# Getting access to Python

https://people.sc.fsu.edu/~jburkardt/classes/math1800_2023/python_access/python_access.pdf

**Python**

*Python is one of the most popular modern programming languages.*

- *Predominant language for machine learning;*
- *Free;*
- *Windows, MacOS, and Linux;*
- *Use interactively, or as a program, or mixed with other programs*

## 1 Access to Python

This class will involve many programming examples, exercises, and homework. The programming language will be Python, version 3.0. Along with Python, we will need associated libraries such as `numpy`, `scipy`, `matplotlib`. There are several ways for you to access Python.

- it might already be installed on your computer;
- Google Colab gives you interactive online access;
- You can install Anaconda on your computer.

## 2 Already installed?

Your computer may already have a version of Python installed. However, we need to be sure you have Python version 3, and the extra libraries we will be using. Also, you need to know how to access a terminal or command window, in order to start Python.

- Windows: a powershell prompt should appear in your Start menu. Click on it;
- MacOS: In the Finder, open the `/Applications/Utilities` folder, then double-click `Terminal`;

- Linux: right click on the background screen, to get a menu that includes `Open Terminal`.

Within the terminal window, try to run a Python session by typing the command `python`. If you don't have Python, then you will get an error message like *Command not found.* Otherwise, you will start a Python session, which will also identify the version of Python you have. In that case, use the `import` command to request access to libraries. If you get *ModuleNotFoundError* then that particular library is not available. Terminate your Python session with the `quit()` command.

```
python               <-- This starts a Python session
                     <-- You will see a version number, such as Python 3.8.8.
                     <-- Make sure the first digit is 3!

>> import matplotlib <-- Just checking if these modules are available.
>> import numpy
>> import pandas
>> import PIL
>> import scipy
>> import sympy
>> quit()
```

If your Python version is 3 or higher, and all the libraries showed up, then you are very lucky, and you can run Python on your laptop with no further worries.

# 3 Google Colab

Google Colab is an online service that allows you to create Python programs and run them online through your browser. You can access Colab at

`https://colab.research.google.com`

You start by opening a notebook. The notebook consists of code cells and text cells. A code cell is a box in which you can type Python commands. A text cell is a box in which you can type comments. Colab has all the libraries we will be using. Files you create in Colab are saved between sessions, and can be submitted to Canvas as completed homework.

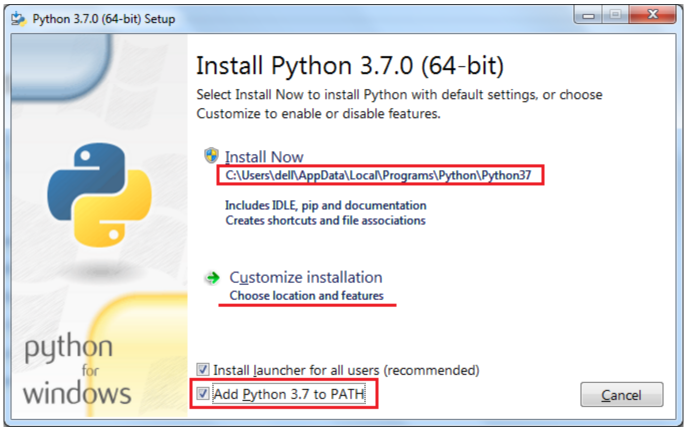
# 4 Install anaconda

If you don't have a satisfactory version of Python installed on your laptop, and you don't want to use Colab, you can have Python installed by downloading Anaconda, and its package manager `conda`.

Go to the site

`https://www.anaconda.com/products.individual`

and download a copy of Anaconda for your operating system.



Python 3.7.0 (64-bit) Setup

Install Python 3.7.0 (64-bit)

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

Install Now
C:\Users\dell\AppData\Local\Programs\Python\Python37

Includes IDLE, pip and documentation
Creates shortcuts and file associations

Customize installation
Choose location and features

☑ Install launcher for all users (recommended)
☑ Add Python 3.7 to PATH

Anaconda Download for Windows

## 5 Look ahead at Python

We will try to teach you Python starting with the basics. Nonetheless, it can be helpful for you to try to get an advance look at the language. If you have no programming experience at all, this may take some time to get used to. If you have experience in programming in C, C++, Fortran, Java, or other procedural languages, then a lot of the features of Python will be familiar. If, better yet, you have worked with an interactive language like MATLAB or R, then Python will seem very similar, and it will just be a question of “translating” how you do things.

One excellent way to start is to refer to the online tutorial available at:

`https://docs.python.org/3/tutorial/`

and work through some of the initial examples.

You don’t need to become an expert, but you should start by focusing on:

- how you define and use data;
- how `if` statements make decisions;
- how `for` and `while` carry out repetitive operations on data;
- how you define and use functions to modify data;
- how the `import` command makes a library accessible;
- how lists, vectors and arrays organize multiple data items;