

# CRASH COURSE MACHINE LEARNING - ALL MATERIALS LIVE HERE!

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## University of Glasgow - Glasgow International College

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### GIC PM-617 Module: Practical Training for Science and Engineering Research

This is a repository for materials used for a module on quantitative research resources, taught at Glasgow International College at The University of Glasgow.

## Intro

Machine learning is a method of data analysis that automates analytical model building. It is a branch of artificial intelligence based on the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention. Machine learning is the process that powers many of the services we use today—recommendation systems like those on Netflix, YouTube, and Spotify; search engines like Google and Baidu; social-media feeds like Facebook and Twitter; voice assistants like Siri and Alexa. The list goes on.

In this crash course, we introduce the core idea of teaching a computer to learn concepts using data—without being explicitly programmed. We also go hands-on with two examples of machine learning: Recommender Based Systems and Classification Systems.

## PREPARATION BEFORE THE SEMINAR

To follow the Python tutorial during our seminar, you will need to have a few things installed.

The reason we do this **before** the seminar is because it takes time. And we only have two hours. So I would much rather we spend those hours actually learning Python and its application in Data Science instead of troubleshooting a Python installation gone wrong!

That's why I'm asking you to go through this initial steps **before** the seminar. So we can get started right away!

### Python instalation and setup for Mac & Windows

To install and setup Python for Mac and Windows, [follow the steps in this tutorial](#).

When you are finished, come back and continue with these instructions.

### Visual Studio Code

To open the folder with the Workshop and exercise notebooks, you will need an IDE (Integrated Development Environment). There are many popular IDE environments for Python development. But I use Visual Studio Code.

Why VS Code?

1. VSCode has support for most of the popular languages. 😊
2. The community is huge and has plugins for every kind of language. 💡
3. It has integrated terminal for faster development and takes less storage and has low memory footprint. 😊

To install VS Code you will have take to follow some steps:

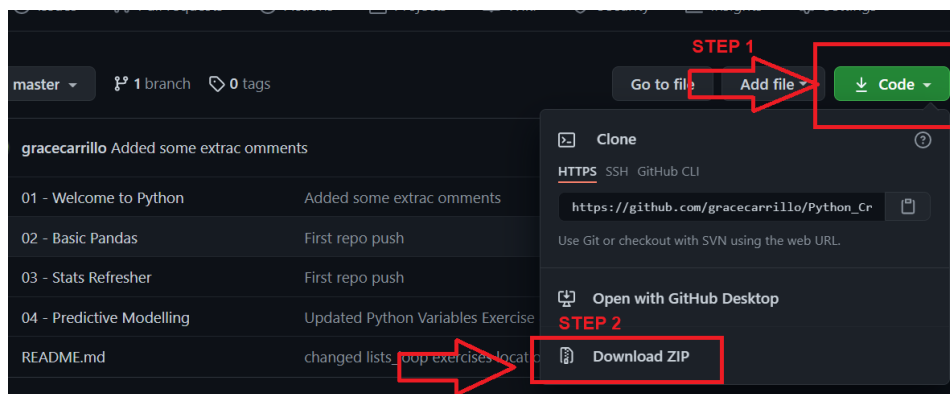
- If you use Windows, you can follow the instructions on how to install VS Code in your laptop or PC [on this tutorial](#)..
- If you use a Mac, [you can follow this tutorial instead](#)..

Once you have finished installing VS Code, you can continue with these instructions.

Download the materials into your local working environment (fancy way of saying your laptop!).

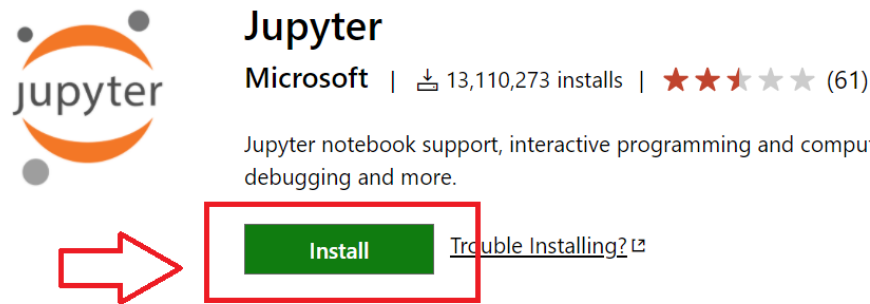
1. Download this repo as a zip file, save it in the folder you will be working on, and unzip it. If you're not sure how to do this, see [this resource about how to unzip a file in a Mac](#), and [this resource for Windows](#).

Make sure you save this folder in a location you will remember.

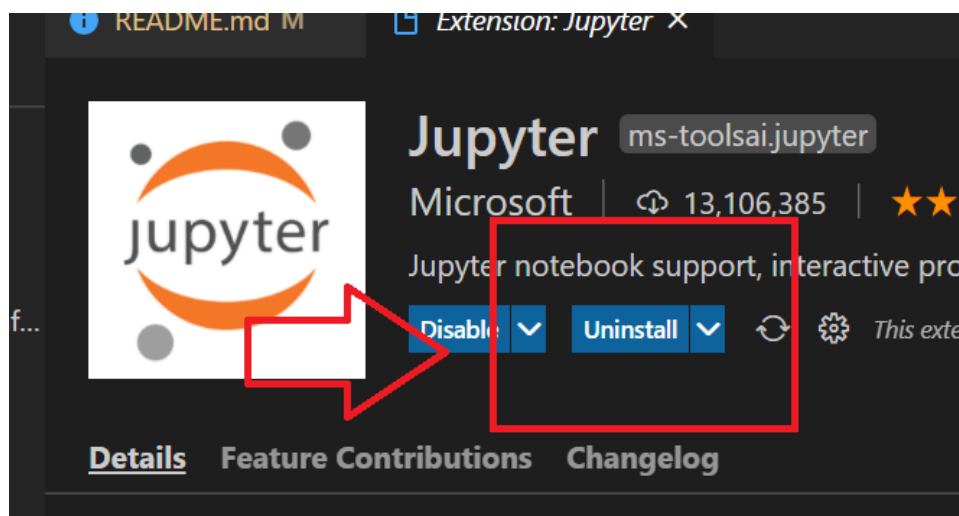


2. You also need to install the Jupyter Extension to work with the notebooks that we will use during this workshop. These notebooks are called Jupyter notebooks, and they are useful to combine python code and text in the same file. You can learn more about Jupyter notebooks [by following this link](#)..

To begin adding the Jupyter Extension to your VS Code IDE, [follow this link](#).. You will see the following window:



Click *Install*. When a pop-up window asks you if you want to open Visual Studio Code, just click the button to open it. This will take you to your VS Code. You will see the following, except that for you, the button will say *Install* instead of *Uninstall*, like it does for me.



Open the materials.

You should now be ready to get started! Verify this by navigating to the **Python\_Crash\_Course** folder you downloaded. Go to *File -> Open Folder ...*

Select the folder and click *Open*. You should now be able to see all the folders for this course.

Happy learning!

## WHAT TO DO AFTER THE SEMINAR

1. Complete the Hands-on-Exercises in order. Finish the notebooks on your own if you did not have time during the seminar.
2. E-portfolio Evidence: Just focus on going through both exercise notebooks. Then, write a short 500-1000 words reflection about the course and what you learned. How was the process of going through the exercises? What did you learn? What was missing? How is this going to help your MSc studies? And this, accompanied by screenshots of your local setup with the exercises.

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## Other Resources

[Python Beginner Tutorial. Full playlist: 26 videos](#)

[Learn Python - Full Course for Beginners](#)

[Machine Learning Full Course - Learn Machine Learning 10 Hours | Machine Learning Tutorial](#)