

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I reviewed my theorems/definitions, learned from the lecture examples, completed my homework, and prepared with practice exams.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

The instructor's teaching style was engaging, making even complex concepts accessible. His enthusiasm for the subject matter was infectious, encouraging me to engage with the material actively.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I have developed a working knowledge of supremum and infimums, sequences and series, continuity, differentiability, and power series.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The pace was good. Expectations were always evident. The professor was accommodating with assignment deadlines.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

The instructor is passionate about the material and engages students with questions and ideas. The class is inclusive; the professor continuously checks for questions during the lectures.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **sometimes**

Attend class: **always**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I thought going to office hours was extremely effective for my learning. I also liked the theorem definition sheets to make me review my notes. I also thought the Desmos interactive graphs were extremely helpful!

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado has always been my number one example of a professor at Amherst that has changed my intellectual interests. His enthusiasm in class has made me so excited to call myself a math major. He is amazing at motivating abstract concepts in class. Despite many people preferring groups to analysis, I found that I really enjoyed the nitty-gritty aspects of analysis because he is able to motivate the material so well. He really inspired me to pursue math and to strongly consider doing a math thesis my senior year.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

The most significant skill I learned was improving my proof writing abilities and learning about how to structure analysis proofs. Analysis is the foundation of a lot of math, and I had been previously exposed to it, but it was great learning about how to define intuitive things rigorously. What was especially helpful was learning how to work backwards in proofs.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

I really liked Professor Alvarado's fast paced lectures and excited tone of voice. I liked how fast things went and how clearly he structured his lectures. I also appreciated the online course notebook for when I wanted to check my notes with his. Another thing I really enjoyed was how I was challenged in the homework sets, but the exam problems were significantly easier and caused me much less stress compared to exams in other courses. I thought I was able to demonstrate my knowledge without causing excess stress in my life. I think the expectations of the course were very clearly communicated through the syllabus and in class. I never felt like I was surprised by the exams or homework which was great.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado creates one of the most welcoming environments on campus in his classes and office hours. He truly makes an effort to connect with every student, even quieter ones, and he makes sure to get to everyone's question in office hours. Additionally, he engages very well with student questions during and after class. If I wanted to get more information about a particular topic, he was happy to engage with me. I also liked how he adjusted his office hours according to our availability in the beginning of the semester, so I was always able to find time to meet with him when necessary. He also responds to email very promptly. I thought the learning

environment was very inclusive and encouraging. The feedback I received on my exams was very helpful. Although I do feel like I deserved half a point more on one of my exams, it ultimately doesn't matter because he always gives generous partial credit and really tries to reward an attempt at understanding over getting the correct answer which I greatly appreciate. I also like how thorough he is in his homework solutions because learning about rigor is an important part of the course.

Additional comments.

I loved this class and Professor Alvarado!

**Course Evaluation Form
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1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

For me, Alvarado's teaching structure is very good for me to learn the material, to the point where I need minimal extra effort from the class assignments to understand the material and do well. The homework exercises are great practice and lets you fully grasp the concepts, and reviewing all definitions and theorems in the weekly thm/def sheet works well to remember all of these concepts. These sheets are great for preparing for the exam when I will reread them or study the theorems needed and simply review other hard homework problems and that does enough for me to learn all the concepts and perform well.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

I really like the way that Prof. Alvarado gets you thinking in class. He makes great examples with the application Desmos, in order for us to see and understand visually every concept and grasp intuition. Additionally, he always provides comments, to restate what certain statements mean or what you can do with them, so I feel that by noting all of these quircks, not only have I gotten better understanding but also a better intuition of why things in maths work the way they work and more ease in finding creative or imaginative solutions that would otherwise be hard to find. He makes the next concepts seem exciting and makes me want to learn more in other courses as well.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I definitely have a better understanding on why calculus works the way it works, and all of these tedious things that they would talk about in high school like (is the function continuous, differentiable, compact sets) now seem more in context and I see what they are important or why they are there. So that notion was clarified, and also the great connection there is between sequences and calculus which I never saw until this course.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The pace is a bit fast but it is expected for a 300 level class, I still wish we had maybe a couple more lectures to do some proofs we omitted in class or to talk more about power series or do chapter eight on the book, but all of the main things in the calculus stories were covered well and thoroughly in this time. As said before, the information is presented very clearly, with plenty of examples and comments to help with understanding and intuition. I talked about assignments and activities in a previous question but my learning has been greatly improved because of them.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

The instructor is very nice, he is funny in class, definitely inclusive, calls out on students to participate if they do want to or lets them choose numbers for the problems. All questions are

answered clearly with other examples or comments. The environment both in class and his office hours is very inclusive and fun, and these help a lot when trying to finish and understand the assignment.

Additional comments.

He is my favorite prof!!

**Course Evaluation Form
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Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Office hours are by far the best part of this course and what improved my learning the most. Of all of my math course office hours for the past two years, Professor Alvarado's are the most engaging, helpful, and amazing. He is ready to break down any little thing that a student doesn't understand, and he will not move on until he knows that a student understands everything. He will think of new ways of approaching a question if one way isn't sinking into a student, and it makes learning in his class that much more effective. In class, he uses many real-life ways of explaining different ideas so we can have a better understanding; for example, he used the way a feather falls to describe a core idea.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

This class has furthered my understanding of higher-level math much further than any other math class. I am able to walk away from this class knowing that I understand every aspect of what we learned and feel mostly confident in my ability to explain ideas to others. I am now starting to think about writing a thesis, and he has been great in explaining to me the different types of analysis-based thesis I could do.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

My ability to approach proofs and do them successfully is so much better after this class. We truly spend so much time writing and breaking down different proofs that I now know how to approach solving a proof and, when I am stuck, how to think of a way out of it creatively.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

We cover a lot of information for one semester, so it definitely can be overwhelming, but Alvarado does the best that he can to slow down on hard topics, leave time for questions, and ask us questions as well, so it isn't just passive learning. Truly, his willingness to be there for any student and answer any questions just makes learning in his class so much more attainable.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

As talked about before, Professor Alvarado creates an environment that allows students to feel comfortable with their lack of understanding of a topic and an environment that also allows students to work with each other. Not only are his office hours great because he can break down things in such an easy way to understand them, but he also pushes us to use our classmates as resources as well.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **often**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Attending all lectures, reading over notes and making flashcards after each lecture, attending office hours,

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

I like that we start from the very foundations of number systems, and begin to understand and prove one by one, the theorems and propositions we have taken for granted in previous calculus classes.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I learned about tools used in analysis and how to use them to solve problems, and provide clear, rigorous proofs. I learned to understand things conceptually, through analogies or pictures, while keeping in mind the rigorous definitions and their details.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

I think this course could not have been taught to me in a better way. Before taking this class, I was intimidated by how difficult math355 sounded, and I questioned whether I am able to absorb so much information in so little time. But Professor Alverado helped me do it, and it is clear how much work he has put into perfecting teaching this course through the past semesters he has taught it. The course is paced well, and we know exactly where we are in the course in each lecture and we know exactly where we are headed next. Three midterms may seem like a lot, but I think the whole class agrees they are only helping us learn better (majority of us voted in favor of a third midterm). The homework were very helpful, and Professor Alverado makes sure that we have covered the material ahead of each homework, making minor adjustments to the set of questions on each when necessary. We were also given opportunities to write theorem-definition sheets each week, and they have been so helpful that I would not take another class without making them. Lastly, we were encouraged to make study plans and reflect on what we did well/not well on each midterm, which helped me tremendously in staying on track and understanding what I need to focus on.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

I attended Professor Alverado's office hours at least once a week, and they were always lively with lots of attentive students who are eager to learn. He holds office hours very skillfully too, making sure to get to each student and not spending too much time on a single student/problem.

In terms of feedback, each midterm was graded with detailed feedback for each question, and returned to us very promptly. They were helpful when I self-reflected as I understood exactly what mistakes I made.

Additional comments.

N/A

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1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Weekly theorem and definition sheets

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

The homework problems are genuinely difficult, which were very good practice. All of the material are connected with one another, so it was very important to stay on top of everything

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

Critical thinking and active recall, and understanding the behind the scenes of calculus

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

All of the lectures were super fast but explained very well. Again the problem sets were challenging but manageable, lots of resources to help.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Nothing but kindness and caring. Genuinely loves his students as much as he loves math.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
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1. How often did you:

Prepare for class: **sometimes**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **sometimes**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Being attentive in the class and taking notes. Going through the online notes that professor posted for missed classes. Putting in the work for homework assignments. Going to TA hours or talking with friends about the problems I was confused about. Reading the materials after class.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Prof. Alvarado puts a lot of effort into teaching. He prepares for the class beforehand and his class is pretty densely packed. He gives us some time to guess about the minute details of the topic before teaching, and sometimes builds some enthusiasm before the next class.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

Writing proofs more clearly. I understand the topics learned in the class.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

Everything was perfect.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Prof. Alvarado is always available. I couldn't attend many of his office hours, but I could always ask him questions. The few times I went to the office hours, he was very helpful and understanding.

Additional comments.

Great class with a great professor.

**Course Evaluation Form
Spring 2024 – MATH 355-03
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1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class:

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Reviewing my notes every week when I had to do the theorem definition sheet and really thinking through the homework (i.e. going through my solutions after writing them down) were particularly effective for improving my learning in the course.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Prof. Alvarado is a phenomenal professor. Every lecture by Prof. Alvarado exudes passion for analysis which me (and other students) absorb. The deep care for analysis and student's understanding in the course comes from Prof. Alvarado's extensive use of visualizations in class whether through images on his iPad or Desmos. Relatively often, Prof. Alvarado went beyond the required material and showed us fun facts about analysis which increased my appreciation for analysis and mathematics in general.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I developed a better ability to think rigorously. Prof. Alvarado teaches proofs in a way systematizes the thinking of your brain and makes you more logical in everything you do in life. I now write essays for humanities classes with a brain rewired for more structured and logical arguments.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The design of the course was excellent. Prof. Alvarado knows the ideal timing of everything in the course up to the exact minute while still making time for students to ask questions. Doing lectures on an iPad with an online notebook was extremely convenient. The use of different colors (around 6, the choice of which Prof. Alvarado thoroughly considered) helped solidify my understanding of class content.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

I went to Prof. Alvarado's office hours very often. He was very helpful in office hours with helping students understand the concepts discussed in class and questions on the homework. Prof. Alvarado was engaged with student questions during classes and always stopped for 5-10 seconds so students could ask questions. I felt included in both the class and office hours. Professor Alvarado was also readily available by email.

Additional comments.

Professor Alvarado is one of the best professors I've had during my time at Amherst. He deserves tenure.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **often**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I went to office hours and TA hours multiple times per week to tackle difficult problems that we had assigned on the homework. If I couldn't make those hours, I would go to Q-fellow hours with Min or set up individual appointments with them to get assignments done/understand the material in class.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

The homework problems were a lot harder than our exam problems so we did all the hard work to understand the underlying conceptual principles of the materials. When we got to the exams, the questions seemed pretty flexible to work with and I felt comfortable with the material after the hard workout problems we did on homework.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I learned how to think across my classes and build upon what I once learned back in Calc I & II. This helped me think about concepts in deeper aspects and also understand my proofs deeper as well.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

Sometimes class lectures were really fast pace but if I didn't understand I would just go to office hours and catch up to the lecture I didn't understand. I loved that professor Alvarado was always willing to give us extensions and meet with us outside of class.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado is one of the most comforting professors on campus. He is always putting our wellness first and checking if we are able to get our assignments done. He encourages us to think critically but doesn't push us too far that we won't get any progress made on our homework, it's just the right amount.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **rarely**

Attend class: **always**

Participate in class: **rarely**

Complete assignments: **always**

Meet with professor(s) outside of class: **rarely**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Do the homework and prepare for the exam.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Some proofs of the theorems were intellectually challenging

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

Proof writing.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The course design was well organized. The expectation and pace were also fair. Professor is also extremely good at explaining mathematical concepts in a way that students can easily understand and apply. It was my ideal college math course.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor is extremely friendly and approachable. He is definitely one of the most approachable professors on this campus.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Starting the homework early gave me ample time to work through the challenging questions and digest the main concepts in this course. Attending office hours regularly also helped me immensely. I was able to ask questions and clarify any misunderstandings.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado is possibly the best professor I've ever had. He is kind, caring, and extremely enthusiastic about the subject matter. Because of Professor Alvarado's teaching, I found myself thinking beyond the mathematical concepts. I developed my critical thinking skills through interrogating every topic we encountered until I had a complete understanding. Professor Alvarado's teaching style, personality, and class organization made me excited to come to class each day. Not only do I feel like I have a very strong understanding of analysis because of Professor Alvarado, but I've become more enthusiastic about math in general because of this class.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I further developed my proof writing skills in this course. In doing so, I've also become a better communicator and analytical thinker. I've also learned how to bridge connections between various mathematical concepts. I now believe I have a much more rigorous understanding of calculus.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

I believe the overall design of this course was very effective. Having problem sets due each week challenged me to engage deeply with the concepts we were learning about each week. I also think the spacing of the exams worked well. Lastly, I think the lecture-based style of this class is very effective.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

I will never forget when, upon telling Professor him I was confused about a homework question and unable to make office hours, Professor Alvarado immediately scheduled a Zoom call during a time we were both free to answer my questions. This is just one example of Professor Alvarado's outstanding commitment to student learning. He works hard to make a connection with each student in his class, creating a welcoming and inclusive learning environment in the process. He is also readily available outside of class to answer questions and returned all exams in a timely manner.

Additional comments.

N/A

Course Evaluation Form
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1. How often did you:

Prepare for class: **often**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Theorem and Definition Sheets were key– they documented all of my "tools" that I could use on problem sets and were great study sheets for the exams. I also read the textbook outside of class, learning about open covers even when they weren't explicitly taught in class.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Prof. Alvarado knows how to tell a story. From the first lecture, he made it clear that the goal of the course was to prove the Fundamental Theorem of Calculus. From the Axiom of Completeness all the way to the Riemann Integral, the journey was long and arduous. But by the end of the class, I felt as if I had pushed past challenge after challenge to reach this wonderful final ending. This framing of the course was brilliant in keeping me motivated.

Never does Prof. Alvarado say that the class is easy. However, he inspired me to work harder than I ever had for a math class before. He knew that if I (and any of my classmates) kept working, we would eventually understand. He drilled into us that, yes, Math 355 is challenging, but it is not beyond anyone that is taking it. That "grind" mentality made me feel united with my class, and I enjoyed the community that developed as a result.

For the final lecture, Prof. Alvarado finally proved 355's raison d'être: the Fundamental Theorem of Calculus. At the end of the lecture, the entire class burst into applause. He capped off the great tale of this class by emphasizing that all of the theorem we uncovered were a result of "people asking why?" Though much of the math we do seems very abstract and detached from real life, Prof. Alvarado wanted to give perspective on why we do math– it is a beautiful quest of problem solving, discovery, and "asking why."

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

This course grew my proof writing to extraordinarily new heights. In tandem with my studies in logic this semester, I now feel very well-versed in logical arguments. I found myself editing proofs before I was turning them in, and I think I became a much better mathematical writer. On a more technical level, I have never understood epsilon-delta or epsilon-N arguments prior to this course, despite having taken analysis-adjacent courses in the past. I also feel excited to have gotten a glimpse into topology, a course I plan on taking next spring. Lastly, I feel more sure of my knowledge of calculus, having proven many of the tools that we used in those classes.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

Analysis is a course with a lot of material, and Prof. Alvarado was up for the challenge. Lectures were jam-packed with theorem after theorem and example after example. I enjoyed the fast-paced nature of Prof. Alvarado's lecturing, because it helped me stay engaged in the material. The energy he brought to each and every lecture was also no doubt a factor in my excitement to learn.

Pacing wise, there were weekly problem sets and theorem and definition sheets— both types of assignments served their own purposes. Problem sets offered a space for me to test my individual understanding of material, and theorem and definition sheets were an amazing way to reflect on the week's lectures. Though it's not necessarily groundbreaking, a weekly schedule works quite well.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Prof. Alvarado is the friendliest person on this campus (aside from his wife, Renee). A couple friends and I would always stay after class so that we could catch up, and talk about that days lecture. He knew that his office hour schedule did not work well for me, and consistently checked in to make sure that I felt supported. There was not a moment in this class in which I doubted his motivation, teaching, or care for his students.

He was also very cognizant of accessibility concerns. By taking away the perk that writing homework assignments in LaTeX would give a grade bump, he made sure that students who did not have that background were not at an automatic disadvantage. He also always changed colors in a way that was friendly to those that are color blind. These are small things, but they made me feel like I was in a very inclusive environment.

Additional comments.

Prof. Alvarado is an incredible professor and I feel so lucky to have had him for both Linear Algebra and Analysis. He is the type of teacher that I will never forget, and the type of teacher that I will strive to be when I enter a career of math education. He doesn't just masterfully teach the material, he also cares deeply for his students and inspires them to both work hard and love math.

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1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

N/A

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Prof. Alvarado's class is just always energetic and inspiring. He often uses desmos to illustrate the elusive concepts and provides his interpretation/summary for his proof and answers. Furthermore, before we approach a proof/move on to the next proof, he gives us time to generate our own mathematical questions.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

The most important skill that I acquired in this class is the ability to write more complex proofs in the realm of analysis and to understand the fundamental building blocks of calculus. Indeed, as a Math student interested in mathematical analysis, this class is extremely important and helpful for my future academic journey.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The design of the course is perfect. The pace of Prof. Alvarado's lecture enables him to cover everything important while leaving student time to think and understand their notes. The workload is considerable, given its weekly homework and definition sheets, but valuable. I think his course design cannot be better.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Prof. Alvarado is just an awesome, supportive professor. He always cheer the students up when they are feeling a little bit low. He always stops for questions and extrapolate the essential problem from all questions, so that no question is stupid in his class. His office hour is always packed, because of his popularity, but he still makes himself available to everyone's question.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **often**

Attend class: **often**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Office hours in this class were always extremely helpful and Prof. Alvarado always made sure to get everyone's questions answered in a timely fashion, even when his office was packed with students. Homework assignments were already very helpful for preparing for exams, and I think I learned the course material the most through struggling with homework questions and asking questions in office hours.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado was my first introduction to proof writing in MATH 271 Linear Algebra, and since then I've loved the field of theoretical mathematics and it is what has inspired me to become a math major. The way Prof. Alvarado taught me to write proofs and think about math has fostered for me such a love for the subject because I feel like I've gained the confidence to be able to tackle complex problems with confidence because we've built up all the "machinery" in class. In other words, Prof. Alvarado does an amazing job of teaching you the fundamentals of a subject before leading you into more challenging material. This way, every new section of material felt difficult but also manageable.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

This course challenged me to connect a lot of different theorems and definitions in my mind, and connect a lot of course content together in a logical manner. I think that I learned how to categorize information well, and Alvarado always made sure to periodically bring together big topics in class, and I found those summaries very helpful in helping me remember what I needed to know. This course also helped me strengthen my proof writing skills. It is the first class that I've had to write proofs under time pressure, but also doing the homework's in detail, the exams always felt doable.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

I found the pace of the course challenging but manageable in its own right. Lectures were fast but extremely comprehensive so reading over class notes was always extremely helpful to re-absorbing and reviewing material. Course expectations were very clear and Alvarado was always very kind with extensions when we needed them. I found that the structure of the homeworks and exams were very well thought out as I never found myself feeling unprepared for an exam if I knew that I understood the homework questions were had done and had reviewed all the class notes. All in all, the clear structure of the class really helped me feel confident in my learning.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado's office hours are always really great to go to and he is so so caring to all of his students. He always stops for questions in class and checks up with the class periodically to ask how everyone is doing when class energy is low. Outside of class he is always a joy to see, and he brings such great energy with him. He's always willing to help out and all in all is just such a wonderful professor to know.

Additional comments.

I don't think the Amherst Math Department would be the Amherst Math Department without Professor Alvarado. Genuinely one of the best professors I've ever had, and I'm so lucky to have gotten to learn from him. The classes I've taken with him here at Amherst have been some of my favorite classes of all time.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **sometimes**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I think the theorem/definition sheets were really helpful for improving my learning in this course.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado is so enthusiastic about math and analysis that it was contagious. He inspired me to think beyond the proofs we did in class and how they might apply to other areas in each lecture.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I further developed my proof skills, since there were often a lot of theorems that we could use to prove something.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

I think the pace, presentation of information, and clarity were all great. In particular, having the class notes online was also very helpful.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado was always willing to answer questions and made sure that his students felt empowered to do so.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **often**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Something that really improved my learning for this semester was going to office hours. I went to Professor Alvarado's office hours as often as I could and I went to the Math fellow hours with Min and all the TA hours I could possibly go to. I noticed that it really helped to have extra help outside of class, because often I was confused in class because there was a lot of material. Getting the different perspectives were also very helpful, because there are different ways of thinking of the tricky concepts we were learning about.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

This course opened up my mind to so many new ways of thinking about math that I had never seen before. Professor Alvarado also did such a great job of coming up with ways to remember all of the new concepts that really engaged my imagination. He was always encouraging us to come up with new ways of thinking about the material and to keep working even when it got super challenging.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I learned that bite sized chunks are always better than super large bites. When learning all of the material I always did better when I really focused on learning on the go rather than only trying to learn it all right before the exam. I learned that it is okay to take it slow and really understand the material rather than rushing through everything just to complete the assignments.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

Professor Alvarado did a very good job of making sure we were prepared and equipped to learn all there was to learn in the span of the semester. He always stopped to answer questions in class and made sure we knew to stay on top of things to make sure we didn't get behind. For example, the theorem and definition sheets due every week were very helpful to make sure I stayed on top of things. He also presented the material in different ways with words, pictures, and analogies that really helped me understand what was going on.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado was always ready to help whenever I needed it. He made sure to be available in class and outside of class to answer any questions I had. If he noticed I was struggling he would intentionally seek me out to help me figure out each problem. He was so encouraging and made sure we knew that we just had to do one thing at a time to get things done. He always showed up to class excited to teach us and share all that he knows about analysis, and it was contagious. He was excited everyday which made me excited to learn even though the material in this class challenged me like never before.

Additional comments.

Even though I was very daunted by the Intro to Analysis course at first, Professor Alvarado did a great job of presenting the material in a digestible way that helped me take in all of the new things every class. He consistently checked in on me even in his busy schedule and helped however he could which made me feel seen and encouraged me to keep studying and doing my best even when I was struggling to understand everything. Eventually all the concepts began to stick.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Following Professor Alvarado's advice has always been very helpful. For example, I would always complete the theorem definition sheets, do all assignments, do most proofs left as exercises, and go to office hours. I think understanding the definitions helped a lot. Constantly reviewing definitions and notes, not only leading up to exams, but also right after class, and rewriting proofs that he did in class.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado's excitement and energy excited me to attend class and learn the material. His contagious excitement makes us eager to dive deep into the material, even when it is complicated. I think that by adding difficult problems to the homework, he would help us better understand the material and push us to think outside the box. He also always provides fun analogies to help us understand the material, like the jacket analogy or the sheet analogy. This always helps me simply understand the material and remember it. He also always has visuals and really cool desmos graphs that make abstract stuff easier to visualize.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

Of course, I learned a lot of math, but I developed many skills that I think are just as important, if not more, than the material itself. A great skill I developed was patience and being okay with failure. I became better at learning how to be frustrated with a problem and managing to still work on it. I also developed a lot of my critical thinking skills, thinking outside the box, and my ability to both dissect and make rigorous and complex arguments.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The pace felt fast at times, but that is understandable, given the density of the material. The information was always presented clearly, with many examples and counterexamples. Expectations for every single assignment were always very clear. I believe that a combination of all of these was really helpful to my learning. Office hours were also always engaging and helpful.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado did an amazing job engaging with students' ideas in and outside of class. He can always answer questions and provides examples to clarify things for students. He is amazing at answering everyone's questions. I think he never makes anyone feel left out or behind, and does an amazing job at engaging with everyone. The learning environment is like no other class I have taken. He adds a lot of humor to his teaching style, which makes everyone feel welcome and included. He is always available outside of class, be it during office hours or when I reach out to him. He does a great job at answering the question through email, too, and is always really helpful.

and detailed. All of the feedback, especially on exams and performance is always very clear and helpful to improve our standing in the class.

Additional comments.

Despite the material being very complex and difficult, Professor Alvarado made it enjoyable—amazing professor and definitely one of my favorite classes ever.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **sometimes**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Making theorem and definition sheets was the best thing to do for this class. I'm so appreciative Professor Alvarado has us make these. It makes preparing for class lectures, homework, and especially exams significantly more manageable.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Real Analysis is a class that forces you to think outside the box. Although it was hard, Professor Alvarado always encouraged us and came with a great attitude to help us work through proofs. He is a huge reason why I love math. He makes it very enjoyable and shows up everyday with great passion that makes his students want to work harder.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

My ability to write rigorous mathematical proofs improved immensely. The class was challenging and always will be because that's just the nature of the class. Completing the problem sets rigorously and doing multiple proofs is a big reason why my ability to break down complex ideas and write proofs significantly improved.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The pace was great and just perfect. Although Professor Alvarado lectures at a fast pace due to his excitement and great passion, I never felt I lacked material for any homework problem set or exam. He always posted the class notes on his online course notebook, so I was able to review the day's lecture at any time at any place.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado has a great personality and an even bigger heart. I sat in the front row for a reason, and he always acknowledged my presence. He not only asked me about how I'm doing with the course material but would check in on how my season is going, which shows how much he cares about his students beyond the classroom.

Additional comments.

Professor Alvarado needs to be tenured!

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **often**

Attend class: **often**

Participate in class: **sometimes**

Complete assignments: **always**

Meet with professor(s) outside of class: **sometimes**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Just like in most mathematics classes, most of the learning in this class was done by working through weekly homework problems. I found it really helpful tackling homework problems independently first before attending TA office hours for help with challenging questions.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Before enrolling in the class, I had little to no knowledge about Mathematical Analysis and did not know what to expect. Right from developing a rigorous definitions for the real number system to proving the fundamental theorems of calculus, I have come to understand and appreciate common mathematical concepts I took for granted or failed to reflect on. (PS: I find the density of real numbers very interesting)

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

Aside developing rigorous proofs for fundamental theorems of calculus, I find that I can now better imagine different number systems, what it means for a function to be (uniformly) continuous, what it means for series and sequence to converge to real number. (I found pictorial descriptions made by Prof. Alvarado very helpful)

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The overall design of the course and pace were just right. Prof. Alvarado was really thoughtful when designing the class as he considered the common challenges student face in most maths classes. He shared notes with us after, required a weekly submission of theorems and definitions sheets (forced me to read and understand my notes before the end of every week, made homeworks due at 4am the next morning instead of 11:59pm, and was very helpful during office hours.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Prof. Alvarado was very helpful outside of class, especially during his office hours. He created a classroom environment where I (and every student in the class) felt comfortable asking questions and feeling included classroom discussions. He was very good at anticipating student questions and giving very satisfactory answers to them.

Additional comments.

N/A

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **often**

Attend class: **always**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I tried to attend all the lectures. They were extremely helpful in understanding the material and ended up being a core contributor to my analysis knowledge. I also did my best to attend Professor Alvarado's office hours at least once a week. Even if I didn't have any questions, I found it helpful to hear other students' questions and thoughts. I also found reading the textbook beneficial. Usually, the book material nicely overlapped with what we covered in class, but the minor differences in some cases helped me understand the topics better. A quick example comes from the definition of limits. While the textbook states that x in the domain A must be such that $0 < |x - c| < \delta$, in class, we restricted x to $A \setminus \{c\}$ so that the following condition simplifies to $|x - c| < \delta$. It's a very minor detail, but such nuances encouraged me to think deeper about the usage of mathematical language.

My learning also benefited greatly from the Theorem and Definition Sheets Professor Alvarado asked us to submit weekly. Having all the essential ideas from the course written separately helped me study for exams and feel more organized throughout the course.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

This course covered many topics I was already familiar with (continuity, differentiability, and so on). Yet, I was amazed by the solidness and precision of the mathematical foundations of these terms. This course strengthened my love for mathematics as a curiosity-driven science. From the first lectures, when we questioned the definition of real numbers (or rather its absence), I became interested in how far we could go asking 'why.' Professor Alvarado undoubtedly contributed to the development of my curiosity. During the lecture, he would state a theorem or a definition and then ask the class what should go next. What questions did we have? What bothered us in the result we obtained? What could we do with it? This course greatly shaped my mathematical thinking, especially my ability to see the general picture and plan the further steps in the proofs.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I significantly developed my comprehension of epsilon-N and epsilon-delta kinds of definitions and proofs. The course gave me a better understanding of the tools we have to describe functions and their behavior. Professor Alvarado showed us several examples of functions I would previously treat as an art picture but not mathematical objects (like Thomae's and Weierstrass's functions). Yet, the properties they possess turned out to be incredibly meaningful. Aside from teaching me to pay attention, think carefully about the details, and write nice proofs, this course also developed my ability to wonder.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

All the assignments and deadlines were straightforward. The structure of the homework was very clear. I always knew what to expect and never felt frustrated about the assignments. The course was pretty fast because of the amount of material we aimed to cover, so it was important to feel

certain about what, when, and how I needed to submit. The information was well presented. Despite the quick pace we developed, Professor Alvarado always managed to include some jokes in his explanations. Sometimes, he would start the class by showing us AI-generated math-related memes with camels (for humpday!). Thus, lectures felt adventurous rather than tiring. I enjoyed the Professor's style of notes. Definitions, comments, and practice problems were always written in different colors, so it was easy to navigate the class notes afterward. Professor Alvarado shared with us once that he debates each color he chooses, and I can tell such attention to detail pays off.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Questions were always welcomed in and outside of the classroom. Even more, they were encouraged. Professor Alvarado asked us whether we had questions at least three times in each lecture. He would turn away for a good five seconds to give us time to think and reflect on the topic and then ask again if we had something to say. Therefore, questions were an essential component of the class rather than a mere addition. Professor Alvarado managed to create a very welcoming environment for students. His office during the office hours was always filled with students. The music played in the background, prompting a feeling of ease and enthusiasm. Professor Alvarado cares a lot about his students. He tried to attend every sports game, art show, and student event we invited him to. The support he provided me with was essential not only for my education but on a personal level, too.

Additional comments.

Thank you for the work you've done! It was a pleasure to be in your class!

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I attended office hours nearly every Monday, Wednesday, and Friday with Professor Alvarado. He was incredibly welcoming and helpful with homework questions that strengthened my learning. He also encouraged collaboration between students, which was very helpful.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado greatly emphasizes how mathematicians should think and approach problems. Rather than simply going through the materials, Professor Alvarado teaches us what questions to ask and how to be curious about mathematics. This has made me a more creative and engaged learner.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

The most significant skills I gained in this course were how to keep a routine with assignments and motivate myself to do work in a fun way. Professor Alvarado's assignments are very consistent, allowing for a helpful development of time management skills. I also have a thorough knowledge of Analysis that will bolster my math career.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

Professor Alvarado is very flexible, fair, and understanding in a way that benefits students and makes them feel comfortable. His lectures are high energy and I often find myself laughing in class, which is something that has only ever happened to me in a Professor Alvarado math class. He is also very helpful with presenting study materials, guiding students through homeworks, and having all resources in a easy and up-to-date fashion.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado has created a beautiful math community at Amherst. I have made friends with the other students at his office hours simply because of the environment that Professor Alvarado creates. Outside of class, he is available regularly for math or whatever else students may need. He truly cares about every person in his class and makes it known. Professor Alvarado also creates an environment where students feel comfortable answering questions in class even if they get it wrong. His feedback is constructive and sweet.

Additional comments.

Professor Alvarado is far and away my favorite professor at Amherst College. He is energetic and kind and a joy to learn from. I have already taken two classes with Professor Alvarado, and I am eager to take a third if possible.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **rarely**

Complete assignments: **always**

Meet with professor(s) outside of class: **rarely**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I think the most effective things in improving my learning in this course were the in-class lectures, homework problems and weekly theorem/definition sheets. Professor Alvarado was a fantastic lecturer who was always incredibly engaging in class and really helped me gain a good insight into the class.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado's lecture style really stimulated my thinking on the material in the course, and he was able to really cement my interest in the mathematics course.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I think the most significant skills that I further developed in this course was critical thinking skills in proof-writing.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

I thought that the pace of the course and clarity of expectations were very effective in being conducive to my learning. Professor Alvarado did a great job presenting the course material and his lecture style was very effective in helping my learning.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado always is willing to meet outside of class and is incredibly good about cultivating an inclusive learning environment that allowed for students to be willing to ask questions and share ideas in class. He always checked in with me when he thought I was struggling with the material and gave great feedback on my course work.

Additional comments.

Professor Alvarado is a fantastic instructor and did an amazing job in presenting this course's material.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **often**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

Attending the Q center office hours and working in groups with other students was very helpful for me in improving my learning.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Prof. Alvarado emphasized the need to create a theorems and definitions sheet every week; this process was a study activity on its own. The T&D sheets would also serve as midterms and final exam study guides. His use of real-world analogies made it easier to grasp concepts.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I improved my skill in proofwriting and also in answering new problems even if I had never seen them before.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The class was a bit fast-paced, but course expectations were clear from the first day.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

During office hours, Prof. Alvarado really made sure that he attended to every student's questions. He also allowed/encouraged students to be creative with their solutions.

Additional comments.

Even though the class was fast paced(which is understandable because of the need to cover a lot of ground), I really enjoyed the class because it challenged me.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **always**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I made sure to attend every office hour possible for the course. I believe I only missed 2 or 3 sessions the whole semester. I think this was essential for me to gain a deeper understanding of the material and made my life significantly easier when it came time to study for exams. I took a break from math after taking a class with a professor with rather inaccessible office hours. In that class, I felt very lost and unsupported and unable to stop myself from falling behind. Professor Alvarado fostered an environment where I not only felt supported but was excited to go to office hours every week. He is kind, funny, and personable, and he creates a superb learning environment in his classroom and his office. I can confidently say that Professor Alvarado has reinvigorated my passion for mathematics and has been the reason I succeeded in analysis.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Professor Alvarado painted a compelling picture at the beginning of the course of where we were and where we would be at the end of the semester. It made the course feel complete having the Fundamental Theorem of Calculus laid out at the beginning of the course and then proving it is using what we had learned at the very end. It kept me motivated to know that we were working towards a tangible end destination.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

I feel like I developed my problem-solving skills. Specifically, my ability to look through tools and evidence (in this case, theorems and definitions) and figure out how to tackle a problem with what's available. I have a much stronger grasp on proof-writing than I did before the course.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

The expectations for the course were very clear. Professor Alvarado fleshed out the syllabus with some additions, which made the course easier. First, the option to achieve participating credit in different ways was helpful because I often feel overwhelmed speaking during lectures. I chose to engage in office hours to get participation credit, which I probably would have done anyway, but it was nice to have a built-in incentive. Second were the weekly Theorem Definition sheets, which I likely would've neglected if they weren't mandatory. Finally, this was a very small thing, but Professor Alvarado always started very promptly at 11, and at the beginning of the course, he asked us to get there early so we could make the best use of our time in class. I think knowing I would be missing content if I were late and knowing getting there a minute early was an expectation helped ensure I was consistently on time for class. It was nice to have some small incentives to stay motivated and up-to-date in the class.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado is very personable and friendly. It was always fun to arrive a few minutes early and chat with him before class. I always felt welcome to talk to him outside of class, both during office hours and just when I saw him around campus. I know that office hours can be intimidating for some people, and I saw that Professor Alvarado making efforts to be inclusive with everyone. He knew everyone's names and would cycle through people, asking if they had questions rather than waiting to be approached. I never once felt like I had a question that I couldn't get answered. I always knew what was expected from me and understood any critiques when I received feedback on my work.

Additional comments.

Professor Alvarado is an essential member of the Math Department and the Amherst College community. He is a dedicated educator who also actively participates in Amherst College events. I frequently run into him at sports games and performances. When I first entered his classroom at the beginning of the course, Professor Alvarado complimented me on a show I had been a part of in the previous semester. From the beginning, I truly felt like he cared about me, my work, and my success in the course. I hope to still be running into Ryan Alvarado at Amherst College events for many years to come.

**Course Evaluation Form
Spring 2024 – MATH 355-03
Professor Ryan Alvarado**

1. How often did you:

Prepare for class: **always**

Attend class: **always**

Participate in class: **often**

Complete assignments: **always**

Meet with professor(s) outside of class: **always**

2. Using specific examples, please briefly describe what you did that you feel was particularly effective for improving your learning in this course?

I attended office hours at least twice weekly with Professor Alvarado, in which I both got my questions reliably answered and also developed a community between other students so that I felt supported in all aspects of the course. Engaging so frequently in office hours this semester with Professor Alvarado and other students has really helped me reduce my self-consciousness in discussing ideas that I don't fully understand yet, and I am very grateful for this development.

3. In what ways did this course and instructor stimulate or shape your intellectual interests, thinking, and/or imagination?

Because of Professor Alvarado, I've developed a preference for Analysis over Algebra, and I feel that Analysis is the path I want to narrow in on as I take higher-level courses. In class, he makes it a point to reference other math classes that go beyond Analysis so we know what's out there to study. In particular, he's referred to his Measure Theory class several times (which he also taught this semester), and I appreciate that I can see that what we're doing in Analysis is foundational for future math courses.

4. Please describe the most significant skills and/or knowledge that you gained or further developed during this course.

Coming from Linear Algebra, I feel that I have drastically improved my attention to detail with respect to proof-writing and logical reasoning compared to last semester. When I engage with a question in class or in the homework, I've noticed that much more than before, I can see how a problem is working, why certain conditions are necessary for a statement, and even catch typos or missing conditions in the homework sets or book chapters. Professor Alvarado often draws us pictures and gives us Desmos representations of functions so that we can gain an intuition of what certain questions are asking. By the end of the semester now, I feel that I can also understand a question intuitively as well as rigorously.

5. Considering the overall design of the course, how did the pace, presentation of information, clarity of expectations, assignments, activities, and/or discussions in the course impact your learning?

It is clear to me that Professor Alvarado has crafted this course to make success easy for us as long as we do what we're supposed to be doing as students. His lectures are thoroughly planned out, and he truly has a unique and admirable gift for explaining difficult concepts in a concise way so that I can understand. In class, he frequently comes up with silly analogies to represent math concepts, but they do actually really help me remember what's going on with a specific idea. He performs rather than teaches and, as a result, makes class extremely fun. It is a pleasure to learn from him. Expectations were consistent week-to-week in terms of lecture, homework sets, and office hours, which made me feel properly supported in the class. One of the first things he told us at the beginning of the semester was that he would work hard for us, and if we work hard for him, we will succeed; on both sides, I have found this to be resoundingly true.

6. Please describe the nature of your interactions with the instructor in this course, including the instructor's engagement with student questions and ideas in class, their cultivation of an inclusive learning environment, their availability outside class, and the feedback you received on your course work.

Professor Alvarado has always welcomed any and all questions and ideas in class, and though the classes are lecture-based, it often feels more like a discussion because of the way he engages with us. He hosts office hours regularly three times a week, which I have found to be completely sufficient for this class. If he has to switch around his office hours at all, he always makes sure to make the time up some other day. He says he doesn't like to have exam grading hanging over his head, so he's consistently gotten our exams back to us in a reasonable amount of time.

There was an issue this semester with the graders for our course grading our homework sets in a timely manner, and Professor Alvarado made it clear to us that that was unacceptable; he has worked hard for us to try to find replacement graders, and he said he's prepared to grade our homework sets himself so that we can get feedback if alternative graders can't be found. It's not been an ideal situation, but I believe that Professor Alvarado has handled it with our best interests in mind.

Additional comments.

I strongly recommend Professor Alvarado for tenure so that future students at Amherst College can receive the same stellar instruction from him that I have. I trust him wholeheartedly with my education, and I will never forget him as one of my best professors.