

Assignment #1

Due Tuesday, 3 September 2018, at the start of class

Make sure you have a copy of the textbook:

Greenbaum & Chartier, *Numerical Methods: Design, Analysis, and Computer Implementation of Algorithms*, Princeton University Press 2012.

Lightly read Chapter 1 in the textbook; there are no Chapter 1 exercises on this Assignment. MATH 310 is about how to use computers to do mathematical tasks, and this Chapter shows big, often difficult, and real problems. We will work on much smaller problems, but it is nice to have substantial examples anyway.

Now read Chapter 2 in detail. To start you will need to find or purchase a copy of MATLAB, or get a copy of OCTAVE running. The main purpose of this assignment is to familiarize you with MATLAB; we will use it all the time so that the mathematics is concrete and practical. Thus, please *input and check the result for every MATLAB line in the Chapter* as you do the homework below. In particular, make sure you can create a new m-file (script), save it, edit it, and run it at the command line by typing its name.

When you turn in homework problems involving MATLAB (or OCTAVE), the following two expectations will always apply:

1. The commands that you used must be shown, along with the results.
2. Please strive to minimize use of paper. In particular, edit your result to remove extra space *but* keep a clear distinction between your m-files, your input commands, and the computed results. My solutions will be an example of this.

Do the following exercises:

CHAPTER 2

- Exercise 2 on page 32.
- Exercise 3 on page 32. (*Make sure to show me the MATLAB commands that generate it.*)
- Exercise 4 on page 32. (*The table should be neat, have three columns, and take about 14 lines only.*)
- Exercise 6 on page 34.
- Exercise 9 on page 35.
- Extra Credit. I can do exercise 3 on page 32 (above) in only 48 characters. Can you do it in less than 80?