjoy the course and I'm sure it will be useful in later classes.
This class made me think about how there are many ways to approach a problem but often there are methods that are much more effective than others
This course made me confident in my math skills. It also showed me how to possibly model real life situations.
Everything about this course required me to think more deeply. The concepts were confusing at first, but I slowly got a grasp of what was happening.
The lectures were amazing, the teaching was great

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

Comments
The worksheets in recitation.
The lectures worked best to facilitate my learning. The recitations were also useful as well.
I really enjoyed the way Professor Lemke Oliver would explain things conceptually, then solidify that explanation with an example. This helped me to understand the underlying reasoning behind what we were doing, but ensured that even when I didn't understand the reasoning behind a technique, I could still work through the mechanics of a problem using the technique.
Going through practice problems in-class.
Lecture was very clear and useful
The examples Robert Lemke–Oliver explains in class help me best understand concepts.
The homeworks really helped me better understand the materials, and it is great that this was extra credit because it really relieved the pressure. The quizzes were also great because they were not worth as much, but still provided examples of what test problems could look like
The lectures are easy to understand. Doing various examples really help.
Professor Lemke–Oliver was a great lecturer and throughout explained concepts in a coherent and understandable manor. One of the first math teachers I've felt who has engaged and taught me rather than asking I just read the textbook.
The lectures were very well taught and interesting
the lectures were amazing and doing the homework helped concrete the concepts and how to do them in my brain.
I think all the homework assignments helped facilitate my learning.
Doing in class problems step by step was super helpful in furthering my understanding of the concepts.
Lectures! Homework being extra credit worked well for me because it reduced the stress and instead allowed me to focus on using the homework as a way to learn the material instead of just wanting to finish it to get a grade.
The textbook was really amazing. It actually did a better job of explaining the material than the class itself. And the homework always did a good job of covering a wide range of different types of problems, too.
The homeworks and recitation time with Logo were definitely most helpful
The lectures were very helpful and Robert was very effective at teaching the concepts in a manner that was understandable and concise.
Examples in the different chapters. They cleared everything up. So basically lectures.
homework but kind of sad that they were not for a grade, course is very hard a sit is I would have appricieated a cushion.
Office hours, homework, lectures
I really liked how the structure of class and how we have homeworks and then worksheets.
I think that the consistent homeworks were really helpful.
I liked the extra–credit homeworks – I felt that we had the resources to reinforce learning without as much pressure as usual
In–class lectures
The homework assignments although optional were very helpful in understanding the topics.
Office hours and recitation
The recitation sections were really helpful. So were office hours.
Recitation
Lectures and recitations were extremely helpful and insightful. I also felt that the amount of homework was perfect.
I liked working together with other people in recitation and thought that it was a good test for our knowledge on the topics being taught.
I thought the lectures were very well structured and gave me very clear notes. The homeworks were usually helpful and not too long and good practice. The tests were reasonable if you work hard to study.
All aspects built on each other to help.
Homeworks really saved the day.
Lectures
I liked the three/week 50 min session schedule

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

Comments
Continue the collaborative worksheets.
My biggest frustration in this course was the unit just before the midterm which used matrices and row reduction to solve $Dx = Ax + E(t)$ . The homework in this unit (both the daily and weekly problems) felt like they took an excessive amount of time, even though I felt I understood the concepts completely. It could take me 2–3 hours to complete a daily homework in this unit, and the same amount of time to complete a weekly homework. I don't think this was the intention of the professors, so I think that they should examine the homeworks in this unit and try to shorten them so students don't feel overwhelmed by this work. Besides this unit, the homework felt completely manageable, which is why this unit stood out to me so strongly.
Making sure that the material on the homework assignments has been sufficiently covered in class before it is assigned.
Have a more concrete homework policy
This course was good when it was in person because Robert Lemke–Oliver was a good lecturer and was always willing to help students after class, and the TA Logo, was helpful in clearing things up in recitation. However, I do not believe answers to quizzes should be presented in recitation immediately after taking the quiz. Instead, I believe they should be presented in the beginning of recitation the following week.
Regarding online instruction, while the professors tried to accommodate students, I do not believe they helped. I believe they instead made it more difficult to learn online. For example, making homework due three times a week instead of once at the end of the week was difficult to complete especially if a student did not understand a topic or concept. Since office hours did not occur every day and instructors were not always active on Piazza, it was difficult to complete a homework assignment within two days if you did not quite understand the material and did not have the opportunity to speak to an instructor.
The worksheets that were given in place of recitation were too long, as they took me longer than 50 minutes to complete (recitation blocks are 50 minutes). Additionally, it was more difficult to complete worksheets because I did not have the group support of my classmates as I would have on campus. I understand there needs to be some way to assess our understanding, but shorter problems with less time-consuming values would have made it easier to do computations but still would have enabled us to showcase our understanding.
The second exam, although stated it should take about an hour and a half, took me the full four hours we were given, which is too long for a midterm exam, and also did not allow me much time to upload my exam. I hope we would not have been given that exact exam in person because if we had been, I do not believe many people would have finished.
the only suggestion I would have would be to have more practice problems or tests before exams
Transition to online learning was not done quickly or smoothly — more communication during that period would have been helpful.
I hope our professor could explain where the concepts come from instead of jumping right into the equations. It would be better if the materials we learn are better explained in meaning and purpose. I only know how to solve the questions after taking this course, but don't understand how they can be applied in real life.
I liked the format of turning in HW online and think that should continue even when in person classes begin. It also allows me to review the comments and work while studying on canvas.
Way too much homework, even if it isn't mandatory. The recitations were fine but the quizzes really broke up the flow of the class. There was no organization regarding assignments throughout the entirety of the course
I dont have any suggestions for improving it, it is a very good course.
I feel like the added math worksheets were unnecessary busy work.
This class makes an unfair assumption that everyone has a fairly advanced background or exposure to differential equations which is not true. For example, there is an assumption that a lot of people have taken linear algebra, which is not true. So if the course could be designed at the basis that people may have not been exposed to differential equations before, that would be nice. Also, recitation should be a time for review, asking questions, and individual work, not group work. Group worksheets inhibit individual learning rather than develop understanding through collaboration. By working in groups, students that have a difficult time with the material are not provided the opportunity to work through it themselves. Therefore, recitation should be a time for students to individually work through problems and collaborate when necessary/able including ask for help.
One of my big problems was that the material was always given in a general format, using lots of variables and sometimes confusing to understand. To help us solve actual problems, I wish more examples would be given in class.
Recitations, although intended to be helpful, were a little bit disorganized and confusing. It would be more helpful for me and other students I think, if recitations were not used for more graded assignments and "group" work (which tended to be chaotic), but rather for students to do extra problems on their own pace and have the ability to ask questions to the TA about what they needed help on individually.
the homeworks towards the second half / end of the semester have become VERY long and tedious— perhaps they can be shortened
I feel that the way recitations were run was not particularly beneficial. It would have been more helpful to be able to ask questions and review problems and topics that many students were confused by. In my opinion, the method in which we did the worksheets, in small groups on the chalkboard, was not good.

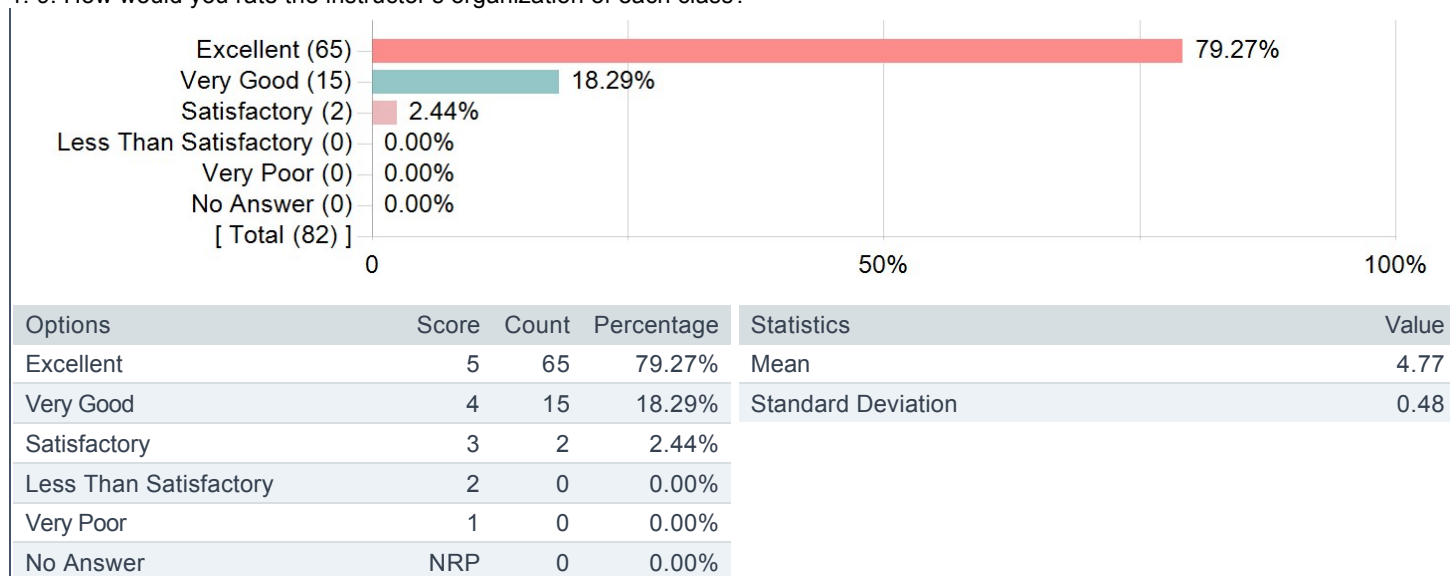


Comments
The homework had a tendency to be lengthy and tedious so trimming them down could be helpful
I don't really have any
make homework worth more.
This class made me realize how much I love mathematics and how interesting it is! I really enjoyed this course.
Once we moved online I would've appreciated a little more clear communication in the canvas announcements.
The amount of work required to complete all the HW assignments is worth far more than the 4% boost to the grade to complete all of them (obviously they're not mandatory, but I feel most people would agree the best way to get better at math is to do practice problems directly, which usually comes in the form of HW anyways). Also, it's frustrating how long the assignments take, usually because of the number of tedious calculations that shouldn't be required to convey the concept the HW is trying to teach. This is mostly applicable to the second half of the semester when we were doing linear algebra with imaginary numbers, or Laplace transforms with partial fractions on HALF of the second midterm (which is fine if 50% of our grade for that exam is to be representative on how well we can do partial fractions, but that was just one strategy we learned in the entire section on Laplace transforms and took loads of time during the exam which could have been spent working on parts that related more directly to differential equations). Also, the textbook is old, full of mistakes and bad at explaining the concepts, and it's painfully clear we only use it because a professor who teaches the class wrote it.
Please, if we are once again online, actually make changes to support students rather than simply giving lip service to the idea. Making worksheets due on Saturday night and making them significantly longer than the ones we had on campus, now being out of the group setting we would normally do them in, as well as making homework due each class instead of once a week, served to give us significantly more work with significantly less flexibility, making an already difficult time much harder.
more time spent on topics
The fact that quizzes were given on topics before we had a recitation section to cover those topics bothered me. Surely the topic should be taught in class, reviewed in recitation, and only THEN should we be tested on it, especially since the problems really only ever began to make a lot of sense to me after the recitation section in which they were discussed. Unfortunately, each of these recitations gave a quiz on the topic before reviewing it, which then factors into our grade. This feels wildly counterintuitive. It's like giving someone a world map, asking "where's Tuvalu?" and then saying "wrong! zero points! by the way, it's here. better luck next time!" Surely you should show them where Tuvalu is, and THEN ask them to point to it on a map. That definitely annoyed me, especially since recitations were really the place where I learned the material the best.
More in-class student involvement
Sometimes tests felt unbalanced, they focused a lot on one concept and not at all on others.
I would figure out the homework collecting system earlier on.
The homework assignments were often too long and redundant to the point where they were no longer helpful for my learning but just took an excessive amount of time. For example, homework problems dealing with 5x5 matrices (where matrix math was not the key idea being tested) seemed a bit unnecessary because the same ideas could be demonstrated in, say, a 3x3, and the new ideas could be learned just as effectively without having to do so much extra (and frankly tedious) algebra. It felt like a waste of time. Additionally, when the problems were the type of problem that had many many steps and each problem takes a long time (even if the student fully understands the concept) just because of the sheer number of steps, the number of problems assigned should be less. Overall I wish the instructors put a little more thought into a balance of enough homework to ensure we understand all of the concepts well while not too much homework where it takes close to 3 hours to complete. Especially considering homework assignments are due three times a week, more conscientious assignments would be appreciated.
On another note, more "real life applications" might be an interesting thing to implement. Currently, almost all of the course focuses on differential equations in isolation, with no explanation of how they can be used. A few more examples of differential equations used in real life would be really cool so it feels like these lengthy calculations we are doing are not for no reason! Especially since many of the students in the class are engineers, this seems like something that could make a great positive impact on many of the students.
N/A
The homework was excessive, it was about 2 hrs per assignment three times a week
TA was nice, but recitation felt like a waste of time.

## Detailed Results of Instructor Evaluation

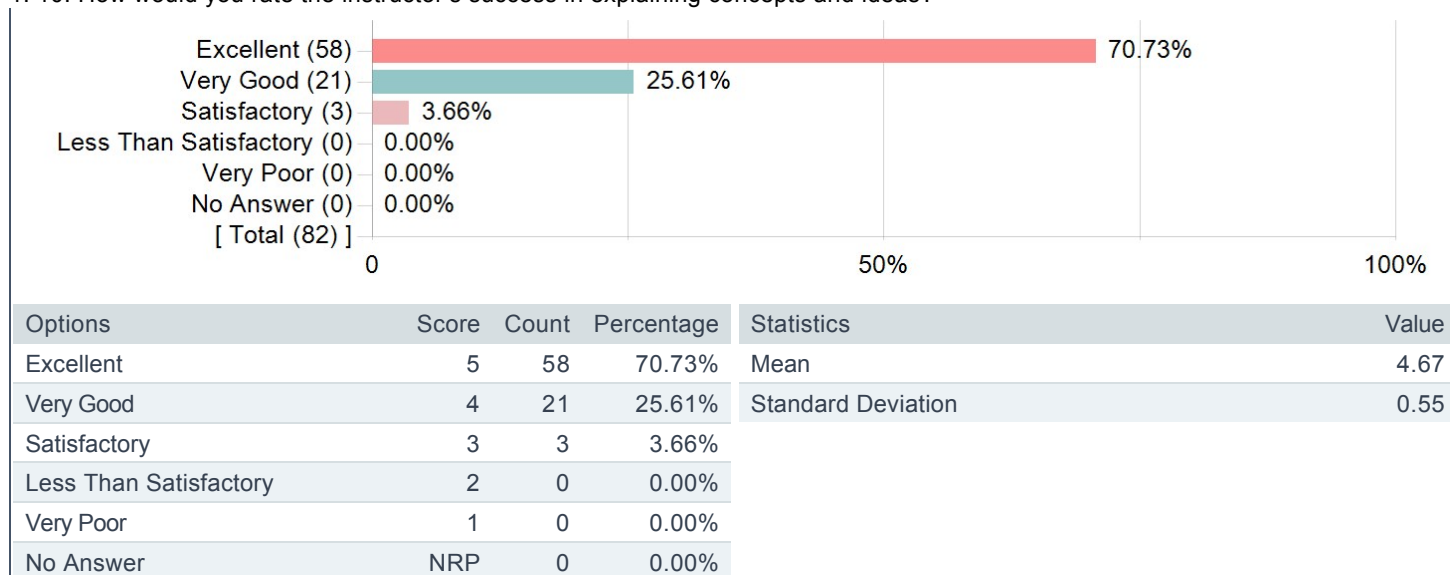
### 9. How would you rate the instructor's organization of each class?

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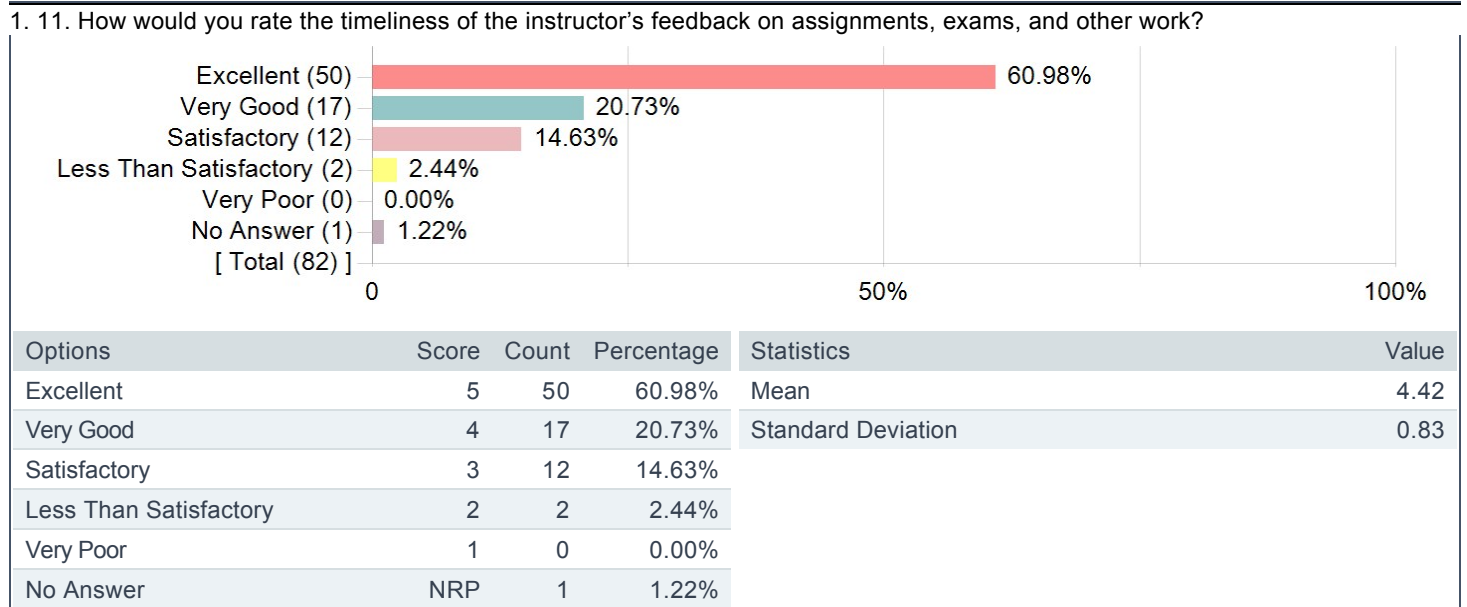


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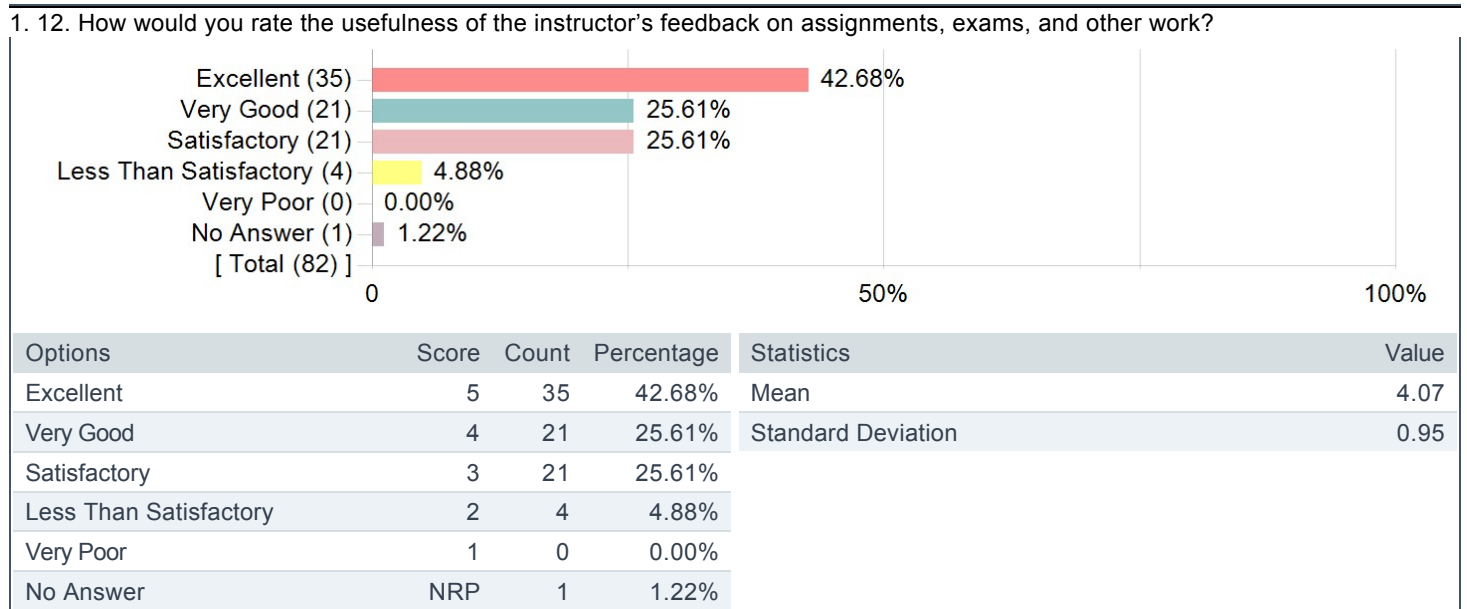
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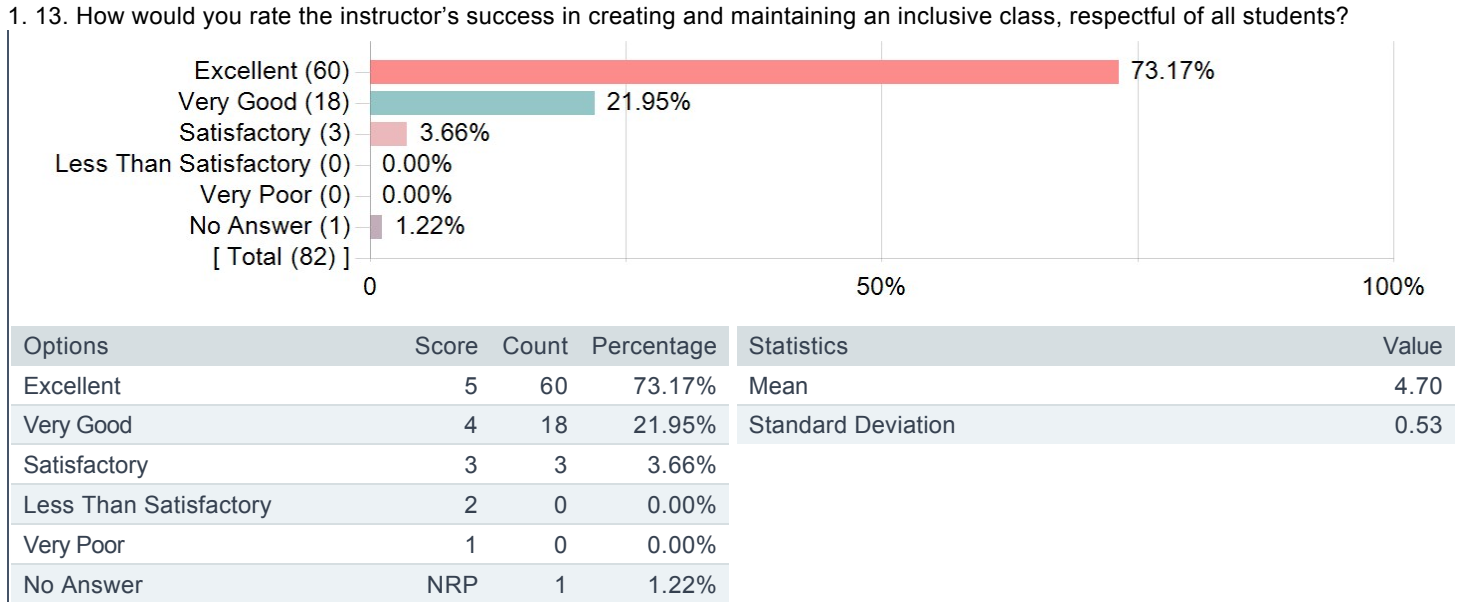
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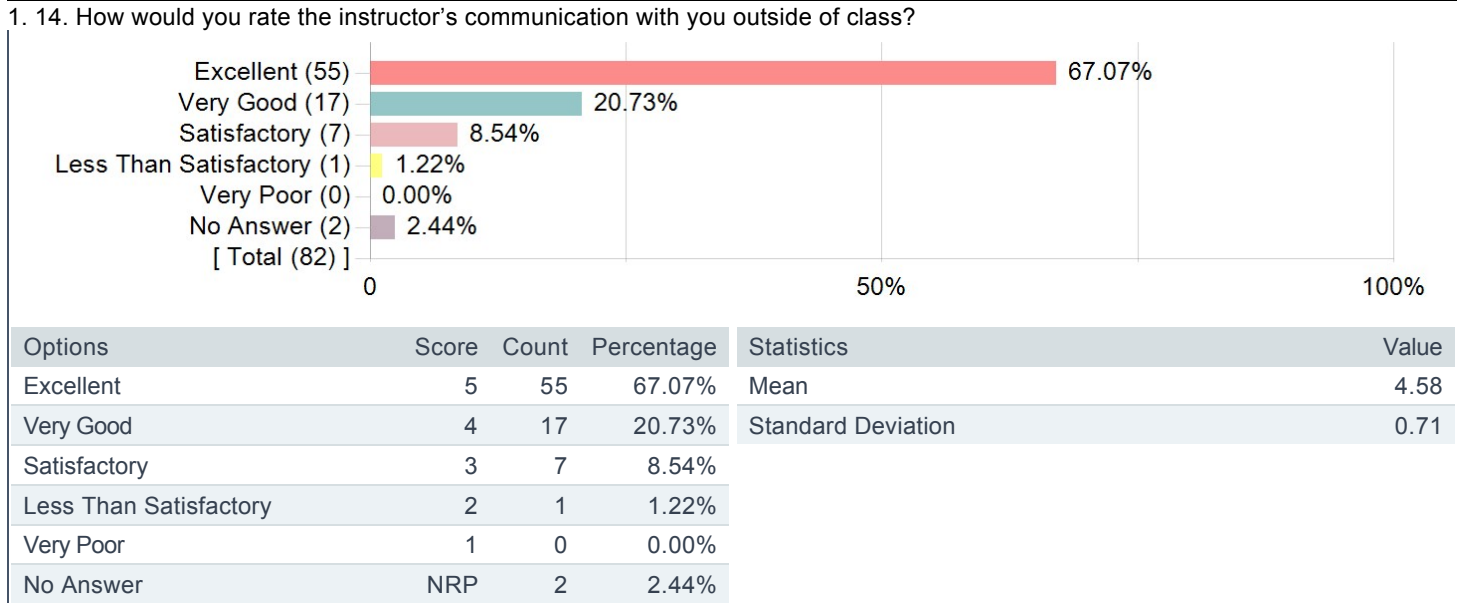
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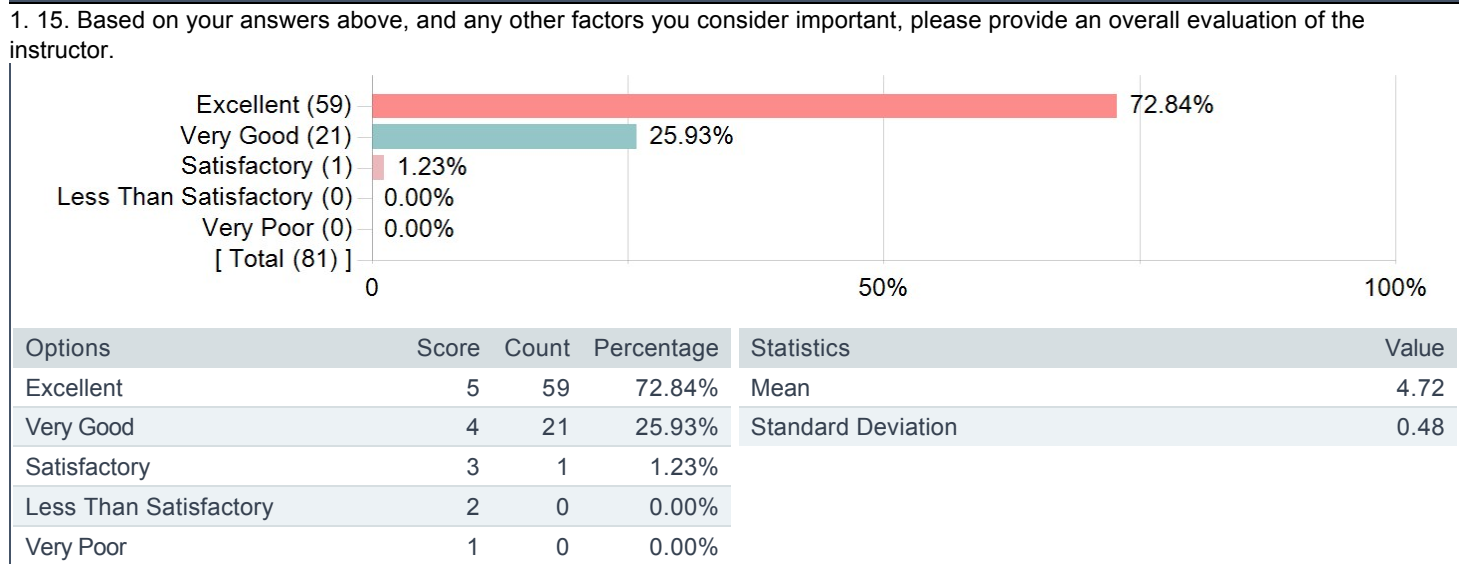
### 13. How would you rate the instructor's success in creating and maintaining an inclusive class, respectful of all students?



### 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
Passionate about teaching and learning. Extremely willing to help and wants every student to succeed.
Professor Lemke–Oliver was excellent and I would recommend him to any of my peers considering taking MATH 51 in future semester.
Professor Lemke–Oliver is a fantastic instructor. He is smart, kind, and very engaging. Differential equations is not always a fascinating topic, and yet I always found myself paying attention and understanding concepts without struggle in his class.
Despite the concerns I have about the course overall, Lemke–Oliver is a good lecturer and is always willing to help students after class, which is appreciated. The TA Logo is also great!
Professor Lemke Oliver was amazing at explaining the materials in and out of the classroom and really helped to better understand the material
Excellent lecturer and great at explaining concepts. This was my second time taking the course (previously withdrew) and he really made a difference in my learning.
Phenomenal prof. He is by far the best math prof I have had at tufts. He explains things very clearly, and the in class examples are always very useful. Also, he is approachable.
Professor Lemke–Oliver really cared about his students and this was apparent from day 1 where he began learning all of our names. One of the first and only professors who have ever attempted to do this and it made a difference, I wanted to listen and learn from him every class. Thank you for making me enjoy math again!
Great lecturer, assignments were disorganized
THE FIRST AND ONLY MATH TEACHER IVE HAD AT TUFTS THAT ACTUALLY IS GOOD AT TEACHING AND ENGAGING THE STUDENTS. I have never felt lost at all throughout the course of this class at all. yes the material is hard but it is presented in an understandable way.
Professor Lemke Oliver is a fantastic teacher. He is easily the best math professor I've had at Tufts and he might be the best professor I've had in general. He is so invested in his job, in his students, in their learning journeys and success. He also is super accessible, fair, and willing to support students having a hard time. I feel thankful to have taken this class with Professor Lemke Oliver and had this opportunity to learn from him.
Robert is the best math professor I have had at Tufts, and I would love to take a third class with him. He does a great job explaining concepts and cares about the success of every student. He even learned everyone's names in a 90 person lecture!
Love Prof. Lemke–Oliver. Always did a great job being personable with us as students, but also a great professor who was always easy to talk to and good at explaining things in a helpful way.
Professor Lemke–Oliver is very devoted to teaching his students and likes to see them understand the difficult concepts in this course. However, I would find it helpful if more time was spent in class discussing the reasonings behind computations rather than just running through the algorithms and memorizing them.
Professor Lemke Oliver does a great job explaining topics and making sure that we all understand the material. He clearly really

Comments
cares about how students are doing and always encourages us to go to office hours. I really appreciated his efforts to learn everyones names even in a large lecture class! I will miss him as my professor
Professor Lemke–Oliver was very familiar with the subject matter and did an amazing job explaining it clearly. He encouraged questions and made the lectures very easy to follow.
Professor Lemke–Oliver is great. He makes sure everyone understands the material and he is very approachable to ask questions if you're confused
Prof Lemke Oliver is such an amazing professor who opened my eyes on the beauty of mathematics. He is always available after class to talk and his lectures are very interesting. The switch to online learning was also very convenient and easy for this class.
I thought that professor Lemke–Oliver was a very effective lecturer, and until moving online I had no problems with his communication at all, and even after it was fine, I just would've liked a clear reference place for dates and expectations.
Professor Lemke–Oliver is amazing and I'm glad I had the opportunity to take a class with him. However, the only reason I was in his class in the first place was that I NEEDED to switch out of Professor Nitecki's section. I can't put into strong enough words how little I gained from attending his lectures for the first 3 weeks of classes and many of my friends who remained in his lecture felt the same. He is clearly passionate about the material and I hold nothing against him, but he was not a professor who I felt I could learn well from.
I was frustrated by the lack of feedback on exam 2 but otherwise felt Robert taught well.
Great teacher
The professor did a great job in cooperating with students and making the transition to online learning as simple as he could.
I'm an engineer, so I was forced to complete all the Calc courses. I strongly dislike how the Calc + DiffEQ courses are taught at Tufts.
That being said, taking Diff EQ with Prof. Lemke–Oliver was a pleasure. The Diff EQ curriculum at Tufts is incredibly rigid, and blows through a ton of material really quickly. And despite that, I really appreciated the effort the professor put in help us go beyond rote memorization and gain a *little* intuition about the topics we study. You're also really good at answering questions.
Oh how I wish I could've somehow taken Calc 1–3 with you.
Great professor. One of the best math professors I've had at Tufts. GIVE THIS MAN A RAISE OR SOMETHING!
very nice guy
Awesome professor and learned so much from him!
Really clear expectations and explanations! Class went by quickly and every minute was used thoughtfully.
Professor Lemke–Oliver was such an incredible teacher because of his ability to explain all the concepts so well. He also knew everyone's names in the class, even if he never talked to someone.
Professor Lemke Oliver was an amazing professor and made this class pretty enjoyable and was very willing to help everyone when we reached more challenging concepts.
Professor Lemke–Oliver is excellent, and seems to truly care about his students. At the beginning of the semester, he made a point to get to know every single student's name (in a 90 person lecture!). I think this really speaks to genuine care for his students. I also went to his office hours on a few occasions, and on multiple occasions he followed up our in–person discussion with an email with another example of a concept I was struggling with, or with an additional note to the explanation he had given me earlier. These follow–ups were unprompted (I had not emailed him), and I greatly appreciate the thought and effort he put into making sure I fully understood the material. Also very clear, thorough, orderly explanations during lecture. Also seemed enthusiastic about the subject. Couldn't ask for much more from an instructor.
Professor Lemke–Oliver is a great teacher. I liked the format that he taught the class. He explained things well, gave examples, and connected everything clearly with the book
Great professor! Super engaging lecture. The work was sometimes just way too much and repetitive

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

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

