Homework Guidelines

Physics 13BH / CS15B   Winter 2020

To turn in your homework, you will email a single archive file to `13tas@elo.physics.ucsb.edu` . Here is how that should be done:

1. Create a directory for your homework. The directory name should be your last name followed by an underscore, followed by your perm number and a second underscore, followed by the word "homework", all in lower case. For instance, if your name is Enrico Fermi and your perm number is 1602177,

   ```
   cd
   mkdir fermi_1602177_homework
   ```

2. For each problem set, you will create a subdirectory:

   ```
   cd ~/fermi_1602177_homework
   mkdir fermi_1602177_hw1
   mkdir fermi_1602177_hw2
   ```

   be sure the subdirectory names also include your last name and perm number.

3. For each numbered problem in the set, you will create a corresponding text file, which should contain answers to everything you are asked in that particular problem. The name of the file should be the problem number preceded by the letter `p`, followed by an underscore and the name of the set. If you are asked for a program or other type of answer, create the appropriate file (for example, `p2_hw6.py` for a Python program).

   ```
   cd ~/fermi_1602177_homework/fermi_1602177_hw1
   vi p1_hw1.txt   (do some text editing)
   ```

4. When you are ready to turn in your homework, create a .tar archive file, the name of which includes your last name:

   ```
   cd ~/fermi_1602177_homework
   tar -zcf fermi_1602177_hw1.tar.gz fermi_1602177_hw1
   ```

5. Check to make sure the tar file contains all of your work:

```
cd ~/fermi_1602177_homework
tar -ztf fermi_1602177_hw1.tar.gz
```

6. Compute a checksum for the tar file:

```
cd ~/fermi_1602177_homework
md5sum fermi_1602177_hw1.tar.gz
```

7. The output will look something like this:

```
f4468281ff4beeb20de8c58dce0b6bee   fermi_1602177_hw1.tar.gz
```

Email the tar file to `13tas@elo.physics.ucsb.edu` before the deadline and include the checksum in the body of your message.

8. Back up your homework submissions:

```
cd
mkdir oldhw
mv fermi_1602177_homework/fermi_1602177_hw1.tar.gz oldhw
```

You must turn in a plain-text answer file for each problem, containing at a minimum the output of any program you are asked to write, or if the problem does not involve writing a program, an explanation of how you got your answer. This will be graded. If your answer contains hand-drawn diagrams or calculations that cannot easily be included in a text file, you may instead turn in a PDF file made with LaTeX, or a photograph or scan of your handwritten work. Acceptable file formats are PDF, TIFF, and JPEG. Any file you turn in must open properly in either `mupdf` or `xv` on the TA's Raspberry Pi, and the TA must be able to read your writing.

You will get two grades for each week's assignment. One grade will reflect whether your code, calculations, and measurements are correct (that is, whether they produce the correct result or properly represent physical reality), and the other will reflect the quality of your code and data. This second grade will take into account the readability, efficiency, robustness, and elegance of the programs you have written and the precision, analysis, and presentation of your data.

Unless otherwise specified, all programs must be written in Python, version 3, and all plots and images must be turned in as Encapsulated PostScript (EPS) files. **You must be the sole author of any code you turn in for this class.** The only exception is that you are welcome to use unaltered or minimally modified example code provided with the course configuration for your Raspberry Pi.

If a program's output is not text, then typically you will be asked to turn in a separate file containing the output. In that case, your text file should include a description of how your program was designed, and how it works. The text file is also a good place to describe aspects of your code that may not be obvious, for instance how your feedback loops work. You can also describe problems you are aware of but were not able to fix, or ideas you were unable to implement.

If your output is in a separate file and your program for the problem contains detailed comments, you can note this in the text file and include only a brief overview. You must turn in both your program code and an answer file for any problem that asks you to write a program.

All code you turn in must run on a Raspberry Pi 4 configured for our course.

Better answers, code, and data will get better grades.

It will often happen in the homework for this class that you will need to perform computing tasks that have not been covered in class. Just as you would in a research lab, you will need to find the necessary information and figure out to solve the problem on your own. Use the Python documentation, the man command, your textbook, and web searches.