Name: _____

Date: _____

Phys 194–FYRE Assignment #2
Working in the Terminal

Assignment Policy: You can consult class notes, books, and online resources. You can work in small groups (2 or 3), but you must turn in your own work. Make sure you are clear about the process you use to solve the problems: partial credit will be awarded.

Unix & Accessing the NANOGrav Notebook

Unix is an operating system or, the suite of software that makes the computer work. An operating system provides services for the programs they run. Unix is used by the terminals and multi-user servers in most physics/astronomy departments. Although Unix is not typically used for data processing, it is essential for accessing remote machines, finding data, copying it, submitting jobs, etc.

In this class, we will access terminals through a browser interface (go to `notebook.nanograv.org`), and login with username `uwm.researchNN`, where `NN` is a two digit number, $01-07$ in this case. The passwords for these accounts are currently the same as the username without the period. When you login, you will be prompted to change your password; change yours to something you will remember since you will be using this account throughout the semester. Finally, open a terminal by clicking the *New* drop-down menu in the upper right-hand corner of the browser window and select *Terminal*.

For the following exercises, use the Unix tutorials (links) on the FYRE website to help find useful commands. In each case, write down the command you used and the result (either verbatim or a short description). For example, if asked to report the current working directory, you would use the command `pwd`, which returns `/home/jovyan/work`.

Navigating in the Terminal

1. What is in the current working directory? You may want to use a command that lists files. Are there any hidden files?

2. What do . and .. refer to in terms of directory structure?

3. Now *change directory* into `shared` and write down a few files and directories you find there. Try typing `pwd` and `ls ..` – what do you notice?

4. Go to the `UWM_FYRE` directory. This is where many of the files we will work with this semester will live. Make a new directory here so that you will have your own place to write code and analyze data later. You might use your name, first initial and last name, or some other self-identifying string to name it.

Manipulating/Viewing Files

1. Copy `intro.txt` to your personal directory. Rename the copy as `[name]_intro.txt`. Remember to write down the steps you used to do this below.

2. Open the file and fill in missing information. To do this, either navigate to your file using the browser interface and click on the file to open a text editor tab or (if you're feeling brave) use Vim! If you go that route, you may want to look at *How the Hell do I Exit: a Beginner's Guide to Vim* on the FYRE website.

3. Try running both `cat` and `less` on the file `words.txt`. What is the difference? How many words are in the file? Characters?

4. How many words in `words.txt` start with the letter q? You may want to look up how to use *pipes* to figure this out. Redirect all words starting with q into a file in your personal directory called `q.txt`.

5. If you finish early, have a look at *Unix tutorial 2* and work through some of the examples in Section 2.2: Experimenting with Regular Expressions. Feel free to take notes in the space below.