Milestone 7

Due Monday, May 23 at EOD (end of day)

Learning Objectives:

I. What characters do I type next? *How do I use more complicated kinds of plots?* This milestone will give you the chance to learn how to plot vector fields, 3D data, or anything else you might need for your project.

III. What broke and how do I fix it? *How do I debug a whole project?* This milestone asks you to make the basic functionality of your code, from start to finish, work and produce correct results. This means you'll have to deal with all the little bugs that may have come up while working on previous milestones. You'll also have to test the results and improve the code until it works as expected.

IV. How do I communicate science and Python with others? *How do I explain code and get feedback on it?* This milestone will give you the chance to prepare for talking about your code, in preparation for an activity we will do on Tuesday. It will also help prepare you for your final project presentation.

    A. Python is a physical system. Experiment!
    B. Let me Google that for you.
    C. Computing time is cheap—use it.
    D. Read the error output. Read it.
    E. Don't reinvent the wheel.
    F. Write and test, write and test...

While You Work: Habit Summary #4

We've talked about six useful habits that scientific programmers have. (See above, and see also page 4 of the syllabus.) You've started using these habits, possibly without knowing it! This part of the milestone will help you notice and solidify those habits.

While you're working, you will doubtless make use of one of these habits. When you notice yourself using one of these habits **about which you haven't already written a summary**, write down the habit and what you used it for. See Milestone 4 for an example.

Part 1: Get a Working Rough Draft

You know what you have to get done before your project is done. Get a rough draft of it done and working. **Make sure to test your code** so that you know it's returning the correct results.

Choose only <u>one</u> of the following subtasks of Part 2

Part 2.a: Plot Results

Pick some important results that you would want to plot in order to visualize. **Whether your results are** *correct* **doesn't matter for this milestone**—you can fix them later, as long as you get something to plot.

Pick a sensible type of plot for your results, plot them, annotate the plot, and save it in a format that would look good if included in a published document.

Part 2.b: Pick a Snippet of Code to Explain

Find a part of your code to discuss with a partner on Tuesday, maybe 10–20 lines. It shouldn't be perfect and it shouldn't be entirely non-functional—pick something in between. Then,
1. Figure out how to explain how it currently works and how it's supposed to work; and
2. Pick one aspect about which to ask your partner for suggestions. "How can I make _____ work better?"