

Please see the Excel Document for the complete list of student responses and how many students gave each response. Here, I organize the student responses by topic and respond to those comments. While there won't be too many changes made to the way I do things, I try to explain why things are done the way they are and why some things won't be changed.

Changes I will be making based on your comments:

Based on your comments, I will be making some changes. I will be available for extra "office hours" (or just general chat about mathematics, life, etc.) most weekends. Before exams, I will also hold more official review sessions on the weekends in addition to the extra "office hours."

Pacing during lectures:

- Good pace (4 students)
- Lectures are fast and sometimes examples are skipped (5 students)
- Sometimes you skip work in the problem – slow down and be more detailed (2 students)

My response: I'm not surprised by this. I often get people liking the pace and others disliking it. Because of the relatively small number of respondents saying that it is too fast-paced compared to the overall number of students, I think I will keep the pace about what it is. Yes, sometimes I skip over some work in class: often, it is because you are expected to understand how to do that type of work at this point. For example, I often skip work where you use algebra to solve an equation for a specific variable. Or I may skip how to do a certain integral if we've already covered that technique. From my perspective, in the lesson where I am covering a certain topic, the new material related specifically to working with that topic is more important than going through details of computations from previous topics or classes. In order to give you a good picture of how to think about/work with the new topic, that's what I focus on. I understand that it is difficult to master a topic quickly, but in order to best satisfy the needs of the class as whole, I need to prioritize the new material over old material. In terms of skipping examples – I often prepare more examples than I intend to get through in class, so I often don't expect to get through everything in class. Please be aware that if I were to slow down and show more details, the number of examples I could do in class would decrease.

Overall MA 16020 pace:

- There is too much difficult material that comes too quickly in this course

My response: This is a tough course! You're absolutely right that a lot of tough material comes very quickly. But, we also have a lot of material to cover. MA 16010 and, in particular, MA 16020 are service courses for other departments. In other words, other departments tell the math department what topics they want to see covered in an applied math course for their major(s). The MA 16020 course must cover all of the various topics relevant to all of the various majors for people who are required to take this course. This is not entirely the fault of the math department. There used to be a variety of applied calculus courses (business calc, life science calc, calc for technology, etc.). Several years ago, there was a directive from the Provost at the time that the math department needed to condense all the different applied calc courses into as few courses as possible, so that if students switch majors, they wouldn't have to take a new applied calc class. Unfortunately, this also means that a single class must meet all the needs for these various majors.

Owen Davis does have discretion over the course contents and curriculum (I have no discretion over this), but he also must satisfy the needs of other departments. Unless the other departments are unsatisfied with MA 16020 and ask the math department to change it, I don't expect a change in this area.

Exam/Quiz pace:

- I like how you keep a strict time limit on quizzes
- Time given on exams is too short
- We are rushed on quizzes – maybe give us more time

My response: I have no control over how much time or how many problems you are given on exams. That is entirely up to Owen Davis, the course coordinator. I can bring it up to him, but I don't expect any changes to be made (5 minutes per question is the same amount of time given for exams/quizzes in other math classes as well). As far as the quizzes are concerned: since the exams are paced the way they are, I want to try to create that same pacing on the quizzes, which is why I try to give you about 10 minutes for a 2-question quiz. I will not be changing that. Additionally, if I did give you more time, I would have less time to do examples and cover new material in class.

Feedback on instructor in general (Eddie):

- I like your teaching style
- Eddie is always positive/energetic/happy
- Always prepared for class
- Good handwriting
- Your handwriting can get sloppy on days when you are rushed

My response: Thanks for the positive comments! I really enjoy teaching and mathematics, and I tend to be a very energetic and upbeat person all around, so don't expect those aspects to change. Yes, my handwriting can be sloppy when I am writing quickly. I tend to write more clearly when I am writing on the board, but since I'm writing smaller (on a sheet of paper), it is sloppier and does get sloppier when I am going more quickly. I will try to make things legible. If you ever have a hard time reading what I wrote, please interrupt me and ask.

Lecture notes during class:

- I like that you use the doc cam/projector for notes

My response: I will continue to do so, since many people seem to prefer this.

- Good examples/notes (quality)
- You give thorough explanations and work for examples
- I like how you set up the problems and spend time on how to get started
- I like that you teach the logic and intuition behind calculus
- You give good hints and tips (like LATE) in the notes

My response: Thanks. I will continue to go through this stuff. In particular, I like to show you where ideas come from. A lot of people get the impression that mathematics is a bunch of random rules that come from nowhere, but it is actually developed with a lot of thought and logic, which is why I like to explain where ideas come from and why they work. I also like to go through the work as in-depth as possible (prioritizing new material over old material/algebra) so you can really follow along when you are reading your notes afterward.

- You should go over more of the harder/unique examples in class
- Sometimes, you only stick to a particular type of example in class. Please have a wider variety

My response: My general strategy for picking examples is to illuminate new material and to tackle what I consider to be the hardest/trickiest problems on your homework. I may have some easier examples sometimes, but that is often to illustrate a concept that must be explained in order for you to know what's going on (for example, if we were learning a new integration technique, I may choose a relatively straight-forward integral to compute for the first example because you shouldn't be distracted by the tricky things the *first time* you're seeing the technique used – you should be focusing on the technique itself and how it works; then as we get more experience with the technique itself, we can have trickier examples, illuminating the subtleties one may encounter when working with the technique). At the end of the day, I will never have enough time to go through all of the hardest homework questions in class while still giving you the tools to understand what you should do and how everything works. You'll have to figure out some of the homework problems on your own. But my goal when picking examples for class is to have examples that illustrate the main ideas and also show you how to handle the trickiest problems you will see in this class.

- Good amount of examples covered in class
- Do more examples in class

My response: This is pretty evenly split here. It would be almost impossible for me to cover more examples in class and still explain them in a way that you can understand the concepts. It's really important to be able to understand the *thought process* behind solving the problems. Really, you should be learning *how to think* in this class more than anything else. I cover as many problems as I can get through in a lecture while still carefully modeling the thought process you should have and how to think. If you can understand the thought process, the homework questions I am unable to cover shouldn't (usually) be too much more challenging than the examples I did in class.

- Sometimes I don't see solved examples on homework

My response: I don't know why that is. Most of my examples are taken pretty much straight from the homework.

- You write down too much on paper – you can say some things without writing them down

My response: I say plenty of things without writing them down. Yes, my notes are much wordier than most people's math lecture notes. However, educational research suggests that the vast majority of students only write down in their notes what the instructor writes on the board, and students very rarely retain information that isn't written in their notes (roughly 5% of it). As such, if

I think something is important for you to remember later (so you can clearly understand what I did in each problem and why), I try to write it down.

Online notes:

- I like that you put the notes online
- Put more examples online than you currently do
- The notes online are confusing – I was lost when looking at them after missing class

My response: There are a variety of reasons to put the notes online, so I will continue to do this. There is a delicate balance to strike when picking examples for my notes. I'm not here to do all of your homework for you. You have to do some of it on your own (this really is the only way to actually *learn* mathematics), so I'm reluctant to include more examples in my online notes than I currently do. Even though I sometimes include examples in my notes that I know I will skip in class, I try to make the online lecture notes so that, looking through them, you can see enough to understand how the main topic works for a given lesson, understand the main thought processes for the lesson, and know how to handle the trickiest problems while not doing everything for you. I may not always get it right, but if I ever feel that I did not cover enough for you to be able to think through all of the remaining problems, then I will post additional examples. As far as the notes being confusing, if you find something confusing, please let me know what lessons/examples are confusing so I can address it and improve my notes.

Exams:

- LONCAPA exams are bad
- Exam grading is too harsh
- Give exam curves like 16010 and drop the lowest exam score

My response: This is at the discretion of the course coordinator, Owen Davis. I have no say in anything concerning the actual exams. I can tell Owen that people are unhappy with various aspects of the exams, but this may not result in any changes.

- Prepare us for exams better

My response: The best way to prepare for the exams is to know how to do the homework. Almost all of the exam questions are taken directly from the homework. I mentioned this in class a few times and even have this on my personal website. In order to do well on exams, make sure you understand how to do all of the homework correctly and efficiently using only a one-line calculator. To practice for the exam, although it is time-consuming, you could try redoing all homework questions. Time yourself. You have an average of 5 minutes per problem on the exams, so try to make sure you can do any homework problem with just a one-line calculator in a timeframe of at *most* 6 minutes (with some problems less than 5 minutes). If you do this, you will be very prepared for the exams.

- Have exam review sessions before exams

My response: I did combine two significantly different comments here. One was about having review sessions *in class* before the exam, and another was about having review sessions *on the*

weekend before the exam. As far as *in class* review sessions go, I have no say over the course calendar. Also, the course calendar has been set, so it won't change for this semester, even if it does change in the future. Even for future semesters, with the sheer number of exams we take, it would be infeasible to have an in-class review session for every exam. You would miss 5 additional lectures throughout the semester for exam review sessions. As for weekend review sessions, while I didn't have a formal review session, I did make myself available for two hours on the Saturday before the exam. I announced this in class and had it on my website. I will continue to do this for each exam, and I will also host more formal review sessions.

Quizzes:

- I like how you give us the quiz dates
- I like how you tell us common mistakes on the quizzes

My response: It seems useful for most people to do these things, so I will continue to do so.

- The quizzes are helpful to serve as a checkpoint on the material
- Exam problems are much more technical and lengthy than quiz problems

My response: Your exams are almost entirely made from homework questions, and I take questions pretty much directly from the homework when I design the quizzes (sometimes with slight modifications). I do make the problems simpler by making the numbers easier to work with because my main focus is if you understand the basic concepts. I could change it so that the numbers are like those on the homework, if you would prefer.

LONCAPA (non-HW-specific):

- I dislike LONCAPA in general
- Try going over how LONCAPA wants an answer

My response: LONCAPA is the system we use because you don't have to buy a textbook, you don't have to buy access to an online homework system, and it is customizable. If we didn't have LONCAPA, you would likely have to buy a textbook and buy access to an online homework system. It was a departmental decision to use LONCAPA. I have no say in that decision. In class, I can try to go over how LONCAPA wants answers a little more than I currently do, if there is something significantly different or strange from what is mentioned in the document about entering expressions/HW0.

HW:

- Once in a while, you could go over homework problems that students had trouble with from previous lessons

My response: I understand that this would be beneficial, and I would like to do this! In a perfect world, we would be able to go over old homework questions people have and also cover the new material. With the way things are, though, I can't really do this during class time because it would take away from new material and new examples. Owen Davis additionally recommends to instructors *not* to go over old homework questions during class. I will, however, be holding extra "office hours" during the weekends – if you have a question over old homework problems, stop by!

- There are too many homework problems
- Having HW due Monday morning is unreasonable because there are fewer resources available over the weekend (the math help room is closed Friday-Sunday, making Piazza pretty much the only resource, and Piazza isn't the best resource for many people)
- There should be more help on the HW problems

My response: I have no control over these things. I could bring these thoughts to Owen, but I don't know if it will change anything. I will also be having some weekend "office hours" to go over things with students, which will help with homework questions.

Piazza:

- Piazza questions are answered fairly quickly, which is nice.
- Be more active on Piazza

My response: Kyle Dahlin (whose teaching assignment this semester is running and moderating the MA 16010 and MA 16020 Piazza boards) does tend to respond fairly quickly most of the time. No other instructor is required to do anything with Piazza. If another instructor is participating in Piazza, they are already doing more than they are required to do in terms of their teaching assignment. I try to participate when I can and so does another instructor Alden Bradford and occasionally Owen Davis himself, but please do keep in mind that Kyle, the other instructors, and I are also full-time students taking graduate-level classes and/or doing research. There will sometimes be times where some or all of us will be unavailable to answer questions. We will try to answer quickly, but it may take some time.

- Instructor answers on Piazza are often vague/unhelpful (e.g., "check your integration" is not a helpful comment)

My response: Owen Davis, the course coordinator, has given specific instructions to all of the instructors that we should not give away too much information when answering questions on Piazza, but perhaps some of the answers are too unhelpful at times. I will pass on this concern to the instructors currently involved in Piazza.

Owen Davis emails:

- Emails are too long
- Don't use all caps, bold, italics, asterisks, etc. all at the same time
- There are too many emails

My response: Concerns like this have been brought up to Owen before. He has made some changes which makes his emails better than they have been in the past. I can let him know that some students are still unhappy. He does, however, feel that there is a lot of important information that must be conveyed to all of the students taking MA 16020, and he does this through emails.

Miscellaneous comments:

- I like the class GroupMe (8:30 class)

My response: This is an excellent idea. Working with others on mathematics can certainly help people learn better and understand things better. I recommend having something like this in the 7:30 class as well.

- Having class so early in the morning is unfortunate, but that's my fault

My response: Yep. Some people like early mornings; others do not. Regardless, I didn't have a choice about the times I had to teach :P They were assigned to me. (And I also have a class at 4:30 pm every MWF, so these are long days for me! But it's not the worst thing that's ever happened)

- We should be allowed to have 2-line calculators

My response: This is a decision made by course coordinators and/or by a committee in the math department. I believe the reason that 2-line calculators are not allowed is because some of them are programmable, which would be a form of academic dishonesty if someone were to abuse that during an exam. I could mention it to people to see if perhaps this could be changed, but I don't expect it to happen anytime soon, and it certainly won't happen this semester.

- Have more help options

My response: There are lots of resources available on the course webpage. Additionally, I will be having weekend "office hours."

- The class is very difficult

My response: Yes, calculus 2, in general, is very difficult, and the numbers you have to deal with in the problems you have in MA 16020 are not always pleasant. Put forth a solid effort and get support when you need it. If you put in your best effort, be proud of that, even if it doesn't lead to the grade you wanted. I will be proud of you if you put in a solid effort 😊

- Time crunch is a real issue

My response: Yes, it is. And this class does have serious time crunch in a lot of ways. Exams and quizzes give you approximately 5 minutes per problem, and you only have a few days to do homework. If you want to be very proactive in this class, be aware that you can often start homework assignments in LONCAPA *before* we cover the material in class (it often becomes available a week or so before it is covered in class). LONCAPA does provide an e-text and videos by Owen Davis to help explain the concepts and go through examples. It might be helpful (although quite time consuming, I know!) to review the e-text, watch the videos, and attempt the homework before we cover the lesson. As we cover the lesson in class, you may understand the material better (seeing the material explained for a second time and/or in a different way, often with different examples) and be able to finish the homework that you couldn't complete with the LONCAPA resources. For advice on how to prepare for exams (most of the difficulty is the time crunch), please see my response to the bullet point "prepare us better for exams" in the exam section.