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 the introductory Chapter 1 in the textbook. It is about big, often difficult, and real problems on which computers do mathematical tasks. We will only approach smaller problems, but it is nice to have substantial examples of numerical methods. There are no Chapter 1 problems on this assignment.

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. Make sure you can create a new m-file, save it, edit it, and run it at the command line by typing its name. 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.

When you do homework problems involving MATLAB, the following two expectations will always apply to what you turn in:

1. The MATLAB 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.

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?