Math 114: Calculus 1 Experienced
Spring 2019

Jay Daigle

Course overview

Lectures:	MWF 1:55 - 2:50 PM	Fowler 209
Labs:	Tuesday 1:30 - 2:55 PM	Fowler 110
	Tuesday 3:05 - 4:30 PM	Fowler 110
Textbook:	Essential Calculus: Early Transcendentals (Second Edition)	
	James Stewart	ISBN: 1-1331-1278-1

Instructor Info

Instructor:	Jay Daigle	**Office Hours:**	MWF, 12:45 – 1:45 PM
Office:	Fowler 325	**Often in Office:**	MWF, 12:15 - 1:45 PM, 4:00 - 5:00 PM
Email:	gdaigle@oxy.edu		T, 12:30 - 1:30 PM, 4:30 - 5:00 PM
Course Webpage:	`http://jaydaigle.net/calculus`		R: 12:30 - 1:30 PM, 3:00 - 3:30 PM

Grading

- Homework: 20% (lowest score is dropped)

- Midterms: 20% each for the two highest scores, 10% for the lowest score

- Final: 30%

Exams: There will be three midterms and a final. The midterms will be held during the lab period. Tentative dates for the midterms are February 26, March 26, and April 16.

Your worst midterm will only count for half the weight that the other two do.

The final exam will be in the usual classroom at 1:00 PM on Tuesday, May 7.

Graphing calculators will **not** be allowed on exams. Scientific, non-programmable calculators will be allowed. I will have some to share, but not enough for everyone.

Homework: Homework is in many ways the most important part of this class, because learning works best through practice. Doing all the homework is important to solidify your skills with calculus.

I strongly encourage you to collaborate with classmates on your homework. However, you must turn in your own writeup in your own words.

Homework is due in class on the due date, which will usually be Wednesday. Late homework will not be accepted except by prior arrangement in case of emergencies; email me at least the night before the due date if you need to request an extension.

The homework assignment with the lowest score will not be counted. This includes homework which is not turned in, so missing one homework will not significantly affect your grade. However, it is still important to master that material on every homework assignment.

Disabilities: It is the policy of Occidental College to make reasonable accommodations for qualified individuals with disabilities. If you are a person with a disability and wish to request accommodations to complete your course requirements, please make an appointment with the course instructor as soon as possible to discuss your request. For information on documentation requirements, contact the Center for Academic Excellence (x2545).

Learning Outcomes

Upon completing this course, a student will be able to

- Explain the concept of a limit; evaluate limits of functions, including indeterminate forms; use the limit definition to determine if a function is continuous;

- State the limit definition of the derivative; use it to calculate simple derivatives;

- Use derivative laws to calculate the derivatives of rational, trigonometric, inverse-trigonometric, exponential, and logarithmic functions; calculate derivatives for implicit functions;

- Use derivatives to linearly approximate functions near a value; write equations for the tangent lines of functions

- Use derivatives to identify local and global maxima and minima of graphs; use the second derivative to describe the concavity of functions.

- Formulate and solve specific problems from the fields of physics, economics, biology, and more. Be able to effectively communicate both problem and solution to others.

Course Philosophy

There are a few aspects of this course that are probably different from any math classes you might have taken before, and I'd like to highlight them.

1. For most of you, this will be the first college-level math class you take. As college students, you are now adults, which means you get **responsibility for your own learning**. I can't and won't attempt to make you do everything you need to do.

   I will, however, do my best to **make myself extremely accessible**; if you want to spend five hours in my office every week working on things with me, I will make that happen and I will be thrilled. I am here to help you, so please take advantage of that (as well as of other resources; the Center for Academic Excellence, the Academic Mastery Program, and the Scientific Scholars Achievement Program all have excellent resources to support you, and you should take advantage of these).

2. In most high school (and earlier) math classes, we teach you algorithms: which is to say, you have a series of steps and if you follow those steps correctly in the correct order, the answer pops out. This class will certainly contain some algorithms—some very important ones—but it will also feature a number of problems that require some creativity to solve. You will have tools that allow you to solve all these problems, but **you can't just "follow the steps"** and get an answer.

   The most important thing to do in this situation (which is common in life) is: **don't panic!** Think about the tools you have. Try them out. It's fine if you don't know which ones will work; try all of them and see. (This is what scratch paper is for).

3. It is especially important to **look at the homework early** so you can be thinking about it during the week. Try your best to read over the homework as soon as it's assigned, so you can relate concepts in lecture to the homework problems.

   In each assignment I will flag a couple problems as starred problems. These will not be graded any differently from other problems, but will require more creativity and thought than average. Don't get discouraged if it's not immediately obvious what you should do!

   Please start thinking about these problems early in the week; creativity is difficult under time pressure.

4. **The fuzziest questions are often the most important questions.** Your lab handouts will often feature questions like "why are these two pictures different?" or "what do you notice here?" Please make a real effort to answer these, and to talk to me if you're not sure what's going on. Those questions are the meat of the assignment, asking you to notice patterns and understand what's really happening behind all the symbols.