Assignments for Math 126, Spring 2025

(due on the given date)

(1/22)
1. Read the lengthy email I sent to you about this course and look over some of the website links.
2. Read the syllabus (available on the website) very carefully; this may take 20 minutes or so.

(1/24)
1. Look over the syllabus again to pick up any tidbits you missed the first time.
2. Do the practice problems for differential calculus (refer to the website), reviewing as necessary.
3. Turn in answers to homework assignment 0 and solutions for homework assignment 1. You should model your solutions based on the sample homework solutions posted on the class website. As mentioned in the syllabus, it is recommended that you sketch a solution on a separate page before actually writing your final version on the homework page handout.
4. Carefully read the introduction to Chapter 2. Spend 5–10 minutes looking over Section 2.1.

(1/27)
1. Read Section 2.1 carefully.
2. Do problem 1, 2, 3, 4, 5, and 6 in Section 2.1.
3. Turn in solutions for homework assignment 2. Remember to record a more polished solution on the homework page handout.
4. Spend 5–10 minutes looking over Sections 2.2 and 2.3 of the textbook.

(1/29)
1. Read Sections 2.2 and 2.3 carefully.
2. Do problem 1, 2, and 5 in Section 2.2. For problem 2, draw a careful sketch of the region and look for areas you know how to find. For problem 5, it is best to draw a graph that represents the requested area and then use formulas for areas of triangles, trapezoids, or circles.
3. Do problems 1 and 2 in Section 2.3.
4. Turn in solutions for homework assignment 3. Remember to record a more polished solution on the homework page handout.
5. Spend 5–10 minutes looking over Sections 2.4 and 2.5 of the textbook.

(1/31)
1. Look over Sections 2.4 and 2.5 carefully, focusing on the ideas we discussed in class.
2. Do problems 3 and 5 (remember to use area for these problems) in Section 2.4.
3. Do problems 1bc, 2, 3, 4ab, and 7 in Section 2.5. Do be careful with your notation (remember dx) and be aware of the linearity properties of the integral that you are using.
4. Turn in solutions for homework assignment 4. Remember to record a more polished solution on the homework page handout.
5. Spend 5–10 minutes looking over Section 2.6 of the textbook.

(2/3)

1. Read Section 2.6 carefully.
2. Do problems 1acdefh, 2, 3, 4, 5, and 6 in Section 2.6. You will find that some of these problems force you to think outside the box; do not give up on them too quickly.
3. Turn in solutions for homework assignment 5.
4. Spend 5–10 minutes looking over Section 2.7 of the textbook.

(2/5)

1. Read Section 2.7 carefully.
2. Do problems 1, 2, and 3 in Section 2.7. Remember that we are not using any techniques of integration; we are simply thinking about differentiation in reverse. Since calculators will not be allowed on the exam, you should do all of these problems without the aid of an electronic device.
3. Turn in solutions for homework assignment 6.

(2/7)

1. Read Section 2.8 carefully.
2. Do the problems in Section 2.8; there are many integrals here but doing as many of them as possible is good practice. You should focus on learning to quickly recognize the general form of the antiderivative.
3. Turn in solutions for homework assignment 7.

(2/10)

1. Read Section 2.9 carefully.
2. You should look over the integrals in problem 1 and think about how you would solve each of them. Can you just write down the answer? Can you use guess and check? Do you need to make a substitution and, if so, what would u be? After making this assessment, do a few of each type beginning with 1b, 1e, 1i, 1j, 1k, and 1l. Repeat this process for problem 2, then begin with 2a, 2b, and 2e. Remember to change the limits for the definite integrals when using u-substitution; this avoids having to return to the x version of the antiderivative. Problems 3 and 4 indicate that there is more than one way to find an antiderivative while problem 5 shows how to determine the formula for the area of an ellipse. You can omit problem 6.
3. Turn in solutions for homework assignment 8.

(2/12)

1. Read Section 2.10 carefully.
2. Do problems 1b, 1c, 1e, 1i, 1j, 2b, 2c, 2d, 3, and 4 in Section 2.10.
3. Look over Section 2.11 as well as the extra notes for this section of Chapter 2.
4. Do problems 1a, 1d, 1e, and 1f in Section 2.11.
5. Turn in solutions for homework assignment 9.
6. We will review for the exam on this day.

(2/14)

1. We have our first exam this day, covering Sections 2.1 through 2.11.
2. The questions on the test will be similar to the homework problems you have been doing the past few weeks. You can find exams (and solutions) from a previous semester on the class website. However, it is important to remember that this is NOT a practice exam; our exam may look rather different than this one. In addition to the problems that were assigned in Sections 2.1 to 2.11 (for the record, doing those problems again without consulting your notes can be helpful), you can try problems 9, 10, and 12 in Section 2.24. For further practice evaluating integrals using ideas that we have discussed thus far, you can look over the integrals at the link 'Basic integration problems' on the website. You do not have time to do all of these integrals, but you should be able to determine the best approach for each one (that is, how to start the problem) within 30 seconds; you can stop there since you should have enough practice with the details by now.
3. No calculators or electronic devices will be allowed during the exam. You should plan your morning so that there is no need to leave the classroom during the exam. However, if it is necessary to do so, I ask that you leave your phone on your desk as you go. You will have 55 minutes for the exam. It is a good idea to show up a few minutes early if possible so that you are completely ready to begin the exam at the top of the hour.
4. You need to be able to state the definition of the derivative (Definition 1.7 in Section 1.7), the definition of the integral (Definition 2.1 in Section 2.3), and both parts of the Fundamental Theorem of Calculus (Theorem 2.4 in Section 2.6 and Theorem 2.5 in Section 2.7). All of these statements involve knowing all of the words, not just a few symbols. For the FTC, you should be aware of the focus of each part of the theorem and which mathematician is more closely linked to each version. You also need to know and be able to use the basic antiderivative formulas and the techniques of integration we have been practicing the last few sections.

(2/17)

1. There is no class today due to the President's Day holiday.

(2/19)

1. There is no new material to read for this assignment.
2. In preparation for the applications of integration, you should look carefully at Exercise 2 in Section 2.2 (you may use the FTC in your solution) and Exercise 5 in Section 2.9. These problems indicate the sort of thinking that you will need to develop over the next few weeks.

(2/21)

1. Read Section 2.12 carefully.
2. Do the problems in Section 2.12. For some of these, sketch a careful graph and think about the problem before you set up the integrals.
3. You should also take a look at problem 6 in Section 2.3, problem 5c in Section 2.4, and problem 5 in Section 2.5 so that you are familiar with evaluating integrals with absolute values.
4. Turn in solutions for homework assignment 10.

(2/24)

1. Read Section 2.13 carefully.
2. Do problems 1, 2, 4, 6, 7, and 9 in Section 2.13.
3. Turn in solutions for homework assignment 11.

(2/26)

1. Read Section 2.14 carefully.
2. Do problems 1, 3, 4, 7, and 9 in Section 2.14. You will need to use a calculator for the second part of problem 9.
3. Turn in solutions for homework assignment 12.