

Exercise 7

These computational exercises should be completed by **January 20** at **11:59AM**. Solutions should be turned in through the course website.

1. Advanced Plotting

Same as last time; attempt to work through the syntax of one of the plotting commands: `Plot3D`, `ListPlot3D`, `ParametricPlot3D`, `SphericalPlot3D`, `CountourPlot`, `DensityPlot`, `ListContourPlot`, `ListDensityPlot`, or an equivalent in Python or Matlab. Again, use a demonstration to get an idea, use the Documentation Center to get started, and bring questions for next time.

2. Making a TeX Document

Use TeXShop or TeXnicCenter to develop a simple document with an equation and a figure.

3. Final Project

Come up with an idea or topic for your final project. The basic requirements are that you work through some computer simulation (using the language of your choice) and produce a visualization of some scientific process. This could be a differential equation, a stochastic simulation (such as those presented in the previous two exercises), or some other problem in the natural or social sciences that requires the visualization of complex data (there will be a few more examples this week). This problem should take a couple of days to research and complete with a brief (between two and five pages) report in TeX. This report should describe the problem (with the relevant typeset equations) and include a graphic of your visualization and the relevant computer code. You will present a short (between five and ten minutes) presentation next Wednesday describing your work (time and place TBD).