Tufts UNIVERSITY

School of Arts and Sciences
School of Engineering

# Individual Report for Fa19-MATH-0070-03-Linear Algebra (Robert J Lemke-Oliver rlemke01)

Project Title: **Fall 2019 AS&E Course Evaluation**

Courses Audience: **35**
Responses Received: **30**
Response Ratio: **85.71%**

Creation date of the Report: **Tuesday, December 17, 2019**

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## 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? | 4.40 | 0.72 | 4.30 | 0.89 |
| 2. How would you rate the use of class time (lectures, discussions, demonstrations, labs, studio work, etc.) to promote your learning? | 4.37 | 0.96 | 4.18 | 1.03 |
| 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? | 4.13 | 1.07 | 4.01 | 1.00 |
| 4. How would you rate the way the course engaged your interest? | 3.70 | 1.21 | 3.80 | 1.14 |
| 5. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the course. | 4.07 | 0.98 | 4.08 | 0.97 |
| Overall | 4.13 | 1.02 | 4.07 | - |

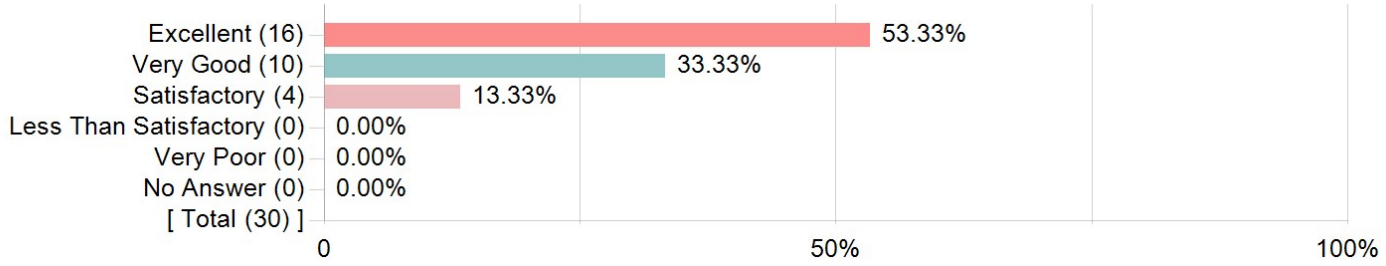
### The Instructor

| Question | Course | | Subject (MATH) | |
|---|---|---|---|---|
| | Mean | Standard Deviation | Mean | Standard Deviation |
| 9. How would you rate the instructor’s organization of each class? | 4.43 | 0.82 | 4.26 | 0.98 |
| 10. How would you rate the instructor’s success in explaining concepts and ideas? | 4.23 | 1.01 | 4.12 | 1.11 |
| 11. How would you rate the timeliness of the instructor’s feedback on assignments, exams, and other work? | 4.57 | 0.94 | 4.42 | 0.84 |
| 12. How would you rate the usefulness of the instructor’s feedback on assignments, exams, and other work? | 4.13 | 1.07 | 4.10 | 1.03 |
| 13. How would you rate the instructor’s success in creating and maintaining an inclusive class, respectful of all students? | 4.50 | 0.78 | 4.53 | 0.78 |
| 14. How would you rate the instructor’s communication with you outside of class? | 4.17 | 1.17 | 4.32 | 0.91 |
| 15. Based on your answers above, and any other factors you consider important, please provide an overall evaluation of the instructor. | 4.27 | 0.94 | 4.28 | 0.95 |
| Overall | 4.33 | 0.97 | 4.29 | - |

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

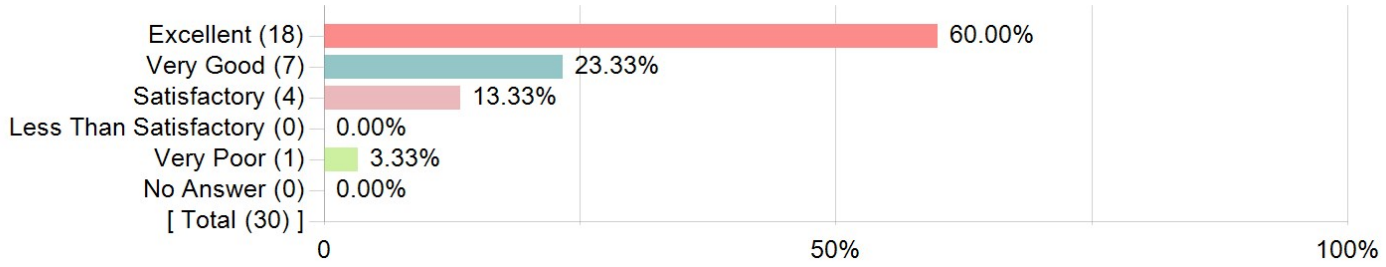



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 16 | 53.33% |
| Very Good | 4 | 10 | 33.33% |
| Satisfactory | 3 | 4 | 13.33% |
| Less Than Satisfactory | 2 | 0 | 0.00% |
| Very Poor | 1 | 0 | 0.00% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.40 |
| Standard Deviation | 0.72 |

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

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

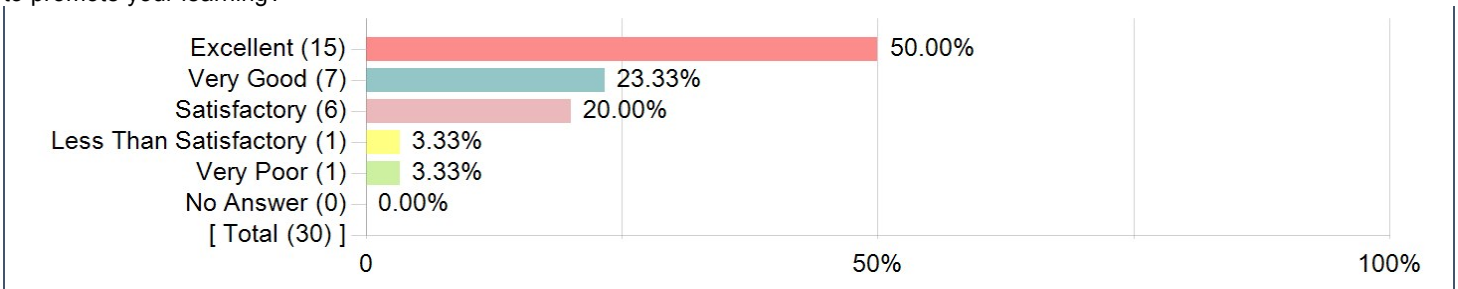



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 18 | 60.00% |
| Very Good | 4 | 7 | 23.33% |
| Satisfactory | 3 | 4 | 13.33% |
| Less Than Satisfactory | 2 | 0 | 0.00% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.37 |
| Standard Deviation | 0.96 |

### 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?

1. 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?

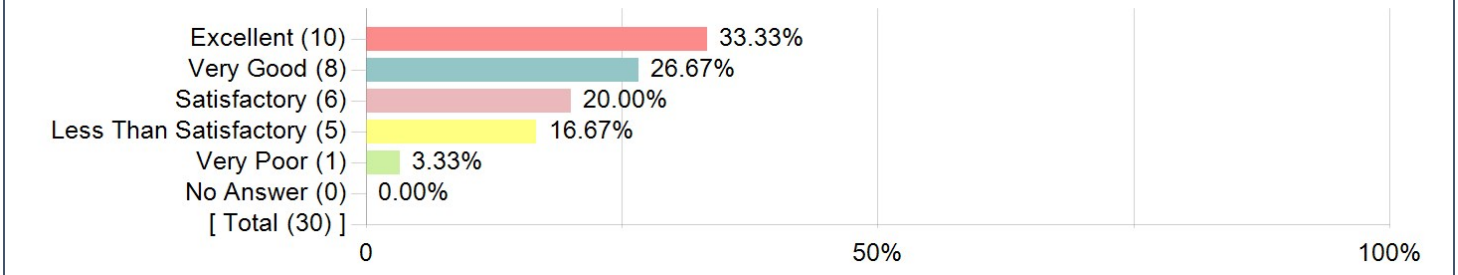



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 15 | 50.00% |
| Very Good | 4 | 7 | 23.33% |
| Satisfactory | 3 | 6 | 20.00% |
| Less Than Satisfactory | 2 | 1 | 3.33% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.13 |
| Standard Deviation | 1.07 |

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

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

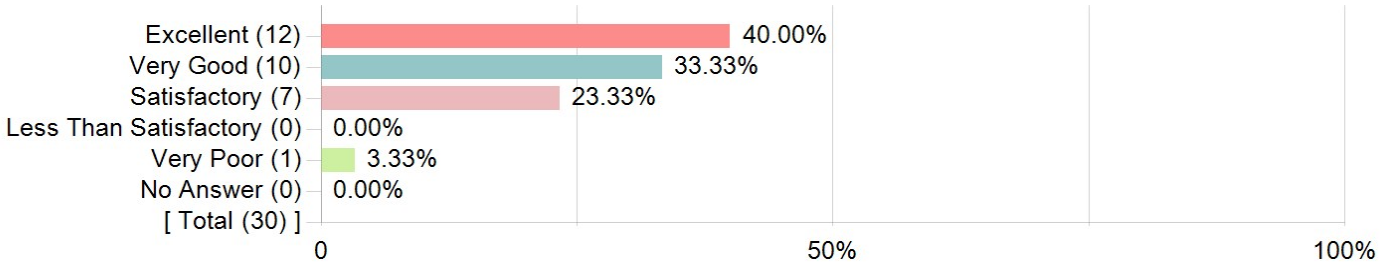



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 10 | 33.33% |
| Very Good | 4 | 8 | 26.67% |
| Satisfactory | 3 | 6 | 20.00% |
| Less Than Satisfactory | 2 | 5 | 16.67% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 3.70 |
| Standard Deviation | 1.21 |

## 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.




| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 12 | 40.00% |
| Very Good | 4 | 10 | 33.33% |
| Satisfactory | 3 | 7 | 23.33% |
| Less Than Satisfactory | 2 | 0 | 0.00% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.07 |
| Standard Deviation | 0.98 |

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

| Comments |
|---|
| linear algebra was interesting deep dive into material I had already learned some what in differential equations . |
| It was a very good introduction to abstract mathematics. It was my favorite course this semester |
| Linear algebra is fundamental to many applied fields, including my particular field of study. Although the course is purely theoretical, on several occasions I was able to identify connections between the theory and applied problems/tools which I've encountered and expect to encounter. This course opened the door to understand these connections further. |
| Was a really great introduction to linear algebra; went into depth to make sure we really understood the concepts of linear independence and vector spaces. With such a solid understanding of these fundamental concepts, later topics in the course were much easier to understand. |
| None, it's mathematics |
| Thinking about nearly everything in terms of matrices and vectors is interesting. |
| new way to think about linear systems |
| its definitely improved my comfort w proofs |
| It made me realize how the basic concepts in linear algebra can be used to transform real–word problems to computer science problems to math representations that allow easy manipulation. |
| I think about space in a different way. |
| Forced me to learn challenging math concepts and their applications to real life |

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

| Comments |
| --- |
| Having home works that helped solidify class work |
| The professor was very good and gave a perfect combination of pure and applied aspects of La. |
| Frankly, online resources (not provided by Tufts) such as discussion boards were the best resource. I found that the textbook and lectures did not provide sufficient understanding to actually complete the homework correctly, leaving a deficit when it came to studying for exams. |
| The textbook itself. The class was not helpful at all (for reasons that were beyond the instructor's control, which I will explain below) |
| Lectures are structured very well. |
| lectures were great |
| the structure of the lectures was helpful |
| Homeworks |
| The homeworks (even though they are long) they really help me learn |
| Professor used different ways of explaining one concept which made it easier for students with different learning types/ different math understandings to understand the concept better. |
| The in–class lectures. |
| Homework. |
| Lectures |

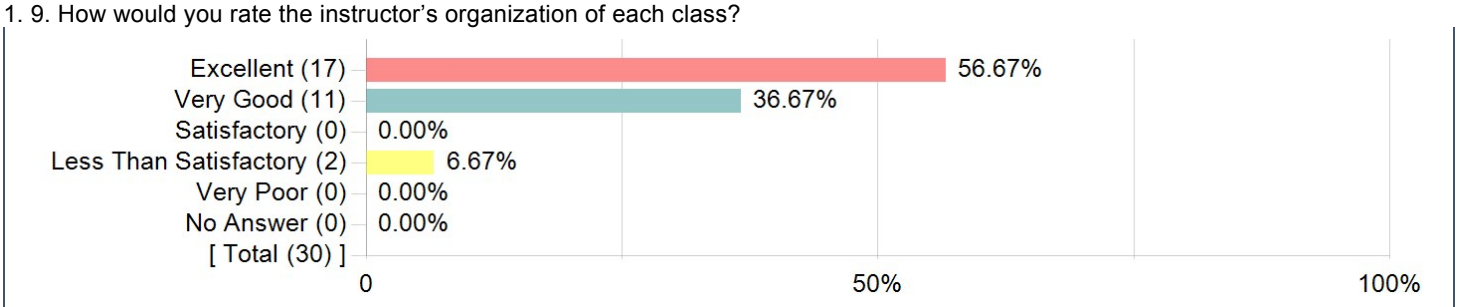
### 8. What suggestions do you have for improving this course?

| Comments |
| --- |
| More focus on the kinds of proofs we would be tested on in exams during class time |
| Focus more on visualization and understanding. Otherwise, very good job. It was an inherently difficult class, but very interesting. |
| The textbook is often confusing and does not provide sufficient examples or explanation to know how to answer many of the homework questions. For this reason, I would NOT suggest teaching directly from the textbook, which Prof. Lemke–Oliver does. Maybe include another book in the syllabus that gives students an additional, more practical resource than the textbook itself (to supplement the David Lay book).<br><br>The classroom was WAY too small. I felt like I was sitting on top of other students; constantly being coughed and sneezed on. Totally disgusting. The testing facilities were also poorly organized; there was insufficient room for the number of students writing the exams. |
| I do wish that problem sets weren't just from the textbook; they sometimes felt like busywork. I think it would have been nice to have a few longer, more challenging exam–style problems. |
| Unfortunately, mathematics classes that are not rigorous or proof based (those classes intended for math majors) are used to mainly service the engineering department, and other departments that use mathematics to form a large basis of some majors' prerequisite course. I understand that the course is structured the way it is because it typically has several students from other departments enrolling. However, as a consequence, our instructors are directed to teach directly out of our textbook, and use none of their own thoughts, to teach (train) us. This teaching style is not helpful to anyone, as the textbook's logic and the instructor's logic may not match and cause the instructor to perform poorly for not fault of his/her own.<br><br>I hope that the mathematics department decides to make the engineering and life sciences departments take care of their math prerequisites on their own so that math professors can teach how they want to. |
| Nothing to add |
| I think having a recitation for this class would be helpful. |
| Please for god's sake just make the homework worth more |
| not much exams were tough though |
| tests count for way too much of the grade, make hw worth more or something |
| Already very good. |
| Have the review sessions be more helpful, there is literally no point to having them as of right now |
| I think it would be more helpful if Professor Lemke Oliver hosted his own review session for the test because I went to the review session but a different Linear Algebra teacher was teaching it and I didn't get much out of it. |
| More in class problems |
| More structured review in class |

## Detailed Results of Instructor Evaluation

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

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

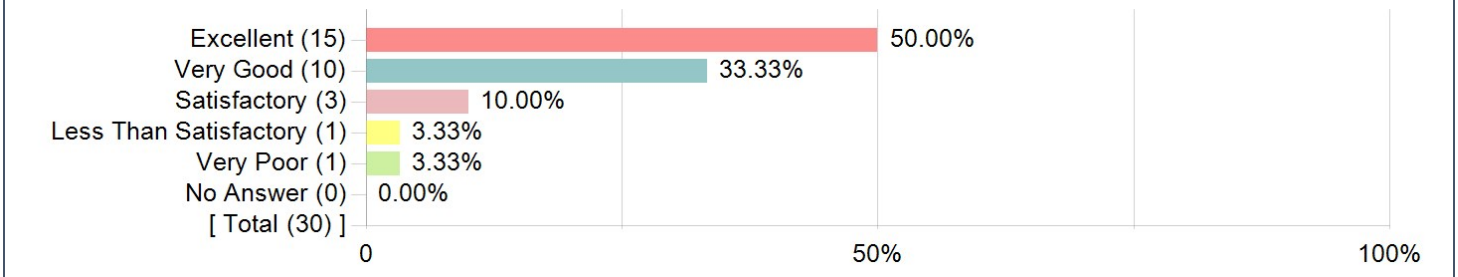



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 17 | 56.67% |
| Very Good | 4 | 11 | 36.67% |
| Satisfactory | 3 | 0 | 0.00% |
| Less Than Satisfactory | 2 | 2 | 6.67% |
| Very Poor | 1 | 0 | 0.00% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.43 |
| Standard Deviation | 0.82 |

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

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

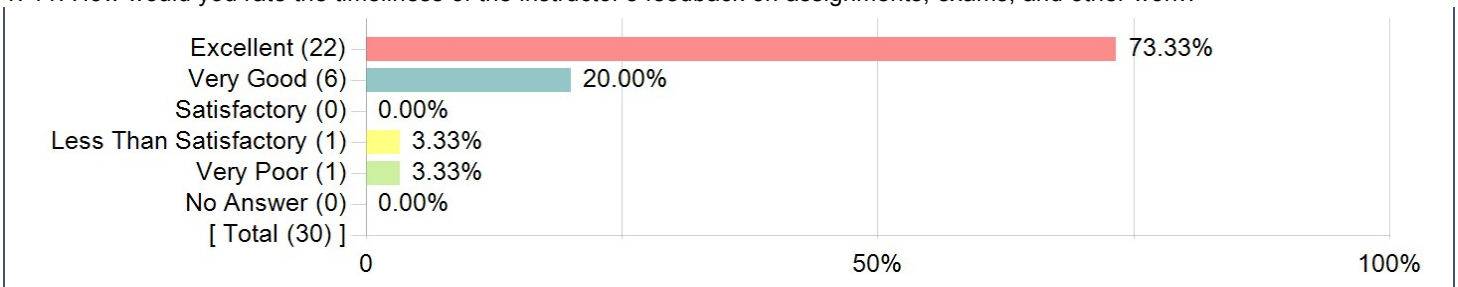



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 15 | 50.00% |
| Very Good | 4 | 10 | 33.33% |
| Satisfactory | 3 | 3 | 10.00% |
| Less Than Satisfactory | 2 | 1 | 3.33% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.23 |
| Standard Deviation | 1.01 |

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

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




| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 22 | 73.33% |
| Very Good | 4 | 6 | 20.00% |
| Satisfactory | 3 | 0 | 0.00% |
| Less Than Satisfactory | 2 | 1 | 3.33% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.57 |
| Standard Deviation | 0.94 |

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

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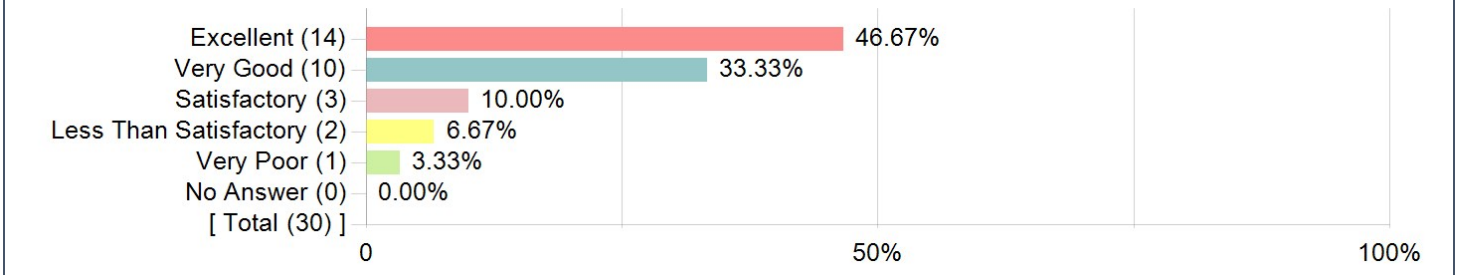
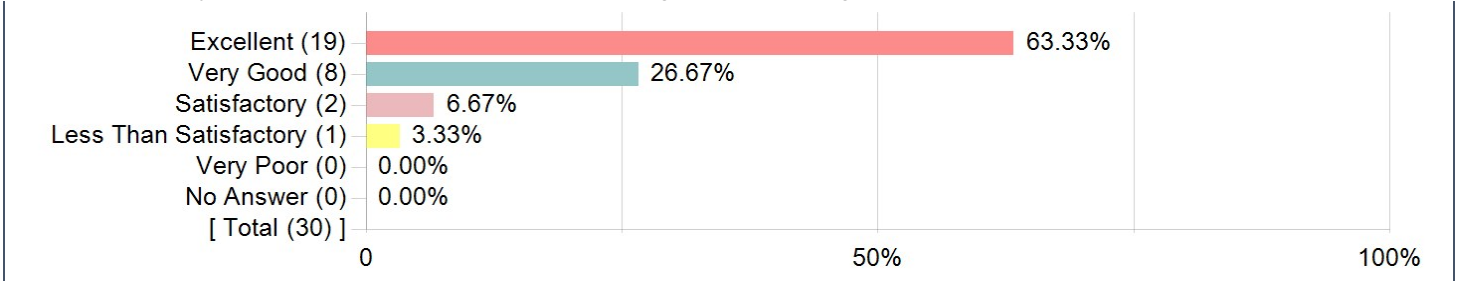



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 14 | 46.67% |
| Very Good | 4 | 10 | 33.33% |
| Satisfactory | 3 | 3 | 10.00% |
| Less Than Satisfactory | 2 | 2 | 6.67% |
| Very Poor | 1 | 1 | 3.33% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.13 |
| Standard Deviation | 1.07 |

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

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

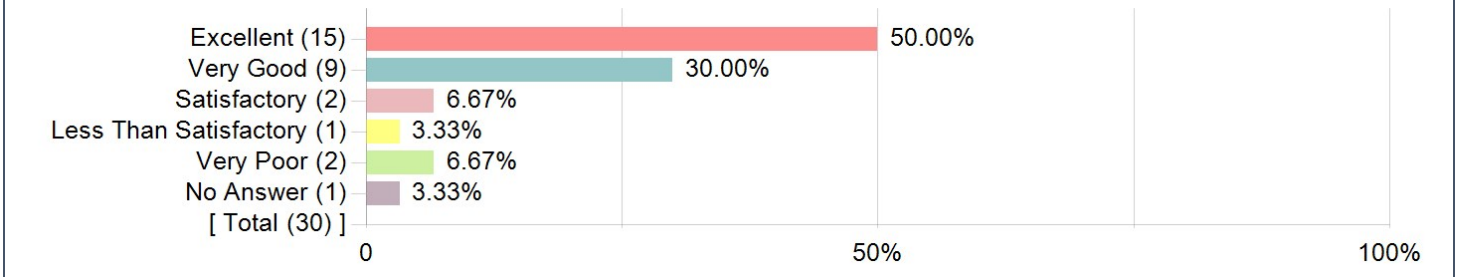



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 19 | 63.33% |
| Very Good | 4 | 8 | 26.67% |
| Satisfactory | 3 | 2 | 6.67% |
| Less Than Satisfactory | 2 | 1 | 3.33% |
| Very Poor | 1 | 0 | 0.00% |
| No Answer | NRP | 0 | 0.00% |

| Statistics | Value |
|---|---|
| Mean | 4.50 |
| Standard Deviation | 0.78 |

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

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

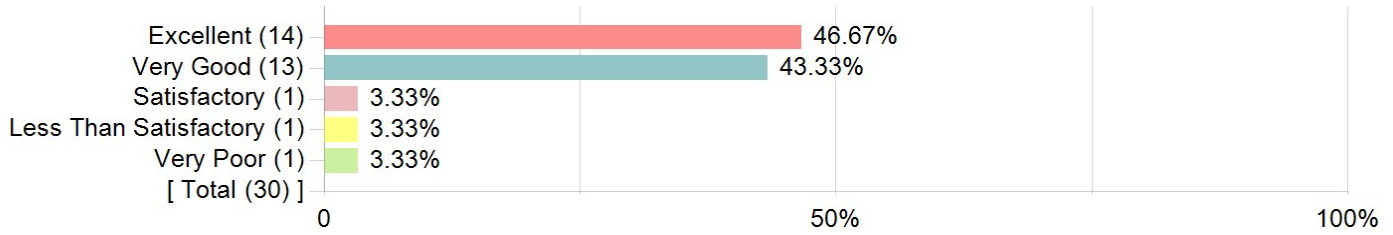



| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 15 | 50.00% |
| Very Good | 4 | 9 | 30.00% |
| Satisfactory | 3 | 2 | 6.67% |
| Less Than Satisfactory | 2 | 1 | 3.33% |
| Very Poor | 1 | 2 | 6.67% |
| No Answer | NRP | 1 | 3.33% |

| Statistics | Value |
|---|---|
| Mean | 4.17 |
| Standard Deviation | 1.17 |

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

1. 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 | 14 | 46.67% |
| Very Good | 4 | 13 | 43.33% |
| Satisfactory | 3 | 1 | 3.33% |
| Less Than Satisfactory | 2 | 1 | 3.33% |
| Very Poor | 1 | 1 | 3.33% |

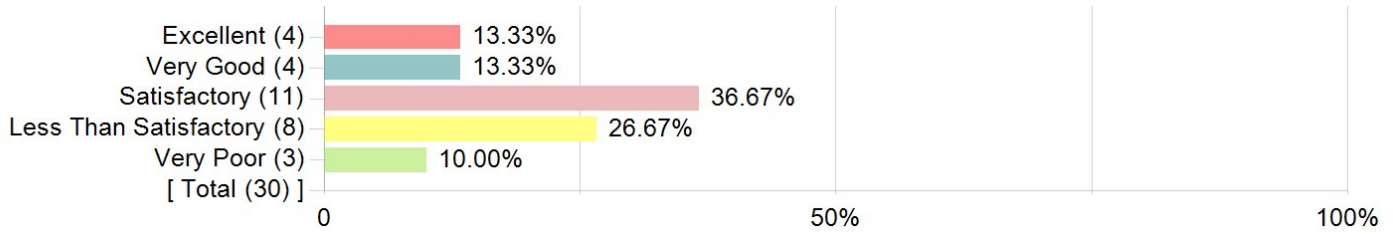
| Statistics | Value |
|---|---|
| Mean | 4.27 |
| Standard Deviation | 0.94 |

## 16. Please provide any additional comments regarding the instructor.

| Comments |
|---|
| As stated above, if at all possible to not teach directly from the textbook, that might be good. Given deficiencies in the textbook explanations, I did not feel adequately prepared to complete homework and thus was unprepared to study for exams. Had to search out supplementary resources online. |
| Classes were very well–organized. Lectures flowed very well, from theorem, to examples, definitions, etc. Course content was covered thoroughly, but he also left adequate time for questions and answered them well. |
| Master of his material, but forced to teach in a way that he seems uncomfortable with because departmental standards require he teach exactly what our textbook teaches: unintuitive, inhale/regurgitate method–style learning with lax, hand–waving proofs. |
| Thanks for a great semester. |

## 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.)?




| Options | Score | Count | Percentage |
|---|---|---|---|
| Excellent | 5 | 4 | 13.33% |
| Very Good | 4 | 4 | 13.33% |
| Satisfactory | 3 | 11 | 36.67% |
| Less Than Satisfactory | 2 | 8 | 26.67% |
| Very Poor | 1 | 3 | 10.00% |

| Statistics | Value |
|---|---|
| Mean | 2.93 |
| Standard Deviation | 1.17 |