Homework One

Differential Equations

College of the Atlantic

Target Date: Friday, Jan 16, 2026

Here are some instructions for how to submit the assignment.

- Do the problems by hand using pencil (or pen) and paper. There is no need to type this assignment.
- If you've made a plot in google colab, you can just share the colab notebook with me.
- If you like working on a tablet, go for it.
- Make a pdf scan of your work using genius scan or some similar scanning app. Please make the homework into a single pdf, not multiple pdfs. And please please please not a png file.
- Submit the assignment on google classroom. Please don't email it to me. Thanks.

All problems are from the textbook.

1. Exercise 2.1
2. Exercise 3.1
3. Exercise 4.2
4. **Optional** Exercise 4.1. Involves some calculus.
5. **Optional** Exercise 4.3. Involves some calculus. Derives the solution to Newton's law of cooling.
6. Short[1] reflections:
   (a) Did you work with any other humans on this assignment? (It's great if you did! Working with other humans is awesome.) If so, who, and how did you collaborate?
   (b) GenAI: did you use it to help with this assignment? (It's ok if you did! GenAI is useful, sometimes, especially for programming. But it's important that what you turn in represents your understanding.) If so, how did you use it?
   (c) Any other comments or reflections on this assignment?

I recommend the optional options if you feel like practicing calculus. They may be satisfying, and may lead to some insight, but they're are at all essential for understanding the big ideas of the course.

[1] One or two sentences is plenty.