

## Laura's Calculus FAQ

The following is a list ten common questions and comments made by calculus students. To save my time and yours the answers are compiled here for easy reference.

1. **What can I do to get a better grade?** Most people ask this question near the end of the semester. I want you to think about it now! Do all of the homework problems, read and re-read each section of the book until you understand it, take good notes in class and review them that evening, and so on. Meet frequently with your study group to talk about math (concepts rather than specific problems). Whatever you do, don't let yourself fall behind, even for a day. You will not be able to make up work or do extra credit work at the end of the semester to raise your grade!
2. **I've had Calculus before and I know this already...** Probably most of the class has had a Calculus class before. Some of you have even taken AP Calculus. What you need to keep in mind that what you have had is *high school* Calculus; this is a class of *college* Calculus. Simply being able to differentiate and integrate won't cut it here. The focus of this class is more conceptual than computational, and you will most likely find it more theoretical than your previous calculus class. The best advice I can give you is to be open; be ready to learn calculus a new way. Your previous knowledge of calculus could actually turn out to be a disadvantage if you rely on it more than what you learn in this class.
3. **I haven't had Calculus before...aren't I at a disadvantage?** I like to think that students that have never had Calculus before are actually at an advantage! Since this course is invariably different from most high school Calculus courses, many people who have already had calculus get confused, or rely too much on their old knowledge. If you haven't had Calculus before then you are a clean slate! We will fill you with good, solid Calculus in no time. I myself had not had calculus until after I graduated high school, and I turned out just fine.
4. **Isn't that just...** This is one of my pet peeves. Please, in class, if you have seen the material before, don't just try to skip to the end of the lecture. Example: if we are learning the definition of derivative, and using this definition (which is somewhat complicated, involving limits) to calculate the derivative of the function  $x^2$ , please don't raise your hand to ask "Isn't that just  $2x$ ?" since you've seen differentiation rules before. Remember that in this class we care about *why* even more than *what*; in other words we are interested in the process of showing that the derivative of  $x^2$  is  $2x$  rather than just the final answer. The inventors of calculus themselves couldn't just "see" that the derivative of  $x^2$  was  $2x$ , they had to work it out.
5. **The homework is too hard and/or takes too long!** I don't collect homeworks in this class, but you are expected to do all of the problems on the syllabus. If you find that the homework is taking you too long, or seems too hard, then it is even more important that you do the homework, so that in a testing situation you won't have the same problem. The tests will be faster-paced and more complex than the homeworks! I recommend working with another person or in your study group (discuss each problem and make sure that *everyone* understands it fully, or there is no point in doing this). Work in the CSM Learning Center so that help is readily available

when you need it, or get a tutor. Keep in mind that you should be prepared to spend at least two to three hours outside of class for each lecture hour, so if a week's worth of homework, reading, and reviewing takes you nine hours, that's par for the course. While we're on the subject of homework, let me say that I do not go over homework problems in class; I feel the three hours of lecture time we have each week is better spent introducing new material. On the other hand, I am always happy to talk about the homework problems during my office hours (or any time you can catch me), and of course during the Thursday session of class.

6. **Is this going to be on the test?** Someone once told me that their teacher used to always answer this question the same way: "It will be now!". In general, everything you learn in this course is fair game for tests and quizzes. This includes homework as well as the readings and lectures. Be aware that some material may be in the readings or homework but not presented in lecture; some material may be discussed in class but not be in the homework, and so on and so forth. In addition, the tests may even combine the material you've seen in unfamiliar ways (see below).
7. **The test wasn't fair because it wasn't like the homework...** Do not expect the tests to be like the homework. I will put a good number of problems similar to the assigned homework on the tests (in some cases as much as fifty percent), so doing all the homework problems is a smart idea. However, a lot of the test will test how well you understand the material, not how well you memorized how to do certain types of problems. Many test problems will require you to apply your knowledge to problems you have not seen before, in ways that you may not have thought about before. This is the only way that I can test that you are actually learning something. If you can't apply the material in new ways then you don't really understand it. On the other hand, the weekly quizzes will always be taken directly from the homework (with perhaps some numbers changed).
8. **Isn't 80% the cutoff for a B?** Not in my class it isn't. Your grades are not considered on a typical high school scale. My tests are hard, on purpose (I feel this better prepares you for the final). Most of the time the average grade on one of my tests is in the 60-70 range, and I usually set the average grade to a B- or a C+, depending on how hard the test was and how the class as a whole performed. So, for example, you might get a 68 out of 100 on a test with a mean grade of 63... and you'd be in the B range instead of the D range! I don't see any point in giving a test where most people can get 80 percent of the test without even trying; that would be a waste of my time and yours. I'm interested in actually testing you to see what you have learned, not trying to make you feel better with inflated grades and easy tests.
9. **But I studied for five hours for this test!** Studying for five or six hours (or even ten!) the night before the test is not going to guarantee you a good grade. Math, especially conceptual math, takes time to sink in... and I mean time in days and weeks, not hours. Even cramming for three days before the exam isn't enough. Review early and often. If you don't understand something from class or lab you need to figure it out sooner rather than later. It won't be any easier the day before the test. Spending an hour or two reviewing previous material every few days throughout the semester is the best way to prepare for exams. And remember, if you're really stuck on a particular concept, please come talk to me!