Python Workshop

October 19, 2018
What is Python?

- Created by Guido van Rossum in the late 1980s, released in 1991
- Interpreted as an Object-Oriented language
- Useful data analysis and number crunching
Why Python?

- Simple to read; no curly braces {}, no semicolons (;), scope defined by indentations
- Forces coders to learn good indentation practices
- Built in trash collector, easy-to-understand code
- Used and supported by many scientists and engineers from around the world
- Online tools available: https://www.onlinegdb.com/
Basics: Variables

int: 10, 59, 9999, -10...

float: 10.1, 0.0, -2.010101...

boolean: True, False

String: “Hello!”

And more....
Basic: Printing

print(“Any string here!”)
print(number)
print(“%.1f” % (float))
EXAMPLE
Arithmetic

+  
-  
*  
/
Lists, Tuples, Dictionaries

list = [1, “b”, “foo”]
tuple = (1, 2, “a”)
dict = {“a”: 1, “b”: 2, “c”:3}
Conditional Statement

```python
if CONDITION:
    YOUR CODE HERE
else:
    YOUR CODE HERE
```
Loops

while CONDITION:
    YOUR CODE HERE

for x in LIST:
    YOUR CODE HERE

for x in range (#):
    YOUR CODE HERE
Create a list of ints
Sum up all of the ints
Print the sum
def my_function(arguments = default):
    YOUR CODE HERE
    return
Exercise: Functions

Exercise 1: Write a function that prints, “Hi, my name is [name] and I am [age] years old”, taking a String and an int as the name and age arguments.

Exercise 2: Write a function that takes two lists of the same length and returns the dot product of the lists.
Further resources

Python documentation: https://docs.python.org/

Codecademy: https://www.codecademy.com/

Scientific Computing Libraries:

- SciPy: https://www.scipy.org/
- NumPy: www.numpy.org/