

Math 150: Calculus II

Winter Term, 2012, Lawrence University

Professor: Scott Corry

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Office Hours: MTWRF 8:30-9:30, and by appointment

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Text: J. Stewart, *Calculus: Early Transcendentals*, 6ed.

1 Overview

This course picks up where Math 140: Calculus I leaves off, and we will begin with a quick review of the definite integral and The Fundamental Theorem of Calculus (Ch.5). From there we will proceed to develop the integral calculus, i.e. a systematic method for computing integrals (Ch.7). Our main tool will be The Fundamental Theorem of Calculus, and our guiding question will be the following: given the inverse relationship between integration and differentiation, how can we use the differential calculus to develop tools for computing integrals? Then we will switch gears and spend the central part of the course on infinite sequences and series (Ch.11). At the end of the course we will return to integrals and develop some applications involving the computation of areas and volumes (Ch.6).

Stewart's text is a highly readable blend of conceptual development and applications (and I **do** expect you to read it carefully and repeatedly.) To compliment the somewhat applied slant of the text, my lectures will focus on the theoretical development and meaning of the subject, while certainly not excluding its practical aspects.

2 Practicalities

Mathematics is not a spectator sport. It is tempting to believe that if you come to class every day and listen attentively, then you will emerge ten weeks later, head filled with knowledge. The truth is that the only way to learn mathematics is to combine diligent attention with hard work in the form of regularly doing problems, enjoying successes, recognizing mistakes, talking about those mistakes, and then doing more problems. In order to help you develop such a regimen, I will assign problems in every class period, which you should work on before the next lecture. This will keep you engaged with the material, and allow you to formulate precise questions to bring up in class.

2.1 Homework

You should read the relevant section of the text **before** I lecture on it. I will generally cover the same material as Stewart with a somewhat different emphasis, and the combination of these points of view should enhance your overall comprehension. As mentioned above, I will assign homework problems (usually from the text) at every class period, and you should do these problems before the next lecture. The problems which have accumulated over the week will be due on Friday at the beginning of class, and selected problems will be graded, each on the following five point scale:

- 5 = perfect – correct and well-written
- 4 = one minor error
- 3 = one major error or several minor errors
- 2 = several major errors
- 1 = indicative of relevant thought

Note that you will not receive a perfect score unless your solution is easy to follow. Take the time to make your solution set neat and legible, and strive to effectively convey your ideas. You must staple your pages together, and in addition to the individual problem scores, you will receive an overall completion and stapling score (out of 5) to encourage you to make a sustained effort on the assignment as a whole. **No late homework will be accepted.** To compensate for this strict policy and the fact that only a portion of each assignment will be graded, I will drop your lowest **two** scores when computing your homework average, which will count for 25 percent of your grade.

2.2 Exams

We will have two in-class midterm exams (scheduled for 1/25 and 2/22) as well as a cumulative final. Each midterm will count for 20 percent of your grade, while the final will count for 35 percent. The final exam will be held at 11:30 a.m. on Tuesday, March 13, as set by the registrar. Please note that under no circumstances will you be allowed to take the final at a different time due to early travel plans.

2.3 Office Hours and Other Details

Please feel free to come by my office, whether you are having difficulty or just want to chat about mathematics. Of course, I may not be in, or I may be otherwise engaged and unable to talk. To ensure that you have my undivided attention, you should come during my office hours, which are listed above. Of course, if these times are impossible for you, you can always make an appointment with me.

In addition to talking with me, I encourage you to speak with each other about the course, and even to work together on the problems if that suits your style of learning. That being said, I expect you to spend some time thinking privately about the problems before collaborating, and each of your writeups should be the result of your own cogitation and exposition. If you like to work together, a good model would be to make a first pass through the problems on your own, then get together with friends to talk about difficulties and share ideas, and finally find a solitary place to write a polished (and unique) solution set. Of course, all of your work for this course is governed by the Lawrence University Honor Code.