Student Evaluation of Teaching

Instructor: Christensen, Jens G.

Course: Real Analysis I

9 surveys / 21 enrolled in MATH 377 A (MWF 0810)

Student:1

Reason(s): Major or minor requirement

Additional Reason(s):

<u>Effort:</u> I put a solid amount of effort into this course, by showing up to class every day and doing all of the homeworks. <u>Understanding & Appreciation:</u> This course helped be understand the concepts behind mathematical procedures that I took for granded when learning in calculus classes.

Intellectual Growth: This course was challenging in the facts that you were always applying things you had learned to new situations, either similar problems or new concepts that strengthened by critical thinking skills.

<u>Quality:</u> I thought that the recorded lectures were paced well and well organized. I think in the remote setting it was fairly easy to get distracted during a 40 minute lecture without anything breaking it up, but I think that if you were to continue to do these in person they would work well. The problem sessions were very helpful as they applied the information we learned to concrete examples. Towards the end of the semester, Professor Christensen started brainstorms with repeating the definitions of concepts we would use on that problem, which I found incrediably helpful, and I think if possible those should occur throughout the whole semester. Laying out the definitions and what concepts to use on what problems would improve performance on individual problem-solving, like the extras and tests.

E	ffectiveness Conveying Course Material	Teacher-Student Interaction and Rapport	Course Standards and Challenge	Grading and Evaluation	Student Self-Rated Learning	Other Aspects of Teaching
-	1: A	3: A	8: SA	5: N	2: A	13: A
	7: A	10: A	14: SA	17: N	4: A	21: A
	9: A	15: A	20: SA	19: A	6: A	22: A
	12: A				11: SA	
	18: A				16: A	

Student:2

Reason(s): Major or minor requirement

Additional Reason(s):

<u>Effort:</u> There were weekly homework assignments that I completed as well as studied for many exams throughout the semester. <u>Understanding & Appreciation:</u> I have not taken many classes like this before, so it exposed me to other types of math, and gave a basis for things I've been learning for years.

Intellectual Growth: This topic is not something I particularly am interested in, so it was good to take a class that challenged me and got me out of my comfort zone.

<u>Quality:</u> I think this class is taught very well. I liked the problem sessions because that is how I learn best. My one critique is I wish we had gotten solutions to all the problems. Even if we just got them right before the exam, it would have helped me study and check my work.

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1: A	3: SA	8: SA	5: A	2: SA	13: SA
7: SA	10: SA	14: SA	17: A	4: SA	21: NA
9: A	15: SA	20: SA	19: SA	6: A	22: D
12: SA				11: SA	
18: SA				16: A	

Student:3

Reason(s): Major or minor requirement

Additional Reason(s):

<u>Effort:</u> I believe I put in more effort than what was required. Since lectures were pre-recorded so students could watch them on their own time, and homework was not part of the grade, many students might have seen attending class and turning in homework as optional. But I made an effort to show up to every class, do every homework, resubmit the homework when the professor asked for a redo, and I spent a lot of time studying for the exams. I'm proud of the work that I put in, and I hope that even if homework wasn't part of the grade, our efforts would be acknowledged in some way.

<u>Understanding & Appreciation:</u> I think the most interesting thing I learned from this course is that we learned more about what we don't know than what we do know. This course helped me recognize the limits of our knowledge of math and that we have a lot more to uncover. I also found it fascinating that we were revisiting concepts from Calculus I and II, but really exploring why the formulas

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and theorems in those classes work the way they do.

Intellectual Growth:

<u>Quality:</u> I appreciated the flexibility of the course. Since lectures were pre-recorded, students were able to watch them on their own time. However, I found it worked better for me to attend class to watch the pre-recorded lecture than to watch it in my own time. I think having a class dedicated to problem sessions is a good idea.

I personally was not able to make any of the office hours the professor had because I always had class during those times, so I had to email the professor a lot questions I had, which don't really translate well through text when trying to work through a problem sometimes. Although there was a bit of time at the end of class to go over questions, the professor had another class to teach in 20 minutes, and I would feel more comfortable working through a problem if I didn't feel so rushed by time.

Effectiveness Conveying Course Material	Teacher-Student Interaction and Rapport	Course Standards and Challenge	Grading and Evaluation	Student Self-Rated Learning	Other Aspects of Teaching
1: A	3: N	8: SA	5: N	2: A	13: A
7: A	10: A	14: SA	17: A	4: N	21: NA
9: A	15: A	20: SA	19: A	6: A	22: A
12: SA				11: A	
18: A				16: A	

Student:4

Reason(s): Major or minor requirement

Additional Reason(s):

Effort: I put a great deal of effort into this course between weekly homework assignments and preparing for exams.

<u>Understanding & Appreciation:</u> This course gave a better understanding of real numbers and their properties. It also reinforced math skills such as finding limits, checking continuity, and differentiability that I have not used since taking calculus. It also helped me think conceptually about the course material because not everything was simply solving an equation but rather thinking about why things are true and proving it.

Intellectual Growth: This course helped me better my time management as I had to set aside a good amount of time to prepare for this class.

<u>Quality:</u> I thought Professor Christensen taught the course well. I do like the idea of the flipped material discussed towards the end of the semester because watching videos in class could sometimes be difficult if you fall behind in writing the notes because once you move on in the video I can not rewind it or anything and sometimes I would have to open the pdf on Moodle of the lecture notes to catch up all while the video on zoom is still playing. I also think doing more examples in class would be beneficial because me personally, I usually learn best through examples, so I think if students were to watch videos on their own time then do more examples during class time would be a good way to run the class.

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1: A	3: A	8: A	5: A	2: A	13: A
7: A	10: A	14: A	17: A	4: A	21: A
9: A	15: A	20: A	19: A	6: A	22: A
12: A				11: A	
18: A				16: A	

Student:5

Reason(s): Major or minor requirement

Additional Reason(s):

<u>Effort:</u> The weekly homework required me to go through the material. The frequent tests also required much time and effort. <u>Understanding & Appreciation:</u> The course helped understand the fundamentals of calculus better. I enjoyed learning how the theorems in calculus were proven.

Intellectual Growth:

<u>Quality:</u> Prof. Christenson is very approachable and helpful. He recorded the lectures, which made the class flexible. His office hours are also structured to promote learning. The problem-solving sessions are particularly helpful.

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1: SA	3: SA	8: SA	5: SA	2: SA	13: N
7: SA	10: SA	14: A	17: SA	4: SA	21: SA
9: SA	15: A	20: SA	19: SA	6: SA	22: N
12: SA				11: SA	
18: SA				16: SA	

Student:6

Reason(s): Major or minor requirement

Reputation of the instructor

Additional Reason(s):

<u>Effort:</u> I completed our homework assignments (working through extras), went to office hours when I had questions, and reviewed material regularly.

<u>Understanding & Appreciation:</u> I was not looking forward to this class when I first signed up for it; I really struggled in number theory, and thought that generally I would struggle in all proof-based math courses. Professor Christensen was exceptionally clear, understanding, and helpful in facilitating our learning of the content. I went from dreading the class (before I had even entered our zooms), to looking forward to it. I feel much more confident in my abilities regarding proof-based work, and I feel like I have developed a much needed foundation in the essentials of calculus that motivate all the other kinds of things in math that really interest me.

<u>Intellectual Growth:</u> This class helped me be more comfortable with making mistakes as a part of the learning. I really appreciated that Professor Christensen used the homework as a way to give feedback without penalization. It was really refreshing, and made me do less of this beating-myself-up that I often do (but am working on) for getting an idea wrong on the homework.

<u>Quality:</u> Professor Christensen's clear communication - of the mathematical concepts, his expectations, and answers to our questions - made this class a really positive one for me. Problem sessions, office hours, and the in-class 10 minutes to ask questions were really helpful (even when I rarely felt I had questions on the lectures).

Professor Christensen mentioned thinking about a flipped classroom in the future, and I think it could work really well. I thought the balance he found/developed for this semester was really effective, and giving even more in-class time to work through problems seems to me like it would work really well. I do think, though, that it was really helpful to see him work through his full process in some examples (which we did in the Monday problem sessions), and think that would be a great thing to keep incorporated in the future. I can see how it might seem a little too rote, but I found it really helpful to see his work through the whole process of the problem. I thought, too, that the HW questions and extras provided enough place to practice the same methods he worked through in the problem sessions.

I came to the class in need of some convincing - that the theory was worth learning about as a more applied math focused person, and that I could/had the ability to learn the material meaningfully - and he convinced me on all fronts in the ways that he really clearly explained both the material and the motivations behind it. I really appreciated the class Professor Christensen developed, as one that felt rigorous, but manageable in a way I have never found proof-based classes. I look forward to the possibility of taking other classes with Prof. Christensen.

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	7: SA	10: SA	14: SA	17: SA	4: SA	21: SA
	9: SA	15: SA	20: SA	19: SA	6: SA	22: D
	12: SA				11: SA	
	18: SA				16: SA	

Student:7

Reason(s): Major or minor requirement

Additional Reason(s):

Effort: Most of my efforts in this course were concentrated in completing weekly homework assignments and extra problems and attending class lectures and office hours. Although the lectures were recorded, I found it helpful to be present for the class discussion that occurred at the end of each class period. This also held me accountable for the material although it being an early course, this was not always the easiest.

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<u>Understanding & Appreciation:</u> While I have always found the structure and logic of proofs to be difficult, I definitely can say that these skills were strengthened in this course, more so than when I took Number Theory. I typically did not enjoy this type of math, but after about a month of taking this course, I started to appreciate it and become more interested in the material. Although I am an Applied Math major and this course is required, I'm glad I took it so that I could strengthen my interest in pure math concepts. <u>Intellectual Growth:</u> As a result of this course, I have become more confident in my abilities in pure math, since I am an applied math major. The logical style of thinking through a proof is incredibly satisfying and although difficult, I really enjoyed being able to use this part of my brain as it is not always used in other applied math courses.

<u>Quality:</u> I really enjoyed this course mostly because of Professor Christensen's abilities as a professor. He was incredible at explaining concepts clearly, answering questions, and giving us worthwhile problems to do for our homework assignments. The way that he structured the course was incredibly conducive to learning the concepts and I really enjoyed the Monday problem sessions -- I found them incredibly valuable for solidifying concepts from the previous week and setting us up for success with the homework questions. The tests were difficult, but not unfair given the concepts we covered. Professor Christensen was very accessible either through email or in office hours and always returned our assignments with enough feedback to facilitate learning and give us time to revise. I don't have complaints about Professor Christensen, I just wish that homework counted in our grades because the course was a bit test heavy, but I understand why this couldn't happen given the revise period.

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1: SA	3: SA	8: SA	5: SA	2: A	13: SA
7: SA	10: SA	14: SA	17: SA	4: SA	21: NA
9: SA	15: SA	20: SA	19: SA	6: SA	22: NA
12: SA				11: SA	
18: SA				16: A	

Student:8

Reason(s): Major or minor requirement

Additional Reason(s):

<u>Effort:</u> I put a lot of effort into this course. As probably the hardest class I will have to take here, I knew this course would be challenging, as it requires me to think in a different way than I am used to. We had weekly homework that took a considerable amount of time if you wanted to do the extras, and I ended up attending almost every session of office hours that was offered.

<u>Understanding & Appreciation</u>: This course helped me understand calculus at its most basic element. While there are not as many real applications that come from this, this course definitely helped me to think more abstractly about math and the other fields besides applied math. It definitely made me appreciate calculus and its derivation as well as gain a much more complete understanding of continuity.

<u>Intellectual Growth:</u> This course helped me learn how to think critically. I was used to simply receiving a math problem and doing it right away, but this course required planning and careful thought before confronting a problem. I often had to think about a problem for over 10 minutes before I got start it, and then the process of solving was easy once I had assembled all of the right pieces. <u>Quality:</u> Professor Christensen was very accessible, and his office hours helped me to pass this course. He received questions incredibly well, and he made sure to give good hints to homework questions without doing them for us. Similarly, Professor Christensen's tests were challenging, but the majority of questions were similar to work we had done in class and they did not require incredibly abstract thinking. Professor Christensen mentioned that he was considering switching this class to a format where we watch lectures on our own and then do homework problems in class, and I think that would be a great format for this class. Especially considering students who might not have much of a background in proof based courses, practice is the best way to learn, and so practicing every day in class and collaborating with other students would really help with this class.

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7: SA	10: A	14: SA	17: A	4: A	21: A
9: A	15: SA	20: SA	19: SA	6: N	22: N
12: SA				11: A	
18: SA				16: N	

Student:9 Reason(s): Major or minor requirement

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Additional Reason(s):

<u>Effort:</u> I have put in a lot of time into this course, not necessarily on just assignments, but more so for lectures, since I watch them at my own pace outside of class.

Understanding & Appreciation: I definitely understand a lot more about the math behind calculus now.

Intellectual Growth: It has helped me to become a better problem solver.

<u>Quality:</u> I believe that for what this semester was (hybrid), this was a decent model for delivering material. I wish we had spent more time solving problems together because there are so many possibilities for what to expect. I often found that it was hard to pay attention with just prerecorded lectures, especially if we were just going to replay them in class; but on the flip side, I enjoyed being able to watch them at my own pace outside of class. Exams were challenging, but the course was challenging for me in general.

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7: N	10: SA	14: SA	17: A	4: A	21: A
9: A	15: SA	20: SA	19: SA	6: SA	22: SA
12: A				11: SA	
18: SA				16: A	

Likert Key: SA=Strongly agree, A=Agree, N=Neither agree nor disagree, D=Disagree, SD=Strongly disagree, NA=Not applicable