

# PHY566 Homework #1

Due Date: Jan. 28th, 5:00pm via Sakai

## *Programming & Plotting Basics*

Install Python on your computer (in case it does not have it installed) and write the following small programs:

- a) write a Python program that calculates  $\sin(x)$  and  $\sin(x)/x$  from  $-10.0$  to  $10.0$  in steps of  $0.05$  and plots both functions into one figure with proper axis annotations [4 points]
- b) write a 2nd Python program (based on your first) that creates an ASCII file with a table. The first column of the table should contain floating point numbers from  $-10.0$  to  $10.0$  in steps of  $0.05$ . The second column should contain the value of the function  $\sin(x)$ , with  $x$  being the number in the 1st column. The 3rd column should contain the value of the function  $\sin(x)/x$ , again with  $x$  being the number in the first column. [3 points]
- c) write a 3rd Python program that reads in the ASCII file you have generated and produces the same figure as the first one. Note that this program should solely rely on the table that you read in for populating the figure and should **not** attempt to calculate the functions  $\sin(x)$  and  $\sin(x)/x$ . Save this figure as jpeg, eps and as pdf file. [3 points]

Your homework submission (via Sakai) should consist of:

- the source code of your three Python programs
- the data table you have generated with your 2nd program
- the pdf, eps and jpeg figures showing the content of your data table.

Please do **not** use iPython Notebooks, but write your Python code as a regular text file