

# PHYS 210 LAB 2 Tuesday 13<sup>th</sup>, 2016

Create a new directory somewhere in your home directory with the name `yourusername_assignment_2` to store the files you will create for this assignment. To hand the assignment in, copy the directory with your results to `/home2/phys210/yourusername/`. Make sure it's there and has the right permissions (read and execute for everyone, write for you).

The environment used in class is `ipython` on the command line. This is by no means the only way to write and execute Python code. Other options are, for example, `ipython notebook`, or IDEs, such as Spyder. Feel free to use what works best for you. We will only provide technical support for the basic `ipython`, however.

## 1 Python basics

Identify which lines of the following code are valid Python. If they are not valid Python, explain the reason. Put your answer in a file called `debugging.txt`.

```
1  a = 5
2  b = 3.4
3  c = a b
4  d = 0
5  e = b/d
6  a_string = "hello!"
7  another_string = "5"
8
9  long_string1 = 5*a_string
10 long_string2 = "hello!" + 5
11 long_string3 = "hello!" + another_string
12
13 1_character = "c"
14     character_2 = "d"
15
16 boolean1 = 5 < 3
17 boolean2 = "3" < 4
```

## 2 Math

1. Calculate the volume of a sphere with radius 3.
2. A square has an area of 10. What is the length of one of its sides?
3. What are the sine, cosine, and tangent of 21°? Note that the trigonometric functions expect their arguments in radians.

Put the code for this exercise into a file named `math.py`. The code should print the results for each question. Make sure the code is properly commented and runs by itself without errors.

### 3 Strings

- Create variables containing the strings "Hello", "World", "PHYS210".
- Combine all three strings into one.
- Add three copies of "UBC" to the end of the string you got and put it into a new variable.
- Make all characters in this variable lower case.
- Strip all occurrences of the characters "o" and "l" from the string.

Put the code for this exercise into a file named `strings.py`. The code should print the result of the last question. Make sure the code is properly commented and runs by itself without errors.