

## Exercise 4

These computational exercises should be completed by **January 13** at **11:59AM**. Solutions should be turned in through the course website.

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### 1. Getting Started with the Packages

Two of the most common scientific computing packages are Mathematica and Matlab. Check out the tutorials linked on Blackboard if this is your first experience with the languages.

### 2. Simple Plotting

Choose your favorite function, and plot it over some range using Matlab, Mathematica, and (optionally) Matplotlib (i.e. pylab). Save it to a .pdf, .jpg, .bmp or similar file format. Feel free to use the built-in commands for the program you are using, but be sure to label the axes and give a title. Try to change the fonts for increased legibility, the axis range, and other properties.

### 3. Advanced Plotting

Look at one of the visualizations from the Wolfram webpage, and start an attempt to implement it using Matlab (or Matplotlib). This will probably require looking up syntax or example code (e.g. in the help for Matlab or by browsing through the gallery on the Matplotlib site). This may take some time to do, so bring questions to the next session; these are also examples of what your final project may look like.

### 4. Challenges

- Write up one of last week's codes using another computer programming language.
- Develop input and output from Python to Mathematica and Matlab.