Assignments for Math 125 for Spring 2026

(assignments are due on the date listed)

for Wednesday, January 21

1. Read the syllabus (available online) very carefully; this may take 20 minutes.
2. Read the preface of the textbook (titled *Calculus Concentrate* and available online).
3. Skim the first few sections of Chapter 1 to get a sense for its style. Also make note of the appendix which includes some useful algebra/geometry formulas as well as (brief) solutions to the exercises.

for Friday, January 23

1. Reread the syllabus if necessary, paying particular attention to the expectations for writing solutions to problems that are to be collected for grading.
2. Read Section 1.1 carefully. [`https://youtu.be/WOuVvxPNW4c` 35 minutes]
3. Do exercises 1, 2, 3, 4, 5, and 7 in Section 1.1. Note that a few of these problems fit into the category 'nonroutine' as discussed in the syllabus.
4. Turn in solutions for homework assignment 1. Remember to record a more polished solution on the homework page handout.
5. Spend 5–10 minutes looking over Section 1.2 of the textbook.

for Monday, January 26

1. Read Section 1.2 carefully. [`https://youtu.be/fdPJdWQBvxc` 44 minutes]
2. Do exercises 4, 5, 6, 8, 9, 11, 12, and 15 in Section 1.2.
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 Section 1.3 of the textbook.

for Wednesday, January 28

1. Read Section 1.3 carefully. [`https://youtu.be/F_joYztPoYk` 44 minutes]
2. Do exercises 1, 2ace, 4, 6, and 7 in Section 1.3.
3. Turn in solutions for homework assignment 3. Remember to record a more polished solution on the homework page handout.
4. Spend 5–10 minutes looking over Section 1.4 of the textbook.

for Friday, January 30

1. Read Section 1.4 carefully. [`https://youtu.be/2VkYykYYCRo` 34 minutes]
2. Do exercises 1, 3, 4, 5, 6, and 7 in Section 1.4.
3. Turn in solutions for homework assignment 4. Remember to record a more polished solution on the homework page handout.
4. Spend 5–10 minutes looking over Section 1.5 of the textbook.

for Monday, February 2

1. Read Section 1.5 carefully.
2. Do exercises 1–4 in Section 1.5.
3. Turn in solutions for homework assignment 5.
4. Spend 5–10 minutes looking over Section 1.6 of the textbook.

for Wednesday, February 4

1. Read Section 1.6 carefully.
2. Do exercises 1abcf, 2, 3, 5, 6, 7, and 8 in Section 1.6. Note that the slopes needed for exercises 6–8 are determined in Exercise 5 so there is no need to compute them again using limits, etc. (Recall that there are solutions to the exercises in the appendix.)
3. Turn in solutions for homework assignment 6.
4. Spend 5–10 minutes looking over Section 1.7 of the textbook.

for Friday, February 6

1. Read Section 1.7 carefully.
2. Do exercises 1–8 in Section 1.7. Think conceptually as you read and ponder exercises 5–8.
3. Turn in solutions for homework assignment 7.
4. There will be a 20 minute quiz with questions on the topics we have covered thus far.

for Monday, February 9

1. Read Section 1.8 carefully.
2. Do exercises 1–7 in Section 1.8. Remember to use simple formulas rather than limits to find derivatives.
3. Turn in solutions for homework assignment 8.
4. We will review for the exam on Wednesday.

for Wednesday, February 11

1. We have an exam on Sections 1.1 through 1.8. Any problem assigned thus far, any problem similar to a problem assigned thus far, and any problem that uses ideas considered thus far is fair game for the exam. However, most of the exam questions will be similar to the more basic homework problems. Here are a few specifics.
   a. No calculators or electronic devices will be allowed during the exam. This means that you need to be able to do simple arithmetic and basic algebra without assistance.
   b. Use of correct notation is expected; points are deducted when incorrect notation is used. Also, a complete sentence to finish the problem is expected with the understanding that a clear mathematical equation constitutes a complete sentence.
   c. Hopefully, you now understand the writing expectations for in-class work. If not, check with me. I do not want you to write too much and run the risk of not having time to complete the exam or write too little and lose points for not being clear with your answers.
   d. One problem that is certain to be on the exam will be to fully state the definition of the derivative. This means that you are expected to write Definition 1.7 (page 16) in its entirety, that is, including all of the words. However, it is fine to use only one version of the limit.

for Friday, February 13

1. There is no assignment for this day. We will go over the test and cover Section 1.9.

for Monday, February 16

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

for Wednesday, February 18

1. Read Section 1.9 carefully.
2. Do exercises 1–6 in Section 1.9. For Exercise 3, do not let the generic constants k and c throw you off; they behave just like numbers. You might find it helpful to sketch a graph for this problem. For Exercise 4, note that we have done several problems of this type; the ideas are the same for all of these problems. The purpose of Exercise 5 is for you to remember the definition of the derivative. Give Exercise 6 a fair shot; it is not as intimidating as it may first appear.
3. Turn in solutions for homework assignment 9.

for Friday, February 20

1. Read Section 1.10 carefully.
2. Do exercises 1–6 in Section 1.10. Exercise 4 is yet again a problem that asks for points on the graph where a tangent line goes through a given point off the graph. Exercises 5 and 6 are checking to be sure you can work with symbols and that you understand the chain rule.
3. Turn in solutions for homework assignment 10.

for Monday, February 23

1. Read Section 1.11 carefully.
2. Do exercises 1–6 in Section 1.11.
3. Turn in solutions for homework assignment 11.

for Wednesday, February 25

1. Read Section 1.12 carefully.
2. Do exercises 1–4 in Section 1.12. You should be able to do the problems in Exercise 1 without a calculator. However, you might find it helpful to look at the graphs of the functions to verify that your answers are correct. Do give exercises 3 and 4 careful thought.
3. Turn in solutions for homework assignment 12.

for Friday, February 27

1. Read Section 1.13.
2. Do exercises 1 and 2acefhjk in Section 1.13. Once again, you should be able to do the problems in Exercise 2 without a calculator but looking at a graph may help you confirm your answers. The last three problems in Exercise 2 involve a parameter; just treat a like a number.
3. Turn in solutions for homework assignment 13.

for Monday, March 2

1. Read Section 1.14.
2. Do exercises 1abcfhi, 2, 3, 4, and 5 in Section 1.14. Think carefully about exercise 5 as it asks you to think about the ideas in this section in a different way.
3. Turn in solutions for homework assignment 14.

for Wednesday, March 4

1. Read Section 1.15.
2. Do exercises 1, 2, 4, 6, and 11 in Section 1.15. Be patient as you work on and think about these word problems.
3. Turn in solutions for homework assignment 15.

for Friday, March 6

1. Read Section 1.16.
2. Do exercises 1–9, 12–14, and 17 in Section 1.16. If necessary, you can find some online resources to help you review trigonometry. You should be able to do most of these exercises without an electronic device. For a few of the computational exercises, you will need a calculator to find the requested values. Do your best to learn these concepts.
3. Turn in solutions for homework assignment 16.

for Monday, March 9

1. Read Section 1.17.
2. Do exercises 1, 3b, 5, 6, and 7 in Section 1.17. These exercises give you good practice with all of the derivative rules and some of the applications of the derivative.
3. Turn in solutions for homework assignment 17.
4. We will review for the exam on this day.

for Wednesday, March 11

1. We have an exam with a focus on Sections 1.9 through 1.17, but you need to be aware of some of the information in previous sections (such as tangent lines) and you still need to be able to state the definition of the derivative. See the notes for the previous exam (see the Feb. 11 assignment) to remind yourself of other expectations.
2. As usual, you should look over the topics that we have covered and the exercises that have been assigned (both those collected and those not collected). See the website for a copy of the exam that was given in 2016. That exam covered Sections 1.12 through 1.21 so some of the problems are not relevant; these are listed after the exam along with some other problems that you can do. In addition, you can also work on exercises 18–28, 30, 31a, and 32 in Section 1.35.
3. As has been stated multiple times, you need to know the values of the trig functions at the common angles and you need to know the derivative formulas for the six trig functions; treat this as an exercise in understanding, not memorization.

for Friday, March 13

1. There is no specific assignment due this day, but you should spend some time looking over trig functions, with an emphasis on inverse trig functions (see Section 1.16).

for Monday, March 30

1. Read Section 1.18.
2. Do exercises 1, 4, 6, 7, and 8c in Section 1.18.
3. Turn in solutions for homework assignment 18.

for Wednesday, April 1

1. Read Section 1.19, making sure that you understand the properties of logarithms.
2. Do exercises 1–7 in Section 1.19.
3. Turn in solutions for homework assignment 19.

for Friday, April 3

1. Read Section 1.20.
2. Do exercises 1–7 in Section 1.20. The derivatives in Exercise 1 should go quickly. Exercises 2–6 involve the standard applications of the derivative that we have discussed so far this semester. Exercise 7 is another variation of a problem that we have considered multiple times in previous sections. Some of you may find Exercise 9 intriguing so you might give it a try if you have time.
3. Turn in solutions for homework assignment 20.
4. After a brief lecture, there will be a quiz testing your knowledge of basic facts from trigonometry and logarithms.

for Monday, April 6

1. Reread portions of Section 1.15 if necessary.
2. Do exercises 9, 15, and 16 in Section 1.15 and exercises 31a and 32 in Section 1.35.
3. Turn in solutions for homework assignment 21.

for Wednesday, April 8

1. Read Section 1.24.
2. Do exercises 1, 2, 4, 5, 6, and 7 in Section 1.24. There are quite a few problems here but most of them should go quickly. You can start by doing a few problems under each exercise heading, but you should do all three problems in Exercise 6. Think carefully about the notion of limits that involve the concept of infinity and how they are connected to asymptotes.
3. Turn in solutions for homework assignment 22.

for Friday, April 10

1. Read Section 1.25.
2. Do exercises 1–4 in Section 1.25. Once again, there are quite a few problems so you can start by doing a few problems under each exercise heading. Give Exercise 4 a shot to feel a part of history.
3. Turn in solutions for homework assignment 23.

for Monday, April 13

1. Skim Sections 1.26 and 1.27, focusing on the key ideas.
2. Do exercises 1, 4, 6, and 7 in Section 1.26, and exercises 1, 2, and 8 in Section 1.27.
3. Turn in solutions for homework assignment 24.

for Wednesday, April 15

1. Read Section 1.28.
2. Do exercises 1, 3, 4, 5, and 7 in Section 1.28. Note that the product rule enters the picture when finding the second derivatives in Exercise 1. Exercise 7 requires some thought but it is not as scary as it looks; there is more than one correct answer.
3. Turn in solutions for homework assignment 25.

for Friday, April 17

1. Read Section 1.29.
2. Do exercises 1, 2, 3, 4, 6, 8, and 14 in Section 1.29. You do not need to know much physics in order to solve these problems, but you will need a calculator for some of the computations.
3. Turn in solutions for homework assignment 26.

for Monday, April 20

1. Read Section 1.32.
2. Do exercises 1, 2, 3, 4a, 5, 6, 7, and 9 in Section 1.32. Once you feel confident with implicit differentiation, you may not need to do all of the parts of Exercise 2. Exercises 7 and 9 are more challenging so be prepared for them to take a little longer but do spend some time thinking about them.
3. Turn in solutions for homework assignment 27.

for Wednesday, April 22

1. Read Section 1.33.
2. Do exercises 1, 3, 5, 6, and 9 in Section 1.33. As with all word problems, you must be patient as you turn the words into mathematics. Recall that some formulas from geometry can be found in the appendix.
3. Turn in solutions for homework assignment 28.
4. We will review for the exam on this day.

for Friday, April 24

1. We have an exam on this day covering the sections listed below; there is the usual assumption that you know material from previous sections as well. You must be able to state the definition of the derivative (remember all of the words) and the Mean Value Theorem (the complete statement is expected). In addition to reviewing the sections and looking over homework assignments 18–28, you can focus on the following problems (many of which have been previously assigned as homework).

   1.15: 16
   1.18: 1a, 1b, 1d, 1e, 5
   1.19: 3, 4e, 5
   1.20: 1h, 1l, 3, 6a
   1.24: 1b, 1d, 1i, 2d, 2f, 4c, 6a
   1.25: 1b, 1e, 1f, 2c, 2d
   1.26: 1d, 7
   1.27: 1c, 2a
   1.28: 1b, 1c, 4a, 4b, 4e
   1.29: 3b, 4, 12, 15
   1.32: 2a, 2c, 3
   1.33: 1, 3, 5, 6, 9
   1.35: 31a, 41b, 41c, 42a, 45

   See the notes for the first exam (at the Feb. 11 assignment) to remind yourself of other expectations for the exam.

for Monday, April 27

1. Read the two page summary of differential calculus available on the course website; review any concepts that look unfamiliar.
2. Read the two page introduction to Chapter 2 in the textbook.
3. YouTube videos available at `http://people.whitman.edu/~gordon/videos.pdf` discuss material in the various sections of Chapter 2 that may be helpful if you are unable to attend class.

for Wednesday, April 29

1. Read Section 2.1 carefully. See the site `http://people.whitman.edu/~gordon/math126generic.html` for extra notes on the sections in Chapter 2.
2. Do problems 1–6 in Section 2.1.
3. Turn in solutions for homework assignment 29.

for Friday, May 1

1. Read Sections 2.2 and 2.3 carefully.
2. Do problem 1, 2, 4b, 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 30.

for Monday, May 4

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 31.

for Wednesday, May 6

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 32.

for Friday, May 8

1. Read Section 2.8 carefully.
2. Do the problems in Section 2.8; there are many integrals here but doing them is good practice. You should focus on learning to quickly recognize the general form of an antiderivative.
3. Turn in solutions for homework assignment 33.

for Monday, May 11

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 of integration for definite integrals when using u-substitution. 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. There is no assignment to turn in. We will review for the final exam during this class period.
4. The final exam for this class is scheduled to begin at 2:00 pm on Tuesday, May 19 in our usual classroom, Olin 201. Information on the comprehensive final exam (worth 80 points) appears below.

The final exam is comprehensive, that is, it covers all of the material that has been discussed this semester. Go back over the sections we have covered and be familiar with the concepts, formulas, techniques, and applications that we have considered. As a start for being prepared for final exam test questions, you can scroll through the 33 assignments posted on the website and look over the three exams that have been given; you should know how to do most of these problems fairly easily by now. The final exam from 2016 is posted on the website; it would be a good idea to do those problems very carefully as if in a testing situation. (You can omit problems 6, 7, 8, 11, 16, and 23 on that exam since they involve sections of Chapter 1 that we did not cover. Also, note that the 2016 final exam did not cover any content from Chapter 2.) Some further problems that you can consider are listed below by section number. Hopefully, for many of these problems, you can read them and say, "Yes, I know how to do this one." If that is your response, there is no need to spend time on the actual details. You can then focus on the problems that seem challenging to you. Remember that you should be able to do all of these problems without referring to the textbook and without the use of a calculator or any electronic device.

1.5: 1a, 1h
1.7: 1a, 1e, 7
1.8: 2, 5
1.9: 1g, 4
1.10: 1a, 1e, 1i
1.11: 1b, 1d, 3
1.12: 1b, 1d
1.13: 2a, 2f, 2ℓ
1.14: 1a, 1i, 5
1.15: 4, 6, 7
1.16: 3
1.17: 1a, 1c, 1d, 1j, 1k, 6
1.18: 1a, 1b, 1e
1.19: 5
1.20: 1a–1ℓ, 3, 6b
1.24: 1b, 1i, 5b, 6b
1.25: 1c, 1e, 2b, 2c, 2d
1.26: 1d, 7
1.27: 1c
1.28: 4a, 4b, 4d, 4e, 7
1.29: 8, 12, 15
1.32: 2a, 2c, 3
1.33: 1, 3, 6
1.35: 8, 16, 27, 41b
2.2: 2, 5c
2.3: 1a, 2a
2.6: 1a, 1f, 2
2.7: 1e, 1j
2.8: 1, 2b, 2c
2.9 1, 2b, 2e

You should be able to completely state the definition of the derivative (page 16), the definition of the integral (page 86), the Mean Value Theorem (page 58), and both versions of the Fundamental Theorem of Calculus (pages 92 and 94). The link 'A Summary of Differential Calculus' has almost all of the information that you need from Chapter 1. You can also go to the page `http://people.whitman.edu/~gordon/` and follow the links 'Written Exam in Mathematics' and then try the three links involving Calculus I. There you will find a longer summary, a list of 24 sample questions, and a link to a full solution set for these (somewhat more challenging) questions.

Here are a few other notes concerning the final exam.

a. No calculators or electronic devices will be allowed during the exam. This means that you need to be able to do simple arithmetic and basic algebra without assistance, including knowing values for trig functions at common angles and properties of logarithm functions.

b. Use of correct notation is expected; points are deducted when incorrect notation is used. Also, a complete sentence to finish the problem is expected with the understanding that a clear equation constitutes a complete sentence.

c. Hopefully, you now understand the writing expectations for in-class work. If not, check with me. I do not want you to write too much and run the risk of not having time to complete the exam or write too little and lose points for not being clear with your answers.

d. You will definitely be asked to quote some of the definitions and/or theorems listed above; I want you to know the key concepts and theorems from calculus. Do not lose points by ignoring this fact.

e. You need to know a number of derivative formulas (there are about a dozen of these and you should know them forward and backward, the latter for antidifferentiation) for this exam so make sure you have them at ready recall. You should also be aware of standard problem types and what to do for them. For example, if a problem starts with "Find the maximum and minimum outputs ...", you know you will need to make a table of values including endpoints and critical points.

f. On a cautionary note, if you have been working with a tutor and/or other students, it is imperative that you make certain that you can do the work on your own. Getting help to learn the material is fine, but then you need to take ownership of the knowledge and be able to apply it yourself.

g. Do your best to avoid needing to leave the classroom during the exam. However, during a two hour period, this may not be possible. If you do exit the classroom, be certain that you leave your phone in the classroom (in your backpack or on your desk) and try to keep your time away to a minimum.

h. Remember to be mindful of others during the exam since your behavior can impact others. Tapping pencils or feet, snapping gum, deep sighs, excessive paper shuffling, and frequent sniffling (to name a few) can be a distraction to others so do your best to avoid unnecessary noises during the exam.