

ASTR 400B Research Assignment 3: Hack Day

Due: Apr 3 2025 in class

This assignment will not be graded, but will count towards a participation grade. You must participate in class for a code check-in (or organize with the TA or Prof Besla for a check in during office hours).

1 The Assignment

You are expected to push your first attempt at creating code for your research project to your Github account by Thursday morning (9 AM AZ time) in a new folder called ResearchAssignment3. We expect the following:

1.1 Explain the Goal of your Code in Documentation

1. At the beginning of your code write a comment that states the topic of your research project.
2. Some of you have outlined multiple questions to pursue. For this assignment pick ONE of those questions and add it to the comments.
3. Many of you have outlined multiple ideas of plots to create or calculations to make. For this assignment pick ONE of those ideas and add it to the comments.
4. The title of the code should be informative with regards to what the code does.

1.2 Create a First Attempt at your Code

1. Before you start writing code, OUTLINE as much of your code **in words** (that are commented out) as you can. Like the templates you've been using for In Class Labs or Homeworks, where the steps are laid out.
2. Create python script or a Jupyter notebook to compute relevant equations and make plot(s) to answer your chosen idea. This can be originally based on a lab or homework, but should evolve from there eventually to something new.
3. Complete as much of the code as you can. Ideally with the first attempts at a plot.

1.3 3 minute Presentation

You will be expected to present your methodology and code to a group of other students and the TA/Prof Besla/another grad student. You should explain:

1. the question you are trying to answer
2. the plot you are trying to make/calculation you are trying to do
3. outline the steps in the code.

You can discuss where you are stuck and need help. The goal is for us to see where you are at and provide feedback on how to fix any issues you have.

1.4 General Guidelines

- Your code does not have to be complete or work for this check-in. The point is for us to help you. But we do expect you to have made a proper attempt at building the code - **steps must be outlined in words at least.**
- You do not have to create a class. You can simply create a set of functions.
- You may work in a group to brainstorm how to write your code - but you must create a final function that is uniquely yours. This means there must be at least **one new function that was not part of a homework or lab or that was created by/or is the same as that of someone else.**
- Note that for the final project you will need to create at least two plots for your paper. At least one must be created using a code that you uniquely created. The other can be code strictly developed from our labs.
- The next assignment will be to fix up your proposal based on the comments on the first draft and the feedback you get from the code check in.