Intro to Python

Timothy M. Kinnear & Leon Schoonderwoerd

Python

- "Python is an interpreted, interactive, object-oriented programming language." - Python Software Foundation
- Current Versions:
  - Python 2.7.15 `https://docs.python.org/2/`
  - Python 3.7.1 `https://docs.python.org/3/`

Python

- "Python is an **interpreted**, interactive, object-oriented programming language." - Python Software Foundation
- 'interpreted' - evaluates commands one-at-a-time, as it goes
- as opposed to 'compiled', which evaluates all commands in advance, then runs the evaluated bulk in one go

Python

- "Python is an interpreted, **interactive**, object-oriented programming language." - Python Software Foundation
- 'interactive' - as it is interpreted, you can give commands and it can react as you give them
- as opposed to compiled languages, where all commands intended to be run must be given in advance

Python

- "Python is an interpreted, interactive, **object-oriented** programming language." - Python Software Foundation
- 'object-oriented' - more tricky to define!
- based on the idea of 'objects', which are structures which can contain data and code
- these objects can then be used to package and refer to data and code elsewhere

- Python 2.x

```
print "Hello, World"
```

```
Hello, World
```

- Or, Python 3.x

```
print("Hello, World")
```

```
Hello, World
```

Workshop Topics

- Fundamentals
  - Variables
  - Operators
  - Comparisons
- Lists
- Tracebacks
- Loops
- Conditionals
- Files
- Functions
- Advanced topics

Workshop Topics

- Fundamentals
  - Variables - *Storage of data*
  - Operators - *Calculations on data*
  - Comparisons - *Comparing data*
- Lists - *Storage larger sets of data*
- Tracebacks - *Error messages*
- Loops - *Repeating sections of code*
- Conditionals - *Making decisions within code*
- Files - *Interacting with previously stored data*
- Functions - *Storing blocks of code*
- Advanced topics - *Modules/Libraries*

Materials Structure

Main
- GradNet_Python.pdf
- GradNet_Python_Scientific.pdf
- *Basic*
  - [data files for the basic workshop]
  - *Model Solutions*
    - [.py file model solutions]
- *Scientific*
  - [data files for the scientific workshop]
  - *Model Solutions*
    - [.py file model solutions]