

EVALUATION: TEMPLATE

Name:

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So that we can improve our courses and our teaching, we solicit feedback from you, the student. Below, please provide your comments and suggestions so that we know more about your experience with this course. You need not limit your comments to your responses for the questions below; you may make further comments at the end of each part of the questionnaire.

These forms will be used to evaluate Professor Alvarado. This is why we ask you to enter your name; senior members of the Department, administrative staff, the Dean of the Faculty, the President, and the Committee of Six will see your name on the evaluation. However, your name will be removed from the copy given to Professor Alvarado.

Thank you for your time and consideration in answering these questions. This feedback is very important to the professor as well as to the development of our courses, and your effort is greatly appreciated.

From Professor Alvarado:

Please take the time to complete this evaluation! Your comments will be carefully considered by both myself and the college to assess my teaching. I appreciate constructive comments toward improving the course and my teaching in general. When answering the questions, please consider the different aspects of the course, for example, the text, lectures, homework, worksheets, exams and in-class activities. It is important that we hear from everyone in the course to get a complete view of whether every student's learning objectives are being met. Please use these evaluations as an opportunity to reflect on the course and let us know what worked well and what could be improved. Thank you!

PLEASE NOTE: Use the TAB key or your mouse to move between questions; the Enter / Return key will submit the webform.

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.
2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.
4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?
5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?
6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:
7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?
9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?
10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:
11. If you have any other comments on the course, please write them here:

EVALUATION: By Question

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

- 1. Professor Alvarado was very good at creating an engaging atmosphere and made the course material pretty interesting. He was very encouraging and motivating, even during the times in which I felt more dejected about my own progress.*
- 2. Yes, he did. I could easily tell that Professor Alvarado was excited about the material and that he wanted us to be excited as well. He did a great job of keeping us engaged.*
- 3. Yes- I felt challenged throughout the semester, but I felt very much supported by his encouraging attitude, extremely helpful office hours and carefully thought out lectures. I felt that he truly wanted me to succeed- so even when I had moments that left me feeling discouraged and unmotivated, his belief in me pushed me to push forward with the material.*
- 4. Professor Alvarado is extremely engaging and energetic. Even though the class is early, he is able to keep everyone awake and engaged. Additionally, it is helpful that he always stops to ask for questions and is open to feedback and critiques.*
- 5. Professor Alvarado was constantly motivating his students to succeed. I always got the sense that he believed in my ability to do the math, no matter how hard it was. He is so energetic and passionate about the material that it inspires us to feel the same way about it.*
- 6. Yes. Professor Alvarado created an atmosphere that greatly helped me as a student. I had a very busy spring, so I wasn't able to spend as much energy on this course as I normally have, but all the extra work he made us do with the theorem and definition sheet definitely helped me for the exams, which really required you to know the definitions and theorems by heart. He was also very enthusiastic about the material, and really made the class fun.*
- 7. Professor Alvarado created a classroom environment that kept us engaged with the material throughout the course. He was constantly motivating us to succeed. While the material was challenging, he was extremely supportive. He wanted us all to succeed, and was willing to help us as much as possible.*
- 8. Yes. Professor Alvarado's lectures kept me engaged. The pace was fast enough to accumulate and understand a lot of material. Despite this challenging picked up pace, the structured lectures allowed me to follow along very well. In addition, using the iPad and special writing program, as well as Desmos, were very helpful visual tools that made understanding lectures more feasible.*
- 9. Yes, it was so clear from the beginning that all Professor Alvarado wanted was for his students to succeed. He put in effort to know the students individually.*
- 10. Yes, one of Professor Alvarado's greatest strengths is the sheer amount of positive energy that he brings to each lecture. His energy is infectious and definitely makes lectures more engaging. He presents the material as objectively challenging but constantly reassures us that hard work pays off.*
- 11. Yes, he was very friendly and always pushed the class to ask questions and that the material was fully understood before moving on to a new topic.*

12. Yes. The enthusiasm that he brought to the class made the class very engaging. I could tell he was passionate about the material. I think this also encouraged students to ask a lot of questions.

13. Yes, he succeeded in creating a great classroom atmosphere that did a good job at mitigating the grogginess of the early start times, especially the 9 am start on Tuesdays. Prof. Alvarado was also a very engaging lecturer and was effective at communicating the concepts.

14. Yes.

15. There was never a minute in class that I was bored or disengaged. Professor Alvarado worked hard to ensure that everyone in the class had a clear understanding of incredibly confusing topics, relying on extremely helpful visuals and in depth proofs to enhance our understanding of the concepts.

16. Prof. Alvarado is one of the most encouraging professors I've had.

17. yes, he provided a class outline at the beginning of every lecture and did a tremendous job staying on track and kept everyone engaged with interesting lectures and use of the tablet

18. Definitely. His enthusiasm in the subject kept me engaged and interested in completely understanding the material.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

1. Professor Alvarado was very good at presenting the material in a clear and straightforward manner.

2. The way that he taught was very clear, organized, and accessible to everyone. He made it so that everyone in the class had a chance to understand the material.

3. I could really tell that Alvarado spent a lot of time thinking about his lectures and ensuring that the story he was telling us was accessible to every member of the class. His entire class was self-contained, meaning I didn't feel like I needed to look outside the class for information on some material. Rather, everything I needed to know was covered in lectures.

4. Real Analysis is a pretty difficult subject to understand, however, Professor Alvarado makes it much less confusing than it could be. He is very thorough and carefully explains every step he makes while writing proofs and never misses a step.

5. Yes, it was easy to understand his lectures. He used technology effectively, showing us example graphs online and writing notes with a tablet so that he could color-code things.

6. Yes. The online notebook was extremely helpful, as it allowed us to go back to the material and look at it, and he often added comments or clarifications after class time if there were anything that wasn't quite clear during class.

7. Everything was extremely well organized. The tablet he used, instead of the chalk board, was very helpful. It made the material more clear. He also is a very clear professor, and explains the material in a non confusing way.

8. Professor Alvarado made great use of the programs available, often resorting to different types of color coding to differentiate between proofs, theorems and the scratch work necessary to complete the proofs. This structured approach facilitated better organization of material.

9. Yes, his lectures were very clear and structured.

10. Yes. The best part about Professor Alvarado's teaching style is that he uploads class notes online after each lecture. This was extremely helpful both in and out of class. In class, we could focus on the lecture and less on copying notes down. The online notebook is extremely advantageous because we could refer back to Professor Alvarado's original class notes whenever we wanted. Also extremely helpful if you miss class.

11. The online notes were an excellent guide in terms of the structure and the way in which material was presented. The organization of topics was connected in a way where most topics built off of previous ones and that was helpful in understanding new material.

12. Yes. The material was presented in a very organized manner. The way he structured the course allowed me to see how all the materials were connected easily. It was excellent.

13. Yes, the material was presented in a very clear manner; proofs were very well explained and there was a big emphasis on attention to detail, so the material was also very organized.

14. Yes.

15. Professor Alvarado's notes were incredibly clear and concise, and were actually so good that they made the textbook unnecessary.

16. The course material was presented in a well-organized way.

17. yes, his online course notebook kept everything nicely organized and easy to access/understand

18. Yes, he was always extremely clear, and in instances that were more difficult for us to understand, he always followed up afterwards with a clearer explanation.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture?
Please comment on your response.

1. He was very good at encouraging comments and questions. He also always answered questions.

2. Yes. He would constantly engage the class in questions and encourage us to make comments and ask questions of our own without making us feel inadequate for doing so.

3. He always made sure that he paused to ask if anyone had any questions. If he looked around the room and saw that some people looked confused he would re-explain the material to ensure complete understanding

4. [No Response]

5. Yes, he often would try to get students who didn't talk much to make a comment/ask a question. If someone was talking too much, he would try to call on them less in favor of a student who hadn't talked as much.

6. Yes. He quite often asked questions to the class, and clearly encouraged students to stay engaged and active.

7. He always encouraged everyone to ask questions, and also would ask people if they had questions. If someone looked confused, he would ask if they needed any clarification, which I really liked, as some people are not always comfortable raising their hand. He also always emphasized the fact that there was

no such thing as a stupid question in his class. Further, he was always willing to listen to a student if they had a different approach to a proof.

8. Yes. Professor Alvarado encouraged and often directly addresses student concerns during class. Students felt comfortable with raising their hands during lectures and asking for clarifications for the operating mechanisms in certain proofs.

9. Yes. He would even approach students after class to push them to ask questions in a very friendly matter.

10. Yes. Professor Alvarado answers any and all questions, with a sense of humor. He keeps the lectures serious yet light-hearted. He welcomes any and all participation from students during lecture.

11. Yes, in class he always would encourage any questions.

12. Yes. He frequently encouraged students to ask questions. When students did ask questions, he treated them with respect and did not act dismissive. The fact that the class was held in a relatively small room also helped. I think it psychologically made the students feel closer to Professor Alvarado.

13. Yes, this was highly emphasized during lecture. Questions were always welcomed and the answers were clear, prompt, and helpful.

14. Yes.

15. Absolutely. Professor Alvarado constructed class around making sure that there was no point in lecture that we were confused, often times staying on certain topics for entire periods just to make sure all questions were answered.

16. Prof. Alvarado did very much encourage students to make comments and ask questions. But often it seemed like so much material is packed into the curriculum that asking questions could endanger the class's prospects of making it through all the planned subject matter.

17. he always provided time after theorems, definitions, examples, etc. for people to ask questions; he encouraged people that do not usually speak up to ask questions if they looked puzzled in class

18. Yes, he actively sought participation from each student, without making us feel forced to participate or called out. This class was probably the math class with the greatest student participation I have taken at Amherst.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

1. Professor Alvarado was a prompt responder to emails and was always accessible in person. If the office hours didn't work or there was some other reason I had to meet with him, he always did a great job of trying to find a mutual meeting time. He was very helpful during office hours and made a great effort to answer everybody's questions.

2. Yes. He was very accessible both in-person and electronically. I utilized office hours and I found them to be extremely helpful.

3. He was accessible in office hours and by appointment. I got to speak with him privately and this was so helpful since I have a hard time learning when I am surrounded by other students.

- 4. Professor Alvarado is very accessible, in fact, he organized his office hours such that every student in the class could at least attend one. In addition to his daily office hours, he was always willing to meet with students outside his hours if needed.*
- 5. I went to office hours a lot, and always found them helpful. He answered all of my questions clearly and concisely, and worked hard to ensure that we were on the same page when he had finished explaining a difficult concept.*
- 6. Yes, he was available. Again, unfortunately I was too busy this spring to take full advantage of that fact, but the office hours I went to were very helpful. If there is any improvement to be made, I suppose he could respond to emails quicker, but he's obviously also very busy.*
- 7. He was always accessible outside of the classroom. If you needed more help besides office hours, he always made himself available. He was very supportive and willing to do anything to help his students succeed with the challenging material. Office hours were really helpful, and he made sure everyone left with a clear understanding of the material. There were multiple times where he stayed late to ensure everyone understood the questions.*
- 8. Yes. At the beginning of the year, Professor Alvarado gave the class the opportunity to fill out available hours in order to coordinate office hours that everybody could attend at least 1 hour a week. In addition, the Q-center resources and fellow hours helped tremendously.*
- 9. yes, was quick at email responses and held a lot of office hours.*
- 10. Yes. Many accessible office hours catered to each of our schedules. Easily accessible electronically as well.*
- 11. He was very helpful in office hours. The only time an issue arose would be when too many people showed up, but he always made sure everyone got to ask their questions without neglecting any one person.*
- 12. Yes, he was easily reachable. I had no problem asking for help from him.*
- 13. Yes, there were office hours almost every day, so there were plenty of opportunities for students to seek him out and ask for help. Office hours were especially helpful and were very well attended.*
- 14. Yes.*
- 15. Professor Alvarado was more than accessible outside of lectures. He was extremely accommodating and made sure that every student had the ability to come to him and ask questions.*
- 16. Prof. Alvarado was extremely accessible. I utilized office hours, and found them helpful (but see 6).*
- 17. he had a great deal of office hours, polling the students beforehand to make sure that every student could make it to one if not two office hours; he encouraged students to attend his office hours and to work together while in office hours with peers*
- 18. Yes, I went to his office hours very often and found them extremely helpful.*

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

- 1. I really enjoyed the lectures with the tablet; I found them really helpful. I also enjoyed the office hours.*
- 2. His use of online notes are particularly helpful and effective.*
- 3. He was just so personable and encouraging. I felt like he really believed in me and for a woman of color in Math- that means so much.*
- 4. I thought that Professor Alvarado's willingness to help and care for his students truly made him the best person to teach such a difficult course. He is the most accommodating and approachable professor and gives the course and students his all.*
- 5. I really appreciated his individual attention to each student's learning goals. He was always checking in with us on how we felt about the way the course was going/ what he could do to help us more. As previously mentioned, the fact that he used technology was really useful as well. He always posted the lecture notes online after class so that we could look at them later, which was really helpful when studying for exams.*
- 6. I thought he was very warm toward the students, and it really felt like he has been pushing us to succeed in the class. He was also greatly enthusiastic, which also helped.*
- 7. All of the material was presented in a clear way, especially since it was on a tablet. I also really appreciated his emphasis on questions and making sure everyone felt comfortable moving forward with the material. In previous math classes, teachers have not wanted to take questions, but in his classroom, questions fostered a more comfortable learning environment.*
- 8. I enjoyed Professor Alvarado's capacity to break down complex proofs into simpler exercises that relied exclusively on the topic that we developed during class. Professor Alvarado took the time necessary to get to know his students. Then, when students were confused, he was perceptive enough to notice and address the confusion often attacking the proof from a different angle to ensure that his point was coming across. He is an excellent professor.*
- 9. He was so lively that he made the material exciting.*
- 10. I want to emphasize that Professor Alvarado's positive attitude during lecture and office hours was extremely encouraging. He realizes that the material is hard yet does everything in his power to make the content exciting. He constantly checks in with his students as well, which I really appreciate.*
- 11. The structure of Thm/Def and examples was very helpful in conceptually understanding what was being taught. The homework helped iron out the mechanics of proving statements and learning the nuances and specificity of the topics we had learned in class.*
- 12. I particularly enjoyed seeing how all the materials connected. He was very good at structuring the lectures in such a way that these connections were easily noticeable. I also really liked how he used OneNote and his tablet. It was very helpful to have the lectures notes online. This allowed me to focus listening his lectures more instead of focusing on copying down notes.*
- 13. The use of the tablet and online notes was very helpful, as I could revisit things after class and had a handy reference tool at the ready. Also, the tone of the class was definitely very welcoming, which was great for what seemed to be a very intimidating class at first. The exam structure was also very helpful, as knowing that we wouldn't be thrown any curveballs helped put me at ease when studying. Furthermore, the theorem sheets were definitely a great assignment, as they became essential when studying for exams.*

14. *I liked definition and theorem sheets and his online notes teaching*

15. *I really enjoyed Alvarado's focus on visuals to enhance our understanding. I also appreciated that all the course notes were online because I could often check them to make sure I didn't miss any big details or copied something wrong.*

16. *So much of the lecture time was dominated by the need to get through the long curriculum, so any particular aspects of Prof. Alvarado's personal teaching style mostly weren't perceptible. But as above, he is really encouraging and kind.*

17. *his knowledge of the material is very extensive, and he did a good job connecting all of the topics and highlighting how each topic is interconnected to one another; he explained things in an easy to understand manner without losing the complexity of the subject (which is difficult to do)*

18. *His lectures were very clear and helped me more easily understand the material. His enthusiasm encouraged me to take interest in the subject and understand things more deeply. While it often felt like he had high expectations (in the beginning it may have even felt too high), achieving them was doable and he provided lots of help along the way. If anything the fact that he seemed to genuinely care about how each student was doing in the class and how they were understanding the material encouraged me to learn even more.*

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

1. *I felt like he did a pretty good job of facilitating student learning already.*

2. *Perhaps more worksheets that we could do in groups would help force us to internalize the material on our own during class time.*

3. *Maybe holding more office hours would be helpful. Sometimes they were too crowded so it was hard to get good questions in. Also, I wish the actual assigned homework was shorter but that he gave more practice problems per problem set.*

4. *I wish he would give practice exams.*

5. *[No Response]*

6. *I don't think so. I think he's a great teacher, and the fact that he uses an online notebook just makes his already very good teaching style even more effective.*

7. *I don't think so. He was one of the best professors I have had at Amherst and don't think he needs to change anything.*

8. *[No Response]*

9. *No, I really enjoyed him as a professor.*

10. *Nothing comes to mind.*

11. *No changes.*

12. Encourage students more to focus on listening to his lectures/asking questions instead of focusing on copying down notes. I think listening to lectures help a lot with building intuition and visualization of the concepts. The notes are always accessible online, so there's no loss in not copying down notes in class.

13. I honestly don't think there are any changes that I would make.

14. I wish he had some practice exams before the exam

15. No, his teaching style is really conducive to helping people learn the concepts.

16. As mentioned, I came to office hours. But I often believed that Prof. Alvarado might do well not to be so quick to reveal solutions in office hours; rather, he could try giving students less-obvious hints. I've found that I learn a great deal when I do a difficult problem without any help, but that getting even a small amount of help can spoil my chances of really absorbing the mechanisms of the proof. It's very difficult to pay full attention to and understand the details of a proof if you're receiving, rather than creating, it. Further, the homework "problem sets" we received weekly were quite long, but individual problems were generally not difficult. This paradigm meant that the sorts of proofs that challenge one to grasp the definitions and theorems at hand were rarely included - and when they were, many students just went to office hours to get the solution and not have to think too hard. I suggest that when Prof. Alvarado teaches this course next, he include only as many easy problems as hard problems - one doesn't learn much from writing lots of easy proofs - and include perhaps two or three harder problems per problem set: more than the typical zero or one of this semester. This will shorten the problem sets (which as it stands are a bit too long) and, more importantly, increase their teaching potential.

17. As a very busy student, I could only make it to one of his office hours and could rarely attend any TA or Q center hours. As this was only a me problem, I do not think it has anything to do with Professor Alvarado's teaching approach, I just would have liked to find a time to meet outside of these hours to work with him.

18. No.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

1. Professor Alvarado is overall a wonderful professor and he is very committed to making sure his students learn and are engaged with the material.

2. [No Response]

3. He's honestly one of the best professors I have had at Amherst and its such a shame that I could only have him for one semester before I graduate. I know he is going to greatly improve the department and I hope he can stay for a long time.

4. [No Response]

5. Professor Alvarado showed outstanding commitment to his students, both in and out of class. I'm really glad to have had a professor so invested in my success.

6. He's great. Keep up the good work. I will recommend him to anyone thinking about taking his courses.

7. I thought that the class is inevitably challenging, but professor Alvarado was one of the most supportive professors I have had. He was always interested in how his students were doing not only in his class, but outside of his class. I think that says a lot about his as both a person and teacher, as most of my professors at Amherst have not been like that. I think that he is by far one of the greatest professors I have had during

my four years at Amherst. He made a challenging class enjoyable, and was understanding of our struggles, but helped us through them. I never thought I would enjoy analysis, but because of him, it has been one of my favorite classes at Amherst.

8. *[No Response]*

9. *He was one of the best professors I have had here. He made me want to do well because he cared so much.*

10. *[No Response]*

11. *Even though it may be hard to create, I always appreciate a study guide with problems listed as examples of what kind of problem can appear on the test. It helps to remove the stress that can come from trying to study so much content. Professor Alvarado's positivity and friendliness really helps to create a great class dynamic and makes going to office hours easier and less grueling than just going to complete the homework.*

12. *I could tell that he was very passionate about the course material and that he cared for students' success. Studying in his course was a great experience.*

13. *[No Response]*

14. *n/a*

15. *Professor Alvarado is beyond committed to his students' learning. Without his accessibility and passion for the material, I doubt that I would be able to have as clear of an understanding of the material.*

16. *Prof. Alvarado's commitment to student learning is great and commendable. See number 6 above for some comments on his teaching, which otherwise - in lectures, for instance - has been good for me.*

17. *he was very engaged and concerned with every student's wellbeing, both in class/academically and outside of class; he just wanted everyone to make sure they did the best they could and he went above and beyond to make sure all his students were cared for*

18. *Best teacher I've had at Amherst!*

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

1. *The course material is moderately interesting. It is not my favorite course material compared to other math courses I have taken. One thing I will say is that I found the level of difficulty to be too hard. I enjoy challenges, but at times this course felt extremely difficult and overwhelming, which got extremely frustrating and served to make me feel quite a bit dejected at times. Alvarado tried to do a good job keeping our morale up and encouraging us, but it still felt like a bit too much / too hard more times during the semester than I felt like it should have to be honest. I am luckier in that I had an easier course schedule this semester, but I think for the time periods at which most students would be taking this course given that it is a 300-level and that they would probably have many other extremely difficult courses at the same time, that this was asking a bit too much. This course did help develop my ability to think and to solve problems a bit. However, considering that it is a math course, sometimes it felt like too much memorization for what a math course should be. Instead of learning to solve problems, many times throughout the semester it felt a*

bit like it was a lot of memorizing definitions and theorems and obscure tricks in proofs and the proofs themselves. But there was some problem solving in the course, so that was good.

2. The course material was very difficult but when I understood it, it was very rewarding. This course definitely helped me develop my ability to think and solve problems.

3. I think the class was really hard, but I think I learned a lot about both Math and myself taking it. I had to re-evaluate how I study for exams. I'm really glad I took it.

4. The course was very difficult.

5. The course definitely further stretched my proof-writing abilities. I had to practice several new techniques/ways of thinking, as Analysis heavily relied on a lot of theorems and definitions.

6. It was challenging, but not incredibly so. It was nice to get back into the swing of doing math after taking a semester off, and I think it helped me develop skills that I may use in the future.

7. It was very difficult but it made my proof techniques and ability to solve a challenging problem stronger.

8. The course material is difficult. In particular, it covers such a wide range of strategies and topics that it is very hard to master all of them by the end of the semester. Yet, the structural character of the mathematical approach helped me better order logic and approach notions of causality in a wide variety of topics, particularly my Economics thesis.

9. It was good.

10. I would rate the difficulty as an 8/10. I would say that the course helped develop my ability to think and solve problems.

11. This course was difficult which I expected since it is a higher level math course. It was very helpful in giving me practice with difficult proofs and absorbing a lot of information at a fast pace.

12. The course material was great. The level of difficulty was just right, if not maybe a bit easy. The course did help a lot with my ability to think about functions and sequences in a more rigorous manner.

13. The course was manageable, though the difficulty definitely ramped up towards the end of the semester with integration and sequences and series of functions. It did help me develop my proof writing skills and making sure that I was thinking about problems in a rigorous way, which I feel will help me in my future classes.

14. it was very challenging and difficult.

15. I think that the course is difficult, but 355 is not meant to be easy, so the difficulty level is appropriate. The course definitely developed my ability to think and solve complicated problems.

16. The level of difficulty of the course material was sufficiently challenging. The "big" theorems (Monotone Convergence, Intermediate Value, Weierstrass M-Test, Extreme Value, Mean Value) were all treated and given complete proofs. Reproducing these proofs for myself, I learned better the principles behind them and how to apply them.

17. I think this course was one of the most difficult that I have taken as a math major at Amherst. It required a lot of time put into the work in class, in office hours, outside of class and just a lot of hard work overall. It definitely helped with a greater understanding of calculus and analysis.

18. *I found the material very interesting. It was difficult but doable. If anything, I found this course hard more due to the time required of me to put in to understanding and learning, rather than the fact that the material itself was too difficult to understand. It helped me greatly with thinking through solving problems, and being extremely thorough in my thought process.*

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

1. *I thought the division between homework assignments and exams was pretty good.*

2. *I would've appreciated slightly less emphasis on exams and more on homework or quizzes. That would've alleviated some of the stress that I experienced with how weighty the exams were.*

3. *I think this was divided really well.*

4. *I thought that there was a fair distribution, however, I wish that there were three exams instead of just two.*

5. *I really liked our Theorem/Definition sheets, because they helped us recap each week what we had learned. The exam balance was pretty good, and I liked that we had two midterms instead of three.*

6. *I think it was a good division. If anything, small quizzes may have been useful every now and then, but I honestly don't think we had any time to spare as it was.*

7. *I thought the division was fair, and didn't put too much weight on one part of the class.*

8. *In general, adding too much emphasis on exams is a slippery slope. More emphasis on homework assures that more grade weight relies on the developed skills and their use every week, as opposed to a select number days in which students show their knowledge.*

9. *Good!*

10. *Homework assignments were pretty tough. I found that most of the time I spent on homework weekly was consumed by this course. I do feel like the homework assignment were necessary, however. Looking back, it seems like periodic quizzes throughout the semester would be a good idea. Past theorems and definitions commonly came up and I feel like being tested on them periodically would be beneficial.*

11. *The balance between homework and exams was well executed.*

12. *I think the ratio was about right. I would've enjoyed it if there were take home exams, just to test if I can apply the concepts discussed in class in more sophisticated ways than in the normal exams.*

13. *The distribution of emphasis on the homework and exams was appropriate, I felt, and I wouldn't change any of that.*

14. *right amount of hw and exams*

15. *The division was definitely good and the best possible arrangement for the class. Alvarado constructed the class so we would have to be constantly engaged with the material, and without this impetus, it would have been much harder to remain engaged with the material.*

16. *The division between these components was standard and fine.*

17. *I think there is a good balance of homework, quizzes, exams, etc. One problem set a week and three midterms throughout the semester in addition to a final exam*

18. *I liked it. I like how he divided the semester up into 3 parts, so that the final exam was mostly covering the last third of the class, with a portion covering the general material of the course. The homework took a long time but was also the component that facilitated by learning the most.*

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

1. *I think maybe more in class practice problems and proofs like worksheets could maybe be helpful.*

2. *Not particularly.*

3. *I think we really need more q-fellows. We need more help outside of the classroom. Yes Alverado is great and helpful but he is only one person and there are just too many students for him alone.*

4. *I wish that there could be more outside help available because of the constant congestion within office hours and other help hours.*

5. *[No Response]*

6. *Nothing that comes to mind.*

7. *I do not think so.*

8. *The course is very well structured. I would say the biggest setback in general is one that afflicts very many classes at Amherst College. A good way to diffuse stress in courses is to generate weighting that is beneficial to students. I would suggest that more weighting be placed in participation so exam completion and hard homework produce less stress on students, thus facilitating the learning process. Stress is poisonous. We know this.*

9. *No*

10. *nope*

11. *It seems like one of the key components of this class for me was going to office hours to really learn the material. I'm not sure what change can send more people to office hours but I think that they are the best way to be successful in this class.*

12. *Perhaps spending less time on the first three chapters so much and spending more on the latter chapters would be a worthwhile course structure to test. I felt like the pace of the course was a bit slow in the first few weeks of the semester. I feel like the course ended where the material was just about to get interesting.*

13. *I think that the way the class started, with a quick intro/review of proof techniques would definitely be helpful for future students, as I would have been confused on quantifiers and other aspects without it; while Prof. Alvarado did that here, I don't know if that's a standard thing.*

14. *nope*

15. *No, I don't think so.*

16. The textbook being used, Abbot's "Understanding Analysis," is not exactly ideal. Theorems are presented in a way that makes them difficult to apply without referring to formalism that really shouldn't be a concern. Take the example of the Mean Value Theorem (5.3.2, p. 156). This theorem is phrased so that it applies only to a function defined on a closed interval, and can be used to get an interior point where the derivative equals the slope of the secant line between the boundary points only if those boundary points are the bounds of the interval. Thus, if one wants to apply the theorem to get such a point for an arbitrary closed interval in the domain of a differentiable function, one must first consider the restriction of that function to said interval, genuflect to the properties (viz., preserving continuity and differentiability) of restriction, finally apply the Mean Value Theorem, reason by the localness property of the derivative that the derivative of the restriction at the gotten point equals the derivative of the unrestricted function there, etc., etc., etc. And keeping in mind that all this must be done to apply this theorem rigorously, one feels it a slap in the face when Abbot in all later examples and proofs neglects to go through these steps. In the proof of Corollary 5.3.3, the statement that a function with constantly zero derivative is constant, Abbot thus: "take x, y in A [the domain of differentiable g] and assume $x < y$. Applying the Mean Value Theorem to g on the interval $[x, y]$ " and we are already wrong. All this strife could have been avoided, had Abbott simply let the closed interval $[a, b]$ in his statement of the Mean Value Theorem be a subset of the domain of function f . But he didn't, and Prof. Alvarado understandably wants a high degree of rigor in proofs, which thus are many lines longer than they should be. The same problems occur with the Intermediate Value Theorem and other theorems and definitions. I think that whoever teaches this course should either present these problematic theorems differently than they are stated in Abbott's book or use a different one.

17. [No Response]

18. The textbook at times can be unclear on the problems. I'm often not sure how much I need to show in order to answer a textbook question, or I have to make certain assumptions where the textbook wasn't specific enough. Perhaps type the questions out separately, with more explicit detail on what is required of us?

11. If you have any other comments on the course, please write them here:

1. I felt like the grading on the exams was sometimes a bit too harsh and nitpicky. Oftentimes points would be taken off on very minute details, and this could feel a bit dejecting.

2. [No Response]

3. N/A

4. [No Response]

5. [No Response]

6. N/A

7. [No Response]

8. [No Response]

9. MA

10. nope

11. None

12. [No Response]

13. [No Response]

14. [No Response]

15. [No Response]

16. The course, as Prof. Alvarado taught it this semester, involved assignments and responsibilities that I think were overreaches. These were the "Theorem and Definition sheet checks," and the participation grade that included a choice of two of: regular attendance of office hours, participating on "Piazza," attending and filling out a response form about a math talk, giving a short presentation about a mathematical topic, and writing a short paper about a book or movie concerning math. Though the aims of these assignments, as I perceive them, are good, this is the wrong approach. Students should be responsible to themselves to study and make notes in the way they know is best for them; the Theorem sheet checks are instead a coercive way of getting students to do an arbitrarily determined kind of note-taking. Notes should not be graded or checked. A student knows at this point in their education what they need to do to learn course subject matter, and should be responsible to themselves to do it. Likewise, the necessitation that a student attend office hours or use a website that helps students ask questions to professors goes against this principle. The other options for the participation grade again seem like intrusions. I am interested in mathematics and read books on math unrelated to my course materials very often; these assignments designed to increase students' interest in mathematical research were just burdens. And I think that if I were one of my friends who is less inclined to get interested in math research, who mainly wants to do well in the course, I would value my option to choose for myself how much extra math to consume.

17. [No Response]

18. Loved the class!

EVALUATION: #1 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Professor Alvarado was very good at creating an engaging atmosphere and made the course material pretty interesting. He was very encouraging and motivating, even during the times in which I felt more dejected about my own progress.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Professor Alvarado was very good at presenting the material in a clear and straightforward manner.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

He was very good at encouraging comments and questions. He also always answered questions.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Professor Alvarado was a prompt responder to emails and was always accessible in person. If the office hours didn't work or there was some other reason I had to meet with him, he always did a great job of trying to find a mutual meeting time. He was very helpful during office hours and made a great effort to answer everybody's questions.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I really enjoyed the lectures with the tablet; I found them really helpful. I also enjoyed the office hours.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I felt like he did a pretty good job of facilitating student learning already.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

Professor Alvarado is overall a wonderful professor and he is very committed to making sure his students learn and are engaged with the material.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course material is moderately interesting. It is not my favorite course material compared to other math courses I have taken. One thing I will say is that I found the level of difficulty to be too hard. I enjoy challenges, but at times this course felt extremely difficult and overwhelming, which got extremely frustrating and served to make me feel quite a bit dejected at times. Alvarado tried to do a good job keeping our morale up and encouraging us, but it still felt like a bit too much / too hard more times during the semester than I felt like it should have to be honest. I am luckier in that I had an easier course schedule this semester, but I think for the time periods at which most students would be taking this course given that it is a 300-level and that they would probably have many other extremely difficult courses at the same time, that this was asking a bit too much. This course did help develop my ability to think and to solve problems a bit. However, considering that it is a math course, sometimes it felt like too much memorization for what a math course should be. Instead of learning to solve problems, many times throughout the semester it felt a bit like it was a lot of memorizing definitions and theorems and obscure tricks in proofs and the proofs themselves. But there was some problem solving in the course, so that was good.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I thought the division between homework assignments and exams was pretty good.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I think maybe more in class practice problems and proofs like worksheets could maybe be helpful.

11. If you have any other comments on the course, please write them here:

I felt like the grading on the exams was sometimes a bit too harsh and nitpicky. Oftentimes points would be taken off on very minute details, and this could feel a bit dejecting.

EVALUATION: #2 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes, he did. I could easily tell that Professor Alvarado was excited about the material and that he wanted us to be excited as well. He did a great job of keeping us engaged.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

The way that he taught was very clear, organized, and accessible to everyone. He made it so that everyone in the class had a chance to understand the material.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes. He would constantly engage the class in questions and encourage us to make comments and ask questions of our own without making us feel inadequate for doing so.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes. He was very accessible both in-person and electronically. I utilized office hours and I found them to be extremely helpful.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

His use of online notes are particularly helpful and effective.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Perhaps more worksheets that we could do in groups would help force us to internalize the material on our own during class time.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

[No Response]

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course material was very difficult but when I understood it, it was very rewarding. This course definitely helped me develop my ability to think and solve problems.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I would've appreciated slightly less emphasis on exams and more on homework or quizzes. That would've alleviated some of the stress that I experienced with how weighty the exams were.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Not particularly.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #3 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes- I felt challenged throughout the semester, but I felt very much supported by his encouraging attitude, extremely helpful office hours and carefully thought out lectures. I felt that he truly wanted me to succeed- so even when I had moments that left me feeling discouraged and unmotivated, his belief in me pushed me to push forward with the material.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

I could really tell that Alverado spent a lot of time thinking about his lectures and ensuring that the story he was telling us was accessible to every memeber of the class. His entire class was celf-contained, meaning I didn't feel like I needed to look outside the class for information on some material. Rather, everything I needed to know what covered in lectures.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

He always made sure that he paused to ask if anyone had any questions. If he looked around the room and saw that some people looked confused he would re-explain the material to ensure complete understanding

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

He was accessible in office hours and by appointment. I got to speak with him privately and this was so helpful since I have a hard time learning when I am surrounded by other students.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

He was just so personable and encouraging. I felt like he really believed in me and for a woman of color in Math- that means so much.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Maybe holding more office hours would be helpful. Sometimes they were too crowded so it was hard to get good questions in. Also, I wish the actual assigned homework was shorter but that he gave more practice problems per problem set.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

He's honestly one of the best professors I have had at Amherst and its such a shame that I could only have him for one semester before I graduate. I know he is going to greatly improve the department and I hope he can stay for a long time.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

I think the class was really hard, but I think I learned a lot about both Math and myself taking it. I had to re-evaluate how I study for exams. I'm really glad I took it.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I think this was divided really well.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I think we really need more q-fellows. We need more help outside of the classroom. Yes Alverado is great and helpful but he is only one person and there are just too many students for him alone.

11. If you have any other comments on the course, please write them here:

N/A

EVALUATION: #4 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Professor Alvarado is extremely engaging and energetic. Even though the class is early, he is able to keep everyone awake and engaged. Additionally, it is helpful that he always stops to ask for questions and is open to feedback and critiques.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Real Analysis is a pretty difficult subject to understand, however, Professor Alvarado makes it much less confusing than it could be. He is very thorough and carefully explains every step he makes while writing proofs and never misses a step.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

[No Response]

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Professor Alvarado is very accessible, in fact, he organized his office hours such that every student in the class could at least attend one. In addition to his daily office hours, he was always willing to meet with students outside his hours if needed.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I thought that Professor Alvarado's willingness to help and care for his students truly made him the best person to teach such a difficult course. He is the most accommodating and approachable professor and gives the course and students his all.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I wish he would give practice exams.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

[No Response]

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course was very difficult.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I thought that there was a fair distribution, however, I wish that there were three exams instead of just two.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I wish that there could be more outside help available because of the constant congestion within office hours and other help hours.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #5 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Professor Alvarado was constantly motivating his students to succeed. I always got the sense that he believed in my ability to do the math, no matter how hard it was. He is so energetic and passionate about the material that it inspires us to feel the same way about it.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes, it was easy to understand his lectures. He used technology effectively, showing us example graphs online and writing notes with a tablet so that he could color-code things.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes, he often would try to get students who didn't talk much to make a comment/ask a question. If someone was talking too much, he would try to call on them less in favor of a student who hadn't talked as much.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

I went to office hours a lot, and always found them helpful. He answered all of my questions clearly and concisely, and worked hard to ensure that we were on the same page when he had finished explaining a difficult concept.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I really appreciated his individual attention to each student's learning goals. He was always checking in with us on how we felt about the way the course was going/ what he could do to help us more. As previously mentioned, the fact that he used technology was really useful as well. He always posted the lecture notes online after class so that we could look at them later, which was really helpful when studying for exams.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

[No Response]

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

Professor Alvarado showed outstanding commitment to his students, both in and out of class. I'm really glad to have had a professor so invested in my success.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course definitely further stretched my proof-writing abilities. I had to practice several new techniques/ways of thinking, as Analysis heavily relied on a lot of theorems and definitions.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I really liked our Theorem/Definition sheets, because they helped us recap each week what we had learned. The exam balance was pretty good, and I liked that we had two midterms instead of three.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

[No Response]

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #6 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes. Professor Alvarado created an atmosphere that greatly helped me as a student. I had a very busy spring, so I wasn't able to spend as much energy on this course as I normally have, but all the extra work he made us do with the theorem and definition sheet definitely helped me for the exams, which really required you to know the definitions and theorems by heart. He was also very enthusiastic about the material, and really made the class fun.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes. The online notebook was extremely helpful, as it allowed us to go back to the material and look at it, and he often added comments or clarifications after class time if there were anything that wasn't quite clear during class.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes. He quite often asked questions to the class, and clearly encouraged students to stay engaged and active.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes, he was available. Again, unfortunately I was too busy this spring to take full advantage of that fact, but the office hours I went to were very helpful. If there is any improvement to be made, I suppose he could respond to emails quicker, but he's obviously also very busy.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I thought he was very warm toward the students, and it really felt like he has been pushing us to succeed in the class. He was also greatly enthusiastic, which also helped.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I don't think so. I think he's a great teacher, and the fact that he uses an online notebook just makes his already very good teaching style even more effective.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

He's great. Keep up the good work. I will recommend him to anyone thinking about taking his courses.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

It was challenging, but not incredibly so. It was nice to get back into the swing of doing math after taking a semester off, and I think it helped me develop skills that I may use in the future.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I think it was a good division. If anything, small quizzes may have been useful every now and then, but I honestly don't think we had any time to spare as it was.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Nothing that comes to mind.

11. If you have any other comments on the course, please write them here:

N/A

EVALUATION: #7 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Professor Alvarado created a classroom environment that kept us engaged with the material throughout the course. He was constantly motivating us to succeed. While the material was challenging, he was extremely supportive. He wanted us all to succeed, and was willing to help us as much as possible.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Everything was extremely well organized. The tablet he used, instead of the chalk board, was very helpful. It made the material more clear. He also is a very clear professor, and explains the material in a non confusing way.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

He always encouraged everyone to ask questions, and also would ask people if they had questions. If someone looked confused, he would ask if they needed any clarification, which I really liked, as some people are not always comfortable raising their hand. He also always emphasized the fact that there was no such thing as a stupid question in his class. Further, he was always willing to listen to a student if they had a different approach to a proof.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

He was always accessible outside of the classroom. If you needed more help besides office hours, he always made himself available. He was very supportive and willing to do anything to help his students succeed with the challenging material. Office hours were really helpful, and he made sure everyone left with a clear understanding of the material. There were multiple times where he stayed late to ensure everyone understood the questions.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

All of the material was presented in a clear way, especially since it was on a tablet. I also really appreciated his emphasis on questions and making sure everyone felt comfortable moving forward with the material. In previous math classes, teachers have not wanted to take questions, but in his classroom, questions fostered a more comfortable learning environment.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I don't think so. He was one of the best professors I have had at Amherst and don't think he needs to change anything.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

I thought that the class is inevitably challenging, but professor Alvarado was one of the most supportive professors I have had. He was always interested in how his students were doing not only in his class, but outside of his class. I think that says a lot about his as both a person and teacher, as most of my professors at Amherst have not been like that. I think that he is by far one of the greatest professors I have had during my four years at Amherst. He made a challenging class enjoyable, and was understanding of our struggles, but helped us through them. I never thought I would enjoy analysis, but because of him, it has been one of my favorite classes at Amherst.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

It was very difficult but it made my proof techniques and ability to solve a challenging problem stronger.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I thought the division was fair, and didn't put too much weight on one part of the class.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I do not think so.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #8 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes. Professor Alvarado's lectures kept me engaged. The pace was fast enough to accumulate and understand a lot of material. Despite this challenging picked up pace, the structured lectures allowed me to follow along very well. In addition, using the iPad and special writing program, as well as Desmos, were very helpful visual tools that made understanding lectures more feasible.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Professor Alvarado made great use of the programs available, often resorting to different types of color coding to differentiate between proofs, theorems and the scratch work necessary to complete the proofs. This structured approach facilitated better organization of material.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes. Professor Alvarado encouraged and often directly addresses student concerns during class. Students felt comfortable with raising their hands during lectures and asking for clarifications for the operating mechanisms in certain proofs.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes. At the beginning of the year, Professor Alvarado gave the class the opportunity to fill out available hours in order to coordinate office hours that everybody could attend at least 1 hour a week. In addition, the Q-center resources and fellow hours helped tremendously.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I enjoyed Professor Alvarado's capacity to break down complex proofs into simpler exercises that relied exclusively on the topic that we developed during class. Professor Alvarado took the time necessary to get to know his students. Then, when students were confused, he was perceptive enough to notice and address the confusion often attacking the proof from a different angle to ensure that his point was coming across. He is an excellent professor.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

[No Response]

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

[No Response]

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course material is difficult. In particular, it covers such a wide range of strategies and topics that it is very hard to master all of them by the end of the semester. Yet, the structural character of the mathematical approach helped me better order logic and approach notions of causality in a wide variety of topics, particularly my Economics thesis.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

In general, adding too much emphasis on exams is a slippery slope. More emphasis on homework assures that more grade weight relies on the developed skills and their use every week, as opposed to a select number days in which students show their knowledge.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

The course is very well structured. I would say the biggest setback in general is one that afflicts very many classes at Amherst College. A good way to diffuse stress in courses is to generate weighting that is beneficial to students. I would suggest that more weighting be placed in participation so exam completion and hard homework produce less stress on students, thus facilitating the learning process. Stress is poisonous. We know this.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #9 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes, it was so clear from the beginning that all Professor Alvarado wanted was for his students to succeed. He put in effort to know the students individually.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes, his lectures were very clear and structured.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes. He would even approach students after class to push them to ask questions in a very friendly matter.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

yes, was quick at email responses and held a lot of office hours.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

He was so lively that he made the material exciting.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

No, I really enjoyed him as a professor.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

He was one of the best professors I have had here. He made me want to do well because he cared so much.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

It was good.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

Good!

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

No

11. If you have any other comments on the course, please write them here:

MA

EVALUATION: #10 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes, one of Professor Alvarado's greatest strengths is the sheer amount of positive energy that he brings to each lecture. His energy is infectious and definitely makes lectures more engaging. He presents the material as objectively challenging but constantly reassures us that hard work pays off.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes. The best part about Professor Alvarado's teaching style is that he uploads class notes online after each lecture. This was extremely helpful both in and out of class. In class, we could focus on the lecture and less on copying notes down. The online notebook is extremely advantageous because we could refer back to Professor Alvarado's original class notes whenever we wanted. Also extremely helpful if you miss class.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes. Professor Alvarado answers any and all questions, with a sense of humor. He keeps the lectures serious yet light-hearted. He welcomes any and all participation from students during lecture.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes. Many accessible office hours catered to each of our schedules. Easily accessible electronically as well.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I want to emphasize that Professor Alvarado's positive attitude during lecture and office hours was extremely encouraging. He realizes that the material is hard yet does everything in his power to make the content exciting. He constantly checks in with his students as well, which I really appreciate.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Nothing comes to mind.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

[No Response]

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

I would rate the difficulty as an 8/10. I would say that the course helped develop my ability to think and solve problems.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

Homework assignments were pretty tough. I found that most of the time I spent on homework weekly was consumed by this course. I do feel like the homework assignment were necessary, however. Looking back, it seems like periodic quizzes throughout the semester would be a good idea. Past theorems and definitions commonly came up and I feel like being tested on them periodically would be beneficial.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

nope

11. If you have any other comments on the course, please write them here:

nope

EVALUATION: #11 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes, he was very friendly and always pushed the class to ask questions and that the material was fully understood before moving on to a new topic.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

The online notes were an excellent guide in terms of the structure and the way in which material was presented. The organization of topics was connected in a way where most topics built off of previous ones and that was helpful in understanding new material.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes, in class he always would encourage any questions.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

He was very helpful in office hours. The only time an issue arose would be when too many people showed up, but he always made sure everyone got to ask their questions without neglecting any one person.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

The structure of Thm/Def and examples was very helpful in conceptually understanding what was being taught. The homework helped iron out the mechanics of proving statements and learning the nuances and specificity of the topics we had learned in class.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

No changes.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

*Even though it may be hard to create, I always appreciate a study guide with problems listed as examples of what kind of problem can appear on the test. It helps to remove the stress that can come from trying to study so much content.
Professor Alvarado's positivity and friendliness really helps to create a great class dynamic and makes going to office hours easier and less grueling than just going to complete the homework.*

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

This course was difficult which I expected since it is a higher level math course. It was very helpful in giving me practice with difficult proofs and absorbing a lot of information at a fast pace.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

The balance between homework and exams was well executed.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

It seems like one of the key components of this class for me was going to office hours to really learn the material. I'm not sure what change can send more people to office hours but I think that they are the best way to be successful in this class.

11. If you have any other comments on the course, please write them here:

None

EVALUATION: #12 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes. The enthusiasm that he brought to the class made the class very engaging. I could tell he was passionate about the material. I think this also encouraged students to ask a lot of questions.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes. The material was presented in a very organized manner. The way he structured the course allowed me to see how all the materials were connected easily. It was excellent.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes. He frequently encouraged students to ask questions. When students did ask questions, he treated them with respect and did not act dismissive. The fact that the class was held in a relatively small room also helped. I think it psychologically made the students feel closer to Professor Alvarado.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes, he was easily reachable. I had no problem asking for help from him.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I particularly enjoyed seeing how all the materials connected. He was very good at structuring the lectures in such a way that these connections were easily noticeable. I also really liked how he used OneNote and his tablet. It was very helpful to have the lectures notes online. This allowed me to focus listening his lectures more instead of focusing on copying down notes.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Encourage students more to focus on listening to his lectures/asking questions instead of focusing on copying down notes. I think listening to lectures help a lot with building intuition and visualization of the concepts. The notes are always accessible online, so there's no loss in not copying down notes in class.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

I could tell that he was very passionate about the course material and that he cared for students' success. Studying in his course was a great experience.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course material was great. The level of difficulty was just right, if not maybe a bit easy. The course did help a lot with my ability to think about functions and sequences in a more rigorous manner.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I think the ratio was about right. I would've enjoyed it if there were take home exams, just to test if I can apply the concepts discussed in class in more sophisticated ways than in the normal exams.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

Perhaps spending less time on the first three chapters so much and spending more on the latter chapters would be a worthwhile course structure to test. I felt like the pace of the course was a bit slow in the first few weeks of the semester. I feel like the course ended where the material was just about to get interesting.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #13 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes, he succeeded in creating a great classroom atmosphere that did a good job at mitigating the grogginess of the early start times, especially the 9 am start on Tuesdays. Prof. Alvarado was also a very engaging lecturer and was effective at communicating the concepts.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes, the material was presented in a very clear manner; proofs were very well explained and there was a big emphasis on attention to detail, so the material was also very organized.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes, this was highly emphasized during lecture. Questions were always welcomed and the answers were clear, prompt, and helpful.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes, there were office hours almost every day, so there were plenty of opportunities for students to seek him out and ask for help. Office hours were especially helpful and were very well attended.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

The use of the tablet and online notes was very helpful, as I could revisit things after class and had a handy reference tool at the ready. Also, the tone of the class was definitely very welcoming, which was great for what seemed to be a very intimidating class at first. The exam structure was also very helpful, as knowing that we wouldn't be thrown any curveballs helped put me at ease when studying. Furthermore, the theorem sheets were definitely a great assignment, as they became essential when studying for exams.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I honestly don't think there are any changes that I would make.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

[No Response]

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The course was manageable, though the difficulty definitely ramped up towards the end of the semester with integration and sequences and series of functions. It did help me develop my proof writing skills and making sure that I was thinking about problems in a rigorous way, which I feel will help me in my future classes.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

The distribution of emphasis on the homework and exams was appropriate, I felt, and I wouldn't change any of that.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I think that the way the class started, with a quick intro/review of proof techniques would definitely be helpful for future students, as I would have been confused on quantifiers and other aspects without it; while Prof. Alvarado did that here, I don't know if that's a standard thing.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #14 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Yes.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I liked definition and theorem sheets and his online notes teaching

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

I wish he had some practice exams before the exam

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

n/a

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

it was very challenging and difficult.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

right amount of hw and exams

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

nope

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #15 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

There was never a minute in class that I was bored or disengaged. Professor Alvarado worked hard to ensure that everyone in the class had a clear understanding of incredibly confusing topics, relying on extremely helpful visuals and in depth proofs to enhance our understanding of the concepts.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Professor Alvarado's notes were incredibly clear and concise, and were actually so good that they made the textbook unnecessary.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Absolutely. Professor Alvarado constructed class around making sure that there was no point in lecture that we were confused, often times staying on certain topics for entire periods just to make sure all questions were answered.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Professor Alvarado was more than accessible outside of lectures. He was extremely accommodating and made sure that every student had the ability to come to him and ask questions.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

I really enjoyed Alvarado's focus on visuals to enhance our understanding. I also appreciated that all the course notes were online because I could often check them to make sure I didn't miss any big details or copied something wrong.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

No, his teaching style is really conducive to helping people learn the concepts.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

Professor Alvarado is beyond committed to his students' learning. Without his accessibility and passion for the material, I doubt that I would be able to have as clear of an understanding of the material.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

I think that the course is difficult, but 355 is not meant to be easy, so the difficulty level is appropriate. The course definitely developed my ability to think and solve complicated problems.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

The division was definitely good and the best possible arrangement for the class. Alvarado constructed the class so we would have to be constantly engaged with the material, and without this impetus, it would have been much harder to remain engaged with the material.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

No, I don't think so.

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #16 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Prof. Alvarado is one of the most encouraging professors I've had.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

The course material was presented in a well-organized way.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Prof. Alvarado did very much encourage students to make comments and ask questions. But often it seemed like so much material is packed into the curriculum that asking questions could endanger the class's prospects of making it through all the planned subject matter.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Prof. Alvarado was extremely accessible. I utilized office hours, and found them helpful (but see 6).

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

So much of the lecture time was dominated by the need to get through the long curriculum, so any particular aspects of Prof. Alvarado's personal teaching style mostly weren't perceptible. But as above, he is really encouraging and kind.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

As mentioned, I came to office hours. But I often believed that Prof. Alvarado might do well not to be so quick to reveal solutions in office hours; rather, he could try giving students less-obvious hints. I've found that I learn a great deal when I do a difficult problem without any help, but that getting even a small amount of help can spoil my chances of really absorbing the mechanisms of the proof. It's very difficult to pay full attention to and understand the details of a proof if you're receiving, rather than creating, it. Further, the homework "problem sets" we received weekly were quite long, but individual problems were generally not difficult. This paradigm meant that

the sorts of proofs that challenge one to grasp the definitions and theorems at hand were rarely included - and when they were, many students just went to office hours to get the solution and not have to think too hard. I suggest that when Prof. Alvarado teaches this course next, he include only as many easy problems as hard problems - one doesn't learn much from writing lots of easy proofs - and include perhaps two or three harder problems per problem set: more than the typical zero or one of this semester. This will shorten the problem sets (which as it stands are a bit too long) and, more importantly, increase their teaching potential.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

Prof. Alvarado's commitment to student learning is great and commendable. See number 6 above for some comments on his teaching, which otherwise - in lectures, for instance - has been good for me.

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

The level of difficulty of the course material was sufficiently challenging. The "big" theorems (Monotone Convergence, Intermediate Value, Weierstrass M-Test, Extreme Value, Mean Value) were all treated and given complete proofs. Reproducing these proofs for myself, I learned better the principles behind them and how to apply them.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

The division between these components was standard and fine.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

The textbook being used, Abbot's "Understanding Analysis," is not exactly ideal. Theorems are presented in a way that makes them difficult to apply without referring to formalism that really shouldn't be a concern. Take the example of the Mean Value Theorem (5.3.2, p. 156). This theorem is phrased so that it applies only to a function defined on a closed interval, and can be used to get an interior point where the derivative equals the slope of the secant line between the boundary points only if those boundary points are the bounds of the interval. Thus, if one wants to apply the theorem to get such a point for an arbitrary closed interval in the domain of a differentiable function, one must first consider the restriction of that function to said interval, genuflect to the properties (viz., preserving continuity and differentiability) of restriction, finally apply the Mean Value Theorem, reason by the localness property of the derivative that the derivative of the restriction at the gotten point equals the derivative of the unrestricted function there, etc., etc., etc. And keeping in mind that all this must be done to apply this theorem

rigorously, one feels it a slap in the face when Abbot in all later examples and proofs neglects to go through these steps. In the proof of Corollary 5.3.3, the statement that a function with constantly zero derivative is constant, Abbot thus: "take x, y in A [the domain of differentiable g] and assume $x < y$. Applying the Mean Value Theorem to g on the interval $[x, y]$ " and we are already wrong. All this strife could have been avoided, had Abbott simply let the closed interval $[a, b]$ in his statement of the Mean Value Theorem be a subset of the domain of function f . But he didn't, and Prof. Alvarado understandably wants a high degree of rigor in proofs, which thus are many lines longer than they should be. The same problems occur with the Intermediate Value Theorem and other theorems and definitions. I think that whoever teaches this course should either present these problematic theorems differently than they are stated in Abbott's book or use a different one.

11. If you have any other comments on the course, please write them here:

The course, as Prof. Alvarado taught it this semester, involved assignments and responsibilities that I think were overreaches. These were the "Theorem and Definition sheet checks," and the participation grade that included a choice of two of: regular attendance of office hours, participating on "Piazza," attending and filling out a response form about a math talk, giving a short presentation about a mathematical topic, and writing a short paper about a book or movie concerning math. Though the aims of these assignments, as I perceive them, are good, this is the wrong approach. Students should be responsible to themselves to study and make notes in the way they know is best for them; the Theorem sheet checks are instead a coercive way of getting students to do an arbitrarily determined kind of note-taking. Notes should not be graded or checked. A student knows at this point in their education what they need to do to learn course subject matter, and should be responsible to themselves to do it. Likewise, the necessitation that a student attend office hours or use a website that helps students ask questions to professors goes against this principle. The other options for the participation grade again seem like intrusions. I am interested in mathematics and read books on math unrelated to my course materials very often; these assignments designed to increase students' interest in mathematical research were just burdens. And I think that if I were one of my friends who is less inclined to get interested in math research, who mainly wants to do well in the course, I would value my option to choose for myself how much extra math to consume.

EVALUATION: #17 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

yes, he provided a class outline at the beginning of every lecture and did a tremendous job staying on track and kept everyone engaged with interesting lectures and use of the tablet

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

yes, his online course notebook kept everything nicely organized and easy to access/understand

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

he always provided time after theorems, definitions, examples, etc. for people to ask questions; he encouraged people that do not usually speak up to ask questions if they looked puzzled in class

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

he had a great deal of office hours, polling the students beforehand to make sure that every student could make it to one if not two office hours; he encouraged students to attend his office hours and to work together while in office hours with peers

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

his knowledge of the material is very extensive, and he did a good job connecting all of the topics and highlighting how each topic is interconnected to one another; he explained things in an easy to understand manner without losing the complexity of the subject (which is difficult to do)

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

As a very busy student, I could only make it to one of his office hours and could rarely attend any TA or Q center hours. As this was only a me problem, I do not think it has anything to do with Professor Alvarado's teaching approach, I just would have liked to find a time to meet outside of these hours to work with him.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

he was very engaged and concerned with every student's wellbeing, both in class/academically and outside of class; he just wanted everyone to make sure they did the best they could and he went above and beyond to make sure all his students were cared for

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

I think this course was one of the most difficult that I have taken as a math major at Amherst. It required a lot of time put into the work in class, in office hours, outside of class and just a lot of hard work overall. It definitely helped with a greater understanding of calculus and analysis.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I think there is a good balance of homework, quizzes, exams, etc. One problem set a week and three midterms throughout the semester in addition to a final exam

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

[No Response]

11. If you have any other comments on the course, please write them here:

[No Response]

EVALUATION: #18 (of 18)

TEACHING: Please comment on Professor Alvarado as a teacher.

1. Did Professor Alvarado create an atmosphere that kept you engaged in the course content and motivated you to succeed? Please comment on your response.

Definitely. His enthusiasm in the subject kept me engaged and interested in completely understanding the material.

2. Did Professor Alvarado present the material in a well-organized and clear manner? Please comment on your response.

Yes, he was always extremely clear, and in instances that were more difficult for us to understand, he always followed up afterwards with a clearer explanation.

3. Did Professor Alvarado encourage students to make comments/ask questions during lecture? Please comment on your response.

Yes, he actively sought participation from each student, without making us feel forced to participate or called out. This class was probably the math class with the greatest student participation I have taken at Amherst.

4. Was Professor Alvarado accessible outside of lectures (in-person, electronically, or both)? If you utilized office hours, did you find them helpful?

Yes, I went to his office hours very often and found them extremely helpful.

5. What are some aspects of Professor Alvarado's teaching that you most enjoyed and felt were particularly effective for your learning in this course?

His lectures were very clear and helped me more easily understand the material. His enthusiasm encouraged me to take interest in the subject and understand things more deeply. While it often felt like he had high expectations (in the beginning it may have even felt too high), achieving them was doable and he provided lots of help along the way. If anything the fact that he seemed to genuinely care about how each student was doing in the class and how they were understanding the material encouraged me to learn even more.

6. Do you feel that there are any changes Professor Alvarado can make in his teaching to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

No.

7. If you have any other comments on Professor Alvarado's teaching and/or his commitment to his students' learning, please write them here:

Best teacher I've had at Amherst!

THE COURSE

8. What did you think of the course material and its level of difficulty? Did the course help you develop your ability to think and to solve problems?

I found the material very interesting. It was difficult but doable. If anything, I found this course hard more due to the time required of me to put in to understanding and learning, rather than the fact that the material itself was too difficult to understand. It helped me greatly with thinking through solving problems, and being extremely thorough in my thought process.

9. What did you think of the division between homework assignments, quizzes, and exams? If there had been distinctly more or less emphasis on any of these components, would it have made the course more valuable?

I liked it. I like how he divided the semester up into 3 parts, so that the final exam was mostly covering the last third of the class, with a portion covering the general material of the course. The homework took a long time but was also the component that facilitated by learning the most.

10. Do you feel that there are any changes that can be made to the course to help better facilitate student learning? Please explain why you are suggesting this particular change or set of changes:

The textbook at times can be unclear on the problems. I'm often not sure how much I need to show in order to answer a textbook question, or I have to make certain assumptions where the textbook wasn't specific enough. Perhaps type the questions out separately, with more explicit detail on what is required of us?

11. If you have any other comments on the course, please write them here:

Loved the class!