# Northwestern

# Individual Report for MATH\_290-2\_41: MENU Linear Alg/Multivar Calc (Apurva Nakade)

Project Title: Course and Teacher Evaluations CTEC Winter 2023

Courses Audience: 24
Responses Received: 18
Response Ratio: 75.0%

#### **Report Comments**

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Creation Date: Tuesday, March 21, 2023

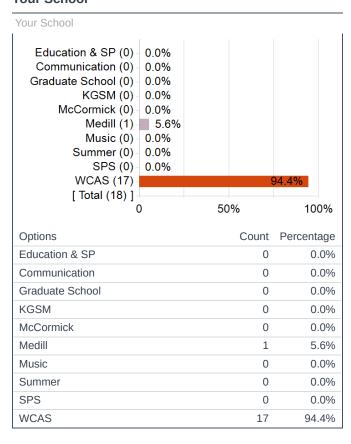
## **Northwestern University**

## **Course Evaluations**

| Instructor    | Course                                       |
|---------------|----------------------------------------------|
| Apurva Nakade | MATH_290-2_41: MENU Linear Alg/Multivar Calc |

## **DEMOGRAPHICS**

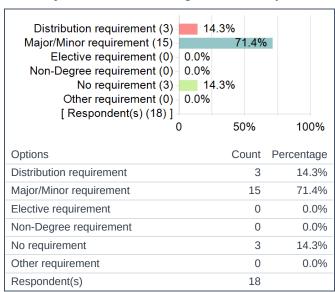
#### **Your School**



#### **Your Class**

| Your Class                                                                                |      |     |       |            |
|-------------------------------------------------------------------------------------------|------|-----|-------|------------|
| Freshman (18) Sophomore (0) Junior (0) Senior (0) Graduate (0) Professional (0) Other (0) | 0.0% |     |       | 100.0%     |
| [ Total (18) ] -                                                                          | )    | 50% |       | 100%       |
| Options                                                                                   |      |     | Count | Percentage |
| Freshman                                                                                  |      |     | 18    | 100.0%     |
| Sophomore                                                                                 |      |     | 0     | 0.0%       |
| Junior                                                                                    |      |     | 0     | 0.0%       |
| Senior                                                                                    |      |     | 0     | 0.0%       |
| Graduate                                                                                  |      |     | 0     | 0.0%       |
| Professional                                                                              |      |     | 0     | 0.0%       |
| Other                                                                                     |      |     | 0     | 0.0%       |

## What is your reason for taking the course? (mark all that apply)



## What was your Interest in this subject before taking the course?

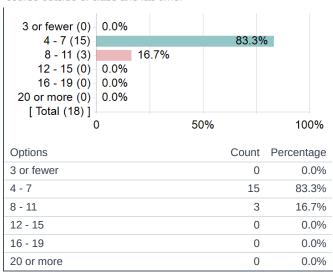
What was your interest in this subject before taking the course?

| What was your interest in this si                                                             | abject before to               | aking the  | course:    |
|-----------------------------------------------------------------------------------------------|--------------------------------|------------|------------|
| 1-Not interested at all (0)<br>2 (0)<br>3 (2)<br>4 (2)<br>5 (9)<br>6-Extremely interested (5) | 0.0%<br>0.0%<br>11.1%<br>11.1% | 50.0%<br>% |            |
| [ Total (18) ]                                                                                | ) 5                            | 0%         | 100%       |
|                                                                                               | , ,                            | 0 70       | 10070      |
| Options                                                                                       |                                | Count      | Percentage |
| 1-Not interested at all                                                                       |                                | 0          | 0.0%       |
| 2                                                                                             |                                | 0          | 0.0%       |
| 3                                                                                             |                                | 2          | 11.1%      |
| 4                                                                                             |                                | 2          | 11.1%      |
| 5                                                                                             |                                | 9          | 50.0%      |
| 3                                                                                             |                                |            |            |

## **TIME-SURVEY QUESTION**

Estimate the average number of hours per week you spent on this course outside of class and lab time.

Estimate the average number of hours per week you spent on this course outside of class and lab time.



# **COURSE QUESTIONS**

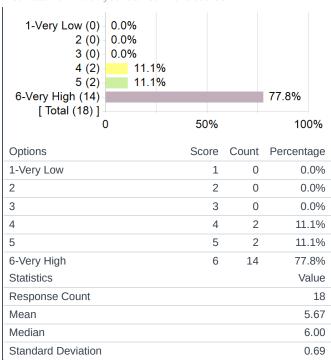
## Provide an overall rating of the course.

Provide an overall rating of the course.

| Provide an overall r                                                                                | alling of the | e course. |              |         |            |
|-----------------------------------------------------------------------------------------------------|---------------|-----------|--------------|---------|------------|
| 1-Very Low (0) -<br>2 (0) -<br>3 (0) -<br>4 (1) -<br>5 (8) -<br>6-Very High (9) -<br>[ Total (18) ] |               |           | 44.4%<br>50. | %<br>0% | 100%       |
| Options                                                                                             |               | S         | core         | Count   | Percentage |
| 1-Very Low                                                                                          |               |           | 1            | 0       | 0.0%       |
| 2                                                                                                   |               |           | 2            | 0       | 0.0%       |
| 3                                                                                                   |               |           | 3            | 0       | 0.0%       |
| 4                                                                                                   |               |           | 4            | 1       | 5.6%       |
| 5                                                                                                   |               |           | 5            | 8       | 44.4%      |
| 6-Very High                                                                                         |               |           | 6            | 9       | 50.0%      |
| Statistics                                                                                          |               |           |              |         | Value      |
| Response Count                                                                                      |               |           |              |         | 18         |
| Mean                                                                                                |               |           |              |         | 5.44       |
| Median                                                                                              |               |           |              |         | 5.50       |
| Standard Deviation                                                                                  | า             |           |              |         | 0.62       |

## Estimate how much you learned in the course.

Estimate how much you learned in the course.



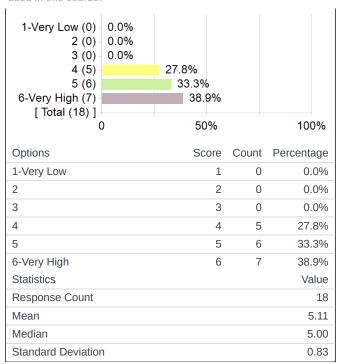
## Rate the effectiveness of the course in challenging you intellectually.

Rate the effectiveness of the course in challenging you intellectually.

| I                                                                      |  |     |     |    |       |      |        |
|------------------------------------------------------------------------|--|-----|-----|----|-------|------|--------|
| 1-Very Low (0) 2 (0) 3 (0) 4 (3) 5 (3) 6-Very High (12) [ Total (18) ] |  | .7% | 50  | 1% | 66    | .7%  | 100%   |
|                                                                        |  |     |     |    |       |      |        |
| Options                                                                |  |     | Sco | re | Count | Perc | entage |
| 1-Very Low                                                             |  |     |     | 1  | 0     |      | 0.0%   |
| 2                                                                      |  |     |     | 2  | 0     |      | 0.0%   |
| 3                                                                      |  |     |     | 3  | 0     |      | 0.0%   |
| 4                                                                      |  |     |     | 4  | 3     |      | 16.7%  |
| 5                                                                      |  |     |     | 5  | 3     |      | 16.7%  |
| 6-Very High                                                            |  |     |     | 6  | 12    |      | 66.7%  |
| Statistics                                                             |  |     |     |    |       |      | Value  |
| Response Count                                                         |  |     |     |    |       |      | 18     |
| Mean                                                                   |  |     |     |    |       |      | 5.50   |
| Median                                                                 |  |     |     |    |       |      | 6.00   |
| Standard Deviation                                                     |  |     |     |    |       |      | 0.79   |

#### Rate the instructional materials (texts, audiovisual materials, etc.) used in this course.

Rate the instructional materials (texts, audiovisual materials, etc.) used in this course.



# **INSTRUCTOR QUESTIONS**

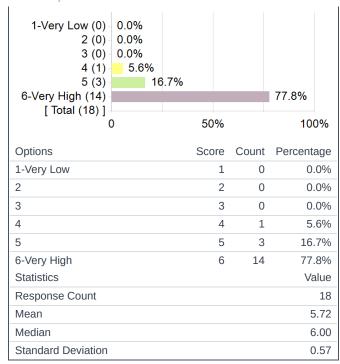
## Provide an overall rating of the instruction.

Provide an overall rating of the instruction.

| rioviue ali overali la                                        | ang or are                           | 1113010001011. |    |       |            |
|---------------------------------------------------------------|--------------------------------------|----------------|----|-------|------------|
| 3 (0)<br>4 (0)<br>5 (2)<br>6-Very High (16)<br>[ Total (18) ] | 0.0%<br>0.0%<br>0.0%<br>0.0%<br>11.1 | %<br>50        | %  | 88.   | 9%         |
| Options                                                       |                                      | Sco            | re | Count | Percentage |
| 1-Very Low                                                    |                                      |                | 1  | 0     | 0.0%       |
| 2                                                             |                                      |                | 2  | 0     | 0.0%       |
| 3                                                             |                                      |                | 3  | 0     | 0.0%       |
| 4                                                             |                                      |                | 4  | 0     | 0.0%       |
| 5                                                             |                                      |                | 5  | 2     | 11.1%      |
| 6-Very High                                                   |                                      |                | 6  | 16    | 88.9%      |
| Statistics                                                    |                                      |                |    |       | Value      |
| Response Count                                                |                                      |                |    |       | 18         |
| Mean                                                          |                                      |                |    |       | 5.89       |
| Median                                                        |                                      |                |    |       | 6.00       |
| Standard Deviation                                            |                                      |                |    |       | 0.32       |

## Rate the effectiveness of the instructor in stimulating your interest in the subject.

Rate the effectiveness of the instructor in stimulating your interest in the subject.



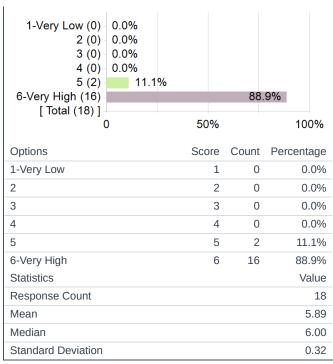
## Rate how well prepared the instructor was for the class.

Rate how well prepared the instructor was for the class.

| 1-Very Low (0) - 2 (0) - 3 (0) - 4 (0) - | 0.0%<br>0.0% |   | 101   |       |            |
|------------------------------------------|--------------|---|-------|-------|------------|
| 5 (2) -<br>6-Very High (16) -            | 11.1         | % |       | ΩΩ    | 9%         |
| [ Total (18) ]                           |              |   |       | 00.   | 970        |
| [ [ ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (  | )            |   | 50%   |       | 100%       |
| Options                                  |              |   | Score | Count | Percentage |
| 1-Very Low                               |              |   | 1     | 0     | 0.0%       |
| 2                                        |              |   | 2     | 0     | 0.0%       |
| 3                                        |              |   | 3     | 0     | 0.0%       |
| 4                                        |              |   | 4     | 0     | 0.0%       |
| 5                                        |              |   | 5     | 2     | 11.1%      |
| 6-Very High                              |              |   | 6     | 16    | 88.9%      |
| Statistics                               |              |   |       |       | Value      |
| Response Count                           |              |   |       |       | 18         |
| Mean                                     |              |   |       |       | 5.89       |
| Median                                   |              |   |       |       | 6.00       |
| Standard Deviation                       |              |   |       |       | 0.32       |

#### Rate the effectiveness with which the instructor communicated course content and ideas.

Rate the effectiveness with which the instructor communicated course content and ideas.



# Rate the instructor's enthusiasm in teaching this class.

Rate the instructor's enthusiasm in teaching this class.

| Rate the instructors                   | Cittinasi | CCO11 |      | acrin | .9 | 110 01000 |            |
|----------------------------------------|-----------|-------|------|-------|----|-----------|------------|
| 1-Very Low (0) - 2 (0) - 3 (0) - 4 (0) | 0.0%      |       |      |       |    |           |            |
| 5 (3) -                                |           | 16    | 5.7% |       |    | 02.20     | ,          |
| 6-Very High (15) -<br>[ Total (18) ] - |           |       |      |       |    | 83.39     | 0          |
|                                        | )         |       |      | 50    | %  |           | 100%       |
| Options                                |           |       |      | Sco   | re | Count     | Percentage |
| 1-Very Low                             |           |       |      |       | 1  | 0         | 0.0%       |
| 2                                      |           |       |      |       | 2  | 0         | 0.0%       |
| 3                                      |           |       |      |       | 3  | 0         | 0.0%       |
| 4                                      |           |       |      |       | 4  | 0         | 0.0%       |
| 5                                      |           |       |      |       | 5  | 3         | 16.7%      |
| 6-Very High                            |           |       |      |       | 6  | 15        | 83.3%      |
| Statistics                             |           |       |      |       |    |           | Value      |
| Response Count                         |           |       |      |       |    |           | 18         |
| Mean                                   |           |       |      |       |    |           | 5.83       |
| Median                                 |           |       |      |       |    |           | 6.00       |
| Standard Deviation                     |           |       |      |       |    |           | 0.38       |

## Rate the usefulness of discussion sections.

Rate the usefulness of discussion sections.

| rate the usefullies:                                                                    | 5 01 010000          | 01011 001 | 201101            |       |            |
|-----------------------------------------------------------------------------------------|----------------------|-----------|-------------------|-------|------------|
| 1-Very Low (1)<br>2 (0)<br>3 (1)<br>4 (3)<br>5 (6)<br>6-Very High (4)<br>[ Total (15) ] | 6.7%<br>0.0%<br>6.7% | 20.0%     | 40.0%<br>%<br>50% |       | 100%       |
| Options                                                                                 |                      |           | Score             | Count | Percentage |
| 1-Very Low                                                                              |                      |           | 1                 | 1     | 6.7%       |
| 2                                                                                       |                      |           | 2                 | 0     | 0.0%       |
| 3                                                                                       |                      |           | 3                 | 1     | 6.7%       |
| 4                                                                                       |                      |           | 4                 | 3     | 20.0%      |
| 5                                                                                       |                      |           | 5                 | 6     | 40.0%      |
| 6-Very High                                                                             |                      |           | 6                 | 4     | 26.7%      |
| Statistics                                                                              |                      |           |                   |       | Value      |
| Response Count                                                                          |                      |           |                   |       | 15         |
| Mean                                                                                    |                      |           |                   |       | 4.67       |
| Median                                                                                  |                      |           |                   |       | 5.00       |
| Standard Deviation                                                                      | 1                    |           |                   |       | 1.35       |

#### **OPEN-ENDED QUESTIONS**

#### Did the course help you learn? Why or why not?

#### Comments

The organization of this class was really helpful for my learning. I really appreciate the organization of the notes, as well as the challenging materials given to us in discussion.

Yes, Apurva is a great professor and the way the class was taught worked veyr well

Yes, Apurva was a very good teacher at making things clear and easy to follow, and a very chill person overall. I mostly learned things in the first half though since I have already taken Mulitvariable and nothing in the second half was new to me.

Yes the lectures taught me everything I needed to know and the homework helped me apply what I learned

Yeah, it delivers what it says it's going to deliver. The teaching was very clear, so you don't have to do much learning outside of class.

This course always continues to push me and mold me into a student I don't recognize. I feel like I definitely understand things a lot faster and better because of the complicated critical thinking skills this class requires. It's so much fun to solve problems with your colleagues, and so satisfying getting long questions right. Everyone is so collaborative, because we're all suffering together lol, but that makes it so everyone is basically friends with each other. Very fun class can't wait to continue in the Spring.

Yes. Very clear notes, very good and logical lectures with in-depth explanations, great homework assignments that give opportunities to familiarize with the concepts.

Yes! Apurva is a great instructor, and after 290-1 I feel better prepared and more confident in my math abilities.

Yes, this course was very engaging and went in depth on math concepts that I had not learned before. I feel that I have learned a lot in this course.

The course helped me learn, as it was engaging and intellectually challenging.

#### Please summarize your reaction to this course focusing on the aspects that were most important to you.

#### Comments

If you take this class, make sure to take it with Apurva because his organization is super helpful! The notes are easy to follow, and office hours are great for getting help on homework and discussion problems. I would recommend going to office hours especially in the last few weeks, as the material can get more difficult.

Weekly quizzes were replaced with weekly discussions which helped lock in the material better. Apurva is still a great professor. The hardest part of this quarter was definitely finishing linear algebra; the exam questions for Multivariable were in general easier and had less concept—based questions and more computations which were generally not too difficult. Although multivariable was tough to understand at the very beginning, it became easier by the end of the quarter.

Take this. You learn the most important parts of linear algebra, and the Multivariable section is easier in comparison. 290 is hard as you already know, but you got his. Do it. And if you get Apurva, he's literally the goat.

Apurva is great! The midterms and finals can be challenging so make sure to take time to study. Same deal as 290-1, however.

I personally prefer linear algebra to calculus, but at least this class struck a good balance between giving an intuition for all the math while not getting bogged down in details that, at this stage, are really not as important.

Apurva is a great teacher—always willing to help. I love the format of the notes—everything from theorems to examples is published on the OneNote page. It allows me to catch up on notes if I don't finish them during class and check if my notes are correct as well. I love Linear Algebra, so I enjoyed the first half of the course, but Multivariable Calculus was difficult for me.

Basically the same as the previous segment of the sequence. The midterms felt a little harder and definitely different than 290–1, but no other major changes.

Great class. Professor is excellent, and work is challenging, yet rewarding.

This class has been one of the best things I've done at NU so far. It has changed me into a better student and I'm so grateful to Apurva for being a great mentor, and genuinely just a fun guy to be around. I always go to office hours, not because I need help all the time, which actually I kinda do, but because it's so much fun to see Apurva and your friends as you all solve problems together. Apurva always preaches that he loves group learning, and honestly this ideology has molded me into a more mature individual. I'm very grateful and I genuinely love the class.

Great professor. Very nice and chill and also super knowledgeable. Makes very clear explanations about the concepts and can answer questions with clarity and specificity. Class is not terribly difficult if you put in time, just make sure you conceptually understand.

I really enjoyed 290–2! We finish linear algebra in the first half of the quarter and start MVC in the second half, so the second midterm will be a lot easier. The transition is also very smooth, since some of the concepts connect. Apurva is great; he explains concepts in a straightforward, clear manner, which is important for a high–level class like MENU. There's also less people in 290–2 since some people dropped MENU after 290–1, which makes it easier to get to know people.

If you like math and are thinking of dropping MENU after 290–1, I would advise against it: 290–1 really psyched me out because it was my first college math class and people kept telling me it was very difficult to do well. Once I calmed myself down in 290–2, I realized how doable MENU is. If you pay attention in lecture and can understand the example problems, you'll be fine:)

This was a great class to take to continue in the 290 sequence. Personally I found this quarter to be easier than the first, but it's still challenging. It goes in depth on the end of linear algebra and then introduces multivariable calc in the second half. Apurva is a fantastic professor with very organized notes, and he will always help you understand the concepts if you go to his office hours. One homework a week, with a discussion sheet also due each week. The class has two midterms and a final. Even if you felt a little weary about the first quarter of 290, take this class, as it does get slightly easier.

Apurva is the best! He really cares about the students and makes sure that they understand each topic before moving on.

If you took 290–1 with Apurva, it's easy to continue 290–2 when you're comfortable with the style and pace of the MENU sequence. (Strongly recommend going to his office hours for homework help!) The main difference is the curriculum structure, which I'll go more in–depth below:

I didn't realize that this course would continue with 290–1 linear algebra before moving onto multivariable calculus, so I wasn't expecting the revisit last quarter's with a greater complexity. This part of the course is manageable if you have a strong foundation of linear algebra from 290–1. The transition from linear algebra to multivariable calc topics is well–structured and very smooth, and it helped me understand the connection between these two subjects. When learning multivariable calc, I found the introductory concepts to be quite intuitive and easy to visualize in comparison to linear algebra's introductory concepts, likely because I found it easier to learn math after taking 290–1. Unlike linear algebra, this quarter touched upon very complex concepts that moves far beyond the scope of multivariable calc, so the professor couldn't explain the reasoning and logic too in–depth—you just need to understand basic examples of these topics for the exams.

Classes were engaging, and the teacher always tried to have you figure it out by yourself, without handholding your way to the answer. Some people may find it frustrating, but I personally liked his teaching style. Every week, we had discussion assignments that would be graded, but you could work together in groups, so it made the intensity harder, and you could go home and check your work as well. The class, conceptually, can be challenging, but the professor and the class structure gives you a lot of ways to deal with the challenge.

#### What are the primary teaching strengths of the instructor?

Comments

- Organized notes are easy to follow
- Very helpful office hours
- Helpful lectures

good explainer and lecturer, very chill and easy to learn from

Making things clear and concise while also being nice, funny, and approachable.

Lecturing and helping with questions and understanding

A good explainer, comes to class well prepared, lectures fit the schedule exactly, no surprises.

I'm so grateful for Apurva. He is a great teacher and just a fun individual to be around. He challenges us, but his teaching alone has made me improve so much in the way I think and problem solve. I realize how much of an affect he had on me now, but his teaching style, his genuine care for his students, and his immense and insane knowledge on math makes the class so much fun and definitely worthwhile.

Very good at explanations, very passionate and knowledgeable about math, very good at answering student questions.

Organized notes; succinct and straightforward explanations; exam, HW, discussion, and example problems are consistent.

He has very organized notes and explains everything very clearly. He does a good job of explaining topics and answering questions whenever you have trouble understanding a topic.

He had very organized notes and lectures, and gave practice problems in class to help understand the content.

## What are the primary weaknesses, if any, of the instruction?

| Comments                                                       |
|----------------------------------------------------------------|
| one                                                            |
| lone. Flawless man.                                            |
| lot providing examples for some ideas we learned in class      |
| Ionestly, I can't think of any significant weaknesses.         |
| lone                                                           |
| lone.                                                          |
| IA .                                                           |
| lone                                                           |
| I/A, felt like the professor was a strong and clear instructor |

#### Can you offer suggestions for improvement?

| ,                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Comments                                                                                                                                                                   |
| none                                                                                                                                                                       |
| Making sure that he goes through an example for every type of problem and making sure the examples aren't too complicated                                                  |
| None, Apurva is doing great to constantly ask us for feedback and do what he can to improve the class however that may be. Just a great instructor! The best I've had yet! |
| None that I can think of off the top of my head.                                                                                                                           |
| NA NA                                                                                                                                                                      |
| None                                                                                                                                                                       |
|                                                                                                                                                                            |

#### Suggest improvements to discussion sections.

Comments

Some of the discussions seemed like they were graded a little toughly but I think they were useful.

These aren't actually "discussions". They are just opportunities to give more work. The idea of having worksheets is way better than quizzes, but sometimes the worksheets were more work than the homework because the questions would involve crazy casework or nasty arithmetic with sin/cos functions. Maybe make them easier and gear the discussion section more towards discussing what was learned and how to apply them in the problems rather than just having students work on their own and be clueless in groups.

At the end of the quarter, the assignments for discussion sections took longer than the 50 minutes allotted.

I thought it was nice that we all got to solve problems together. It helped me look into the way others solve problems, and gave me insights on how to do things faster and more efficiently.

The new style is much better than the quizzes.

I like the group discussions way better than the quizzes! It gives me a chance to actually work on mastering the content without the pressure of getting a good grade.

None

Difficulty of worksheet varied strongly from week to week.