

Intro to Python Part 1

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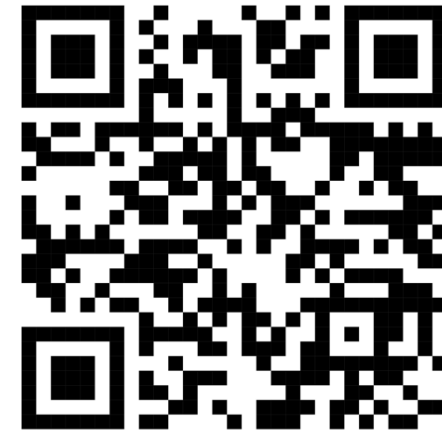
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Workshop Series

Workshop	Date	Location	Registration
How to think in Code	Jan. 28 1PM-3PM	EDUC 133	Closed
Intro to Git & GitHub	Jan. 30 1PM-5PM	EDUC 133	Closed
Intro to Unix	Feb. 6 1PM-5PM	EDUC 133	Closed
Intro to Python (Part 1)	Feb. 11 1PM-5PM	EDUC 133	Open
Intro to R (Part 1)	Feb. 13 1PM-5PM	EDUC 133	Open
Exploring MATLAB	Feb. 18 1PM-5PM	EDUC 133	Open
Statistics in R (Part 2)	Feb. 20 1PM-5PM	EDUC 133	Open
Data Processing in Python	Feb. 25 1PM-5PM	EDUC 133	Open
Intro to Machine Learning	Mar. 13 1PM-5PM	EDUC 133	TBA
Intro to R (Part 1)	TBA	EDUC 133	TBA
Intro to Python (Part 1)	TBA	EDUC 133	TBA

<https://www.mcgill.ca/micm/training/workshops-series>



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Outline

1. **Module 1 – Python Basics (1 hour 15 minutes)**

- a. Foundations of Python - A Brief Overview of Types and Variables
- b. Numbers and Comparisons
- c. Intro to Control Flow and Loops (if, while and for)
- d. Exercise**

2. **Module 2 – Strings and Collections: An Object Primer (1 hour)**

- a. Introducing Objects
- b. Introducing the String!
- c. Introduction to Tuples, Lists and Dictionaries
- d. Exercise**

3. **Module 3 – Introduction to Functions (45 minutes)**

- a. Function Overview
- b. Writing Custom Functions
- c. Documenting Functions
- d. Exercise**

4. **Module 4 – Where to go from here (10 minutes)**



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Interactive Workshop!

- That's pretty much all that will be in the slides... For the rest, we'll go to a Jupyter Notebook:

To the repository!



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Module 2

Strings and Collections

An Object Primer



What is an Object?

Object

Attributes

- Variables
- Describe the object

Methods

- Functions
- Compute values
- Alter the object



Objects

Car

colour

year

model

turn_on()

turn_off()

change_gear()

toggle_headlights()

Mouse

height

weight

age

sex

genotype



To summarize

- ✓ Data can be stored in **variables** of several types, including **strings**, **integers**, **floating point numbers** and **Booleans**.
- ✓ **Collection types**, such as **tuples**, **lists** and **dictionaries** can be used to store **multiple** data points.
- ✓ **Control flow** and **loops** help decide which lines to run and allow lines to be repeated.
- ✓ **Functions** help package up behaviour into units that you can easily reuse.

Now you are ready to:

- Store data in variables and collections.
- Perform basic operations on these data.
- Use control flow and loops to write powerful code.
- Write functions to repeat complicated tasks.



Acknowledgements

- Thank you to QLS-MiCM for giving me this opportunity and for helping me along the way.
- Thank you to the professors from the McGill School of Computer Science for helping me along my programming journey and for inspiring me to share my programming experience with others.
- Thank you to Professor Mathieu Blanchette, whose COMP 204 course helped introduce me to Python (back in Fall 2018).
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