Requirements and installation:

You will need to have the following software running and working when on the first day of the course.

To get help with installations, you are welcome to join an **optional** installation/troubleshooting afternoon:

13 April 2023, Biologibygget 2.003, 14.00-16.00

Please try to get everything to run before the troubleshooting day, so all we have to do is fix problems, and not run all installations.

As a basis, you need a moderately modern notebook running Linux, Windows, or MacOS, with admin / superuser rights.

Requirements:
- Python 3.7 or newer
- A number of Python packages including Jupyter

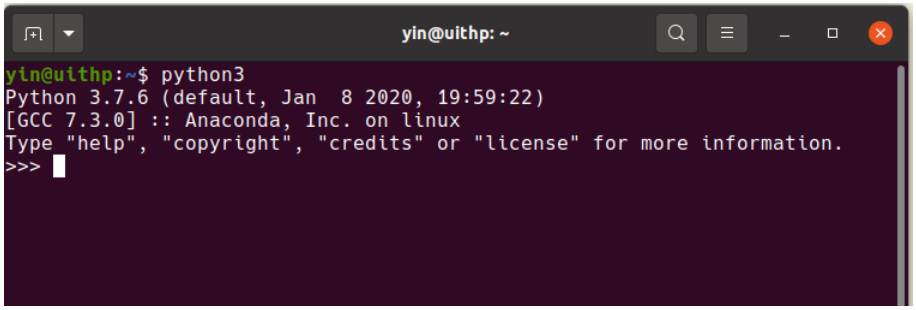
Recommended:
- an IDE or more professional editor

Installation instructions:

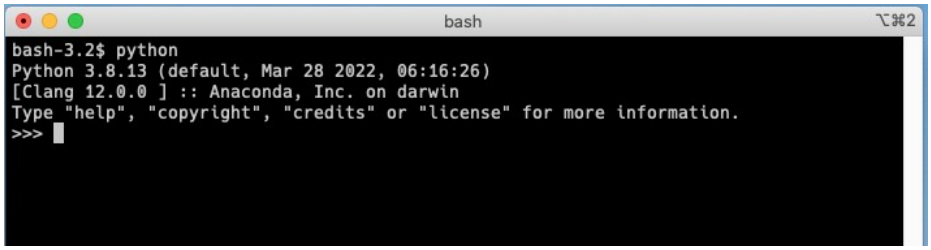
Python:
We will be using the Anaconda distribution of Python. Go to https://www.anaconda.com/distribution/, download an installer (when in doubt go for 64-Bit x86) for your operating system, and install it. Run the installer with admin / superuser rights and make sure to check the options to add Anaconda to PATH and to set it as the default Python environment. More info for the installation can be found here:
https://docs.anaconda.com/anaconda/install/windows/ (Windows)
https://docs.anaconda.com/anaconda/install/mac-os/ (Mac)
https://docs.anaconda.com/anaconda/install/linux/ (Linux, follow *Debian* if you run Ubuntu)

Check the Python installation:
Check the installation by opening the Terminal (Linux / Mac) or Powershell (Windows), typing `python` or `python3`, and hit Enter. If you enter a Python environment and get >>> (see below), you've installed Python.

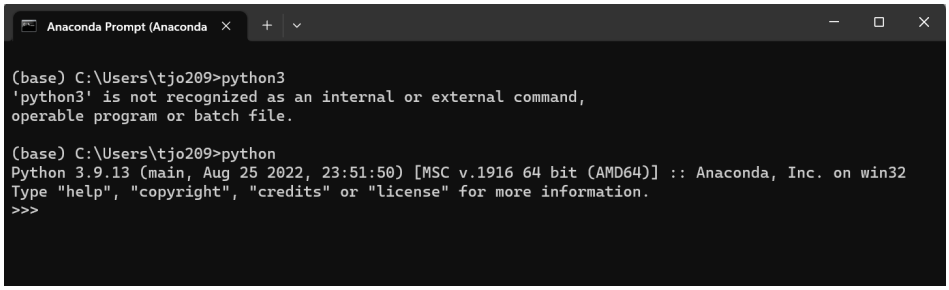
On my Linux machine it looks like this.



On a MacOS system it might look something like this:



And from a Windows Powershell it might look like this (ignore the first 3 lines):



Python packages:
Luckily for you, Anaconda already includes most packages we will use. Should you use a different installation than the one above (and only then!), you need to also make sure you have installed the following packages:

- numpy
- scipy
- pandas
- matplotlib
- seaborn
- biopython
- requests
- click
- jupyter

If you have to manually install, make sure Jupyter is working by running
`jupyter-notebook`
in the PowerShell / Terminal.

Editor / IDE:
Basically, you need a simple text editor to edit your code. This is not Word or anything like a word processor! Every Operating System comes with its own standard Editor, Windows uses the aptly named Editor, Mac uses TextEdit, on Linux there is a multitude depending on your distribution (Ubuntu uses gedit). These are fine to get the job done, but offer little comfort and help. Many editors focused on programming help you with use of colors, and code suggestions, as well as integrated help. IDEs (integrated development environments) take this the farthest and basically offer you a specialized programming toolbox. Below is a list of different editors and IDEs that might help you get started. Check them out and pick what you like. You don’t need to be super proficient with them. Just check that they run.

Pick one of the following (any OS):

- Spyder (very popular in science, similar to Matlab and R Studio, recommended) https://www.spyder-ide.org/
- PyCharm (very popular in Software Development) https://www.jetbrains.com/pycharm/

If you're on Windows, also install:

- Notepad++ (recommended as a useful Editor, in addition to an IDE)

If something doesn't work:
Try googling for solutions and further instructions. You're learning how to google problems in the course anyway. ;) Try uninstalling the offending software and running the installation again, maybe there was some mistake!?

If you can't fix things after a bit of troubleshooting: Don't worry! Shoot me a mail describing your problem in detail (hsieh.y.chen@uit.no). Either we fix it via mail, or on the installation/troubleshooting day.