**Intro to Python (Summer 2025)**

**Workshop Lead: Najia Bouaddouch**

**Registration link: NA**

**Approximate duration: 4 hours**

**Prerequisites:**

1. **None**

**Summary: (2-3 sentences summarizing the workshop)**

This beginner-friendly workshop introduces participants to core Python programming concepts using hands-on examples. Through interactive exercises in Google Colab, learners will explore variables, data structures, control flow, functions, and basic plotting to build a strong foundation in coding. No prior programming experience is required.

**Learning Objectives: (List 2-5 learning objectives participants will learn upon completion of this workshop)**

1. Learn basic Python syntax and concepts: variables, data types, lists, loops, functions, etc.
2. Practice writing simple scripts
3. Do basic plotting
4. Use Colab

**Content:**

1. **Module 1: Python Syntax and Variables (1 hour)**
   1. Variable assignment
      1. Basic assignment
      2. Simultaneous assignments
   2. Operators in Python
      1. Arithmetic operators
      2. Comparison operators (Booleans)
      3. Logical operators
   3. Incrementing a variable
   4. Intro to strings
      1. Slicing and indexing
   5. BONUS: Get user input
2. **Module 2: Data Structures (30 min)**
   1. Lists
      1. Replacing an element
      2. Useful methods on Lists
      3. List slicing
   2. Dictionaries
      1. Accessing and modifying elements
   3. Tuples
3. **Module 3: Control Flow**
   1. Conditional statements
      1. Simple tests
      2. Nesting of blocks
      3. Use of elif
   2. Loops
      1. While loops
      2. For loops
      3. Which loop should I pick?
   3. Iterable objects and for loops
   4. BONUS: List comprehension
4. **Module 4: Functions and Modules**
   1. Functions
      1. Function with one argument
      2. Function with two or more arguments
   2. Modules
      1. Definitions
      2. Examples of modules
   3. BONUS: Intro to matplotlib
      1. Plot simple curves