

INTRODUCTION TO PYTHON

In this session, you will set up your
Python programming environment

Multiple TAs will be available today
to help you set up your Python
programming environment

Reading and Watching

- Real Python – excellent videos (some free, all videos for \$20/month)
<https://realpython.com/>

References

- Conda
<https://conda.io/en/latest/>

Class Assumptions

- Everyone has had some (maybe limited) programming experience
- Not everyone has used Python
- Not everyone has used an Integrated Development Environment
- Class approach
 - Introduce use of Python slowly, working on real data and real political informatics problems
 - Monitor class progress with many “Are We on Track?” exercises
 - Adjust rate of material delivery based on class feedback

PyCharm

- You should use the Community Edition of PyCharm for your work, which you can access at <https://www.jetbrains.com/pycharm-edu/>

If you have not yet installed PyCharm, you can do it now



The screenshot shows the 'Get Your Educational Tool' page for PyCharm. At the top, there's a navigation bar with links for Java, Kotlin, Python (which is highlighted), Scala, JavaScript, C/C++, Rust, Go, and PHP. Below this, the PyCharm logo is displayed. To the right of the logo, text explains that users can learn and teach Python with PyCharm Community Edition for free. It also provides instructions on how to enable access, mentioning that users of PyCharm 2022 or earlier need to install the EduTools plugin. At the bottom, there are two main buttons: 'Download' and 'Install'. The 'Download' button is blue and has a dropdown menu showing '.exe'. Below it, it says 'PyCharm Community Edition'. The 'Install' button is black and has a dropdown menu showing 'For PyCharm'. There are also links for 'Release notes', 'System requirements', 'Installation instructions', and 'Other versions'.

Get Your Educational Tool

Java Kotlin Python Scala JavaScript C/C++ Rust Go PHP

Learn and teach Python with PyCharm Community Edition for free.

To start learning or teaching Python in your IDE, switch to the PyCharm Community Edition, click *Enable Access*. If you use PyCharm 2022 or earlier, you'll need to install the EduTools plugin.

Version: 2022.3.2
Build: 223.8617.48
25 January 2023
[Release notes](#)

[System requirements](#)
[Installation instructions](#)
[Other versions](#)

Download .exe or Install For PyCharm

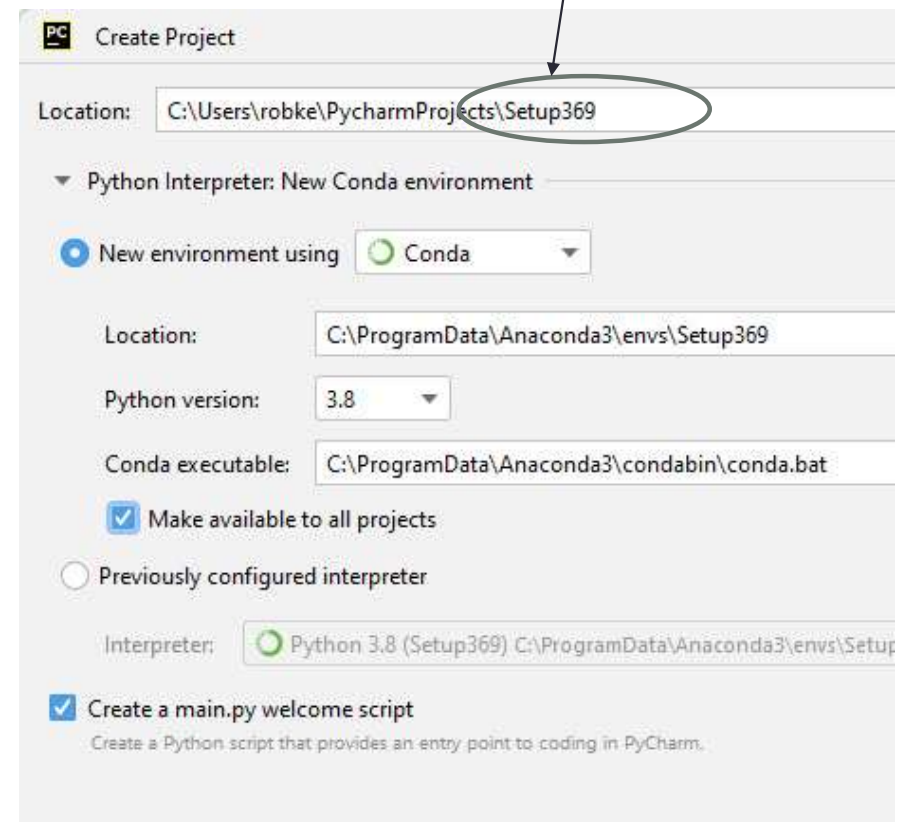
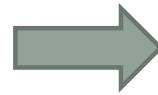
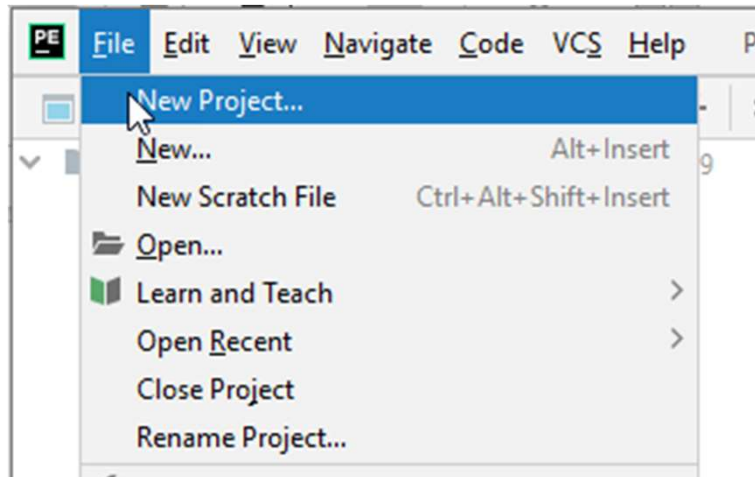
PyCharm Setup

- You can use any Python Interactive Development Environment (IDE) you are comfortable with, but the course-supported IDE is PyCharm
- If you are using PyCharm,
 - Set up at least one PyCharm project for the course
 - Set your Python interpreter for that project as Python 3.8
 - Set Conda as your configuration manager
- If you have any difficulty in setting up PyCharm, we will provide TA support to help you complete it

You may need to install Conda from

<https://conda.io/projects/conda/en/latest/user-guide/install/index.html#regular-installation>

Setting a Windows PyCharm Project



Setting a Mac OS PyCharm Project

The image shows the PyCharm 'New Project' dialog box on a Mac OS. The 'Pure Python' option is selected in the left sidebar. The 'Location' field is set to `/Users/srkagana/PycharmProjects/pythonProject`. The 'Python Interpreter' section shows 'New environment using Conda' selected. The 'Location' for the Conda environment is `/Users/srkagana/.conda/envs/pythonProject`. The 'Python version' is set to 3.8. The 'Conda executable' field is set to `/Users/srkagana/opt/anaconda3/bin/conda`. The 'Create a main.py welcome script' checkbox is checked. A large green arrow points from the 'File' menu to the 'New Project' dialog. Red arrows point to the 'Location' field, the 'Conda' option, and the 'Python version' dropdown, with accompanying text: 'Enter your project name', 'Always use Conda!', and 'Always version 3.8!'.

Enter your project name

Always use Conda!

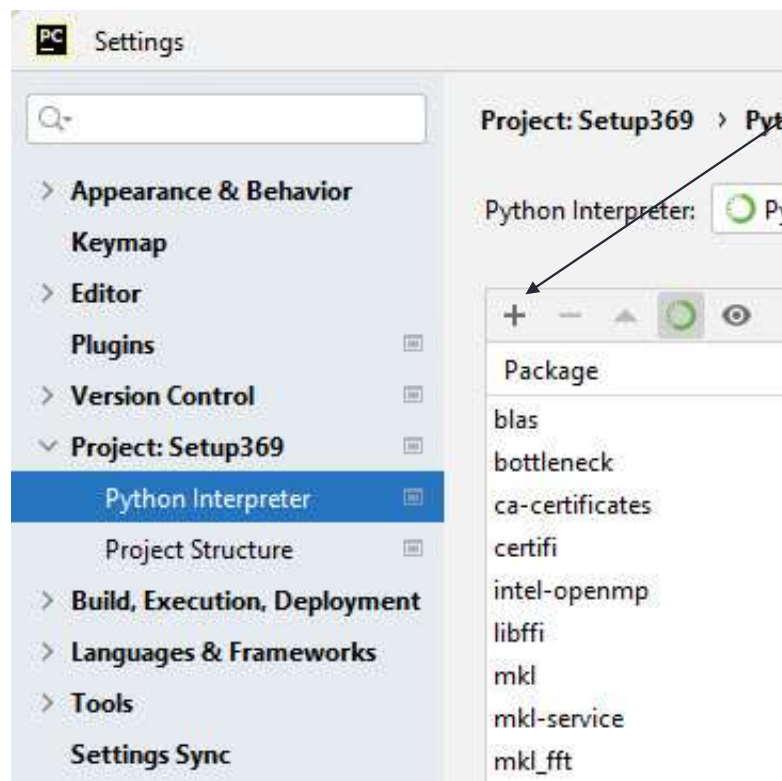
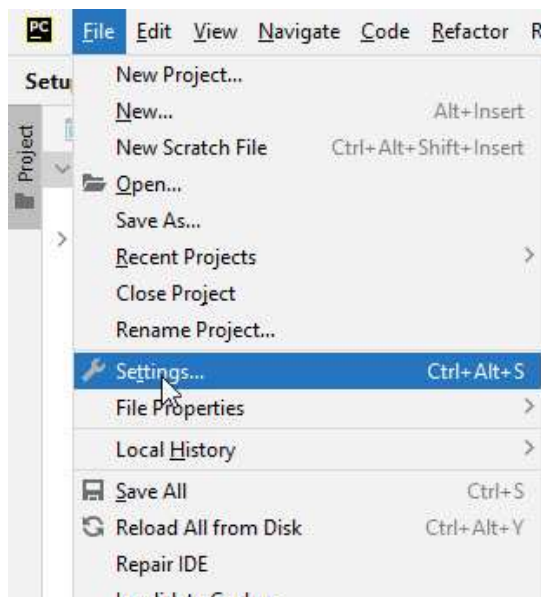
Always version 3.8!

Installing Python Libraries

- You will need to install Python libraries into your project during the semester
- Most (but not all) libraries will already be available in PyCharm
- You need to explicitly install most libraries in PyCharm (using Conda)
- Operates differently on Windows and on Mac OS

Think of a PyCharm project as a combination of Python interpreter, Python libraries, and your code

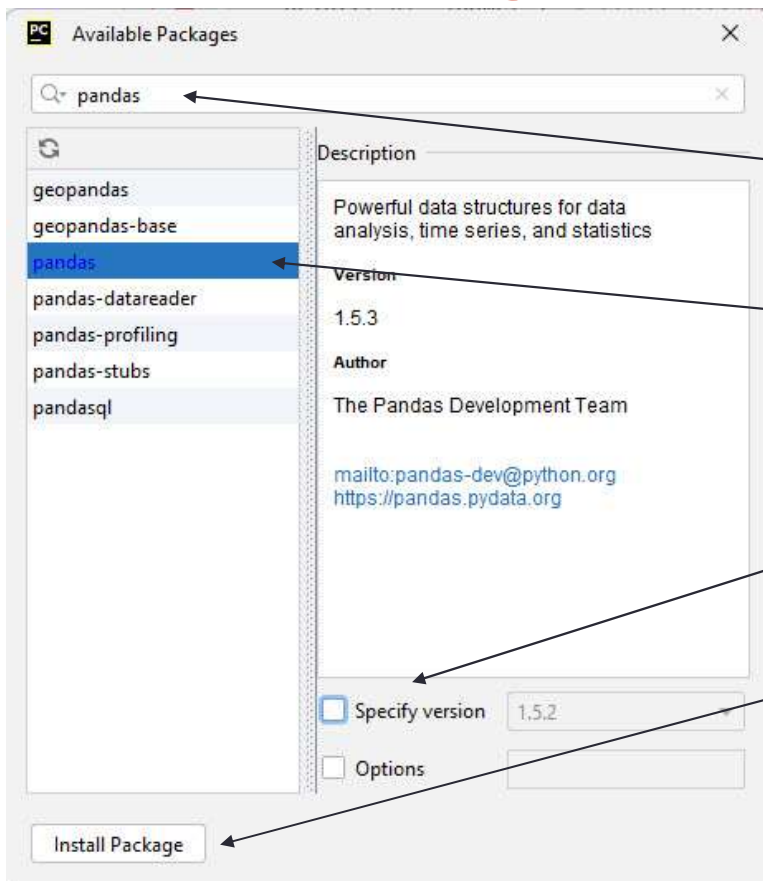
Installing pandas on Windows ...



Click the + button to search for the library to install

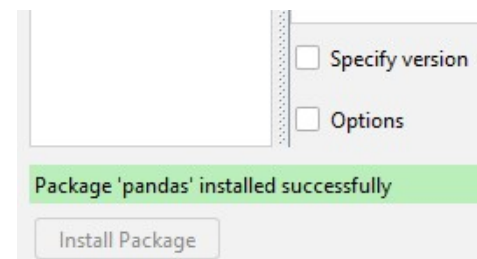
You will use the pandas library starting next week

... Installing pandas on Windows

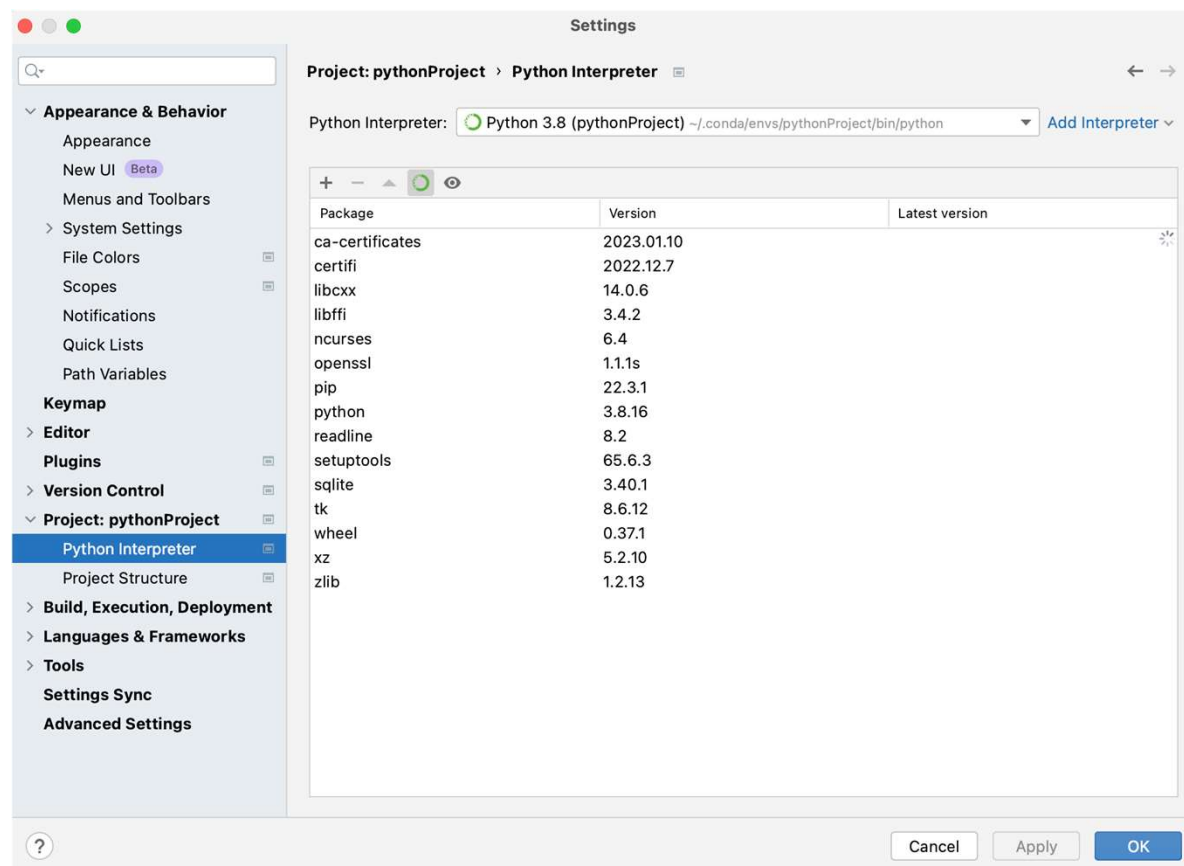


Steps

- Enter the library name in the search bar
- If needed, select the library from the search list
- If needed, specify the version of the library
- Click “Install Package”

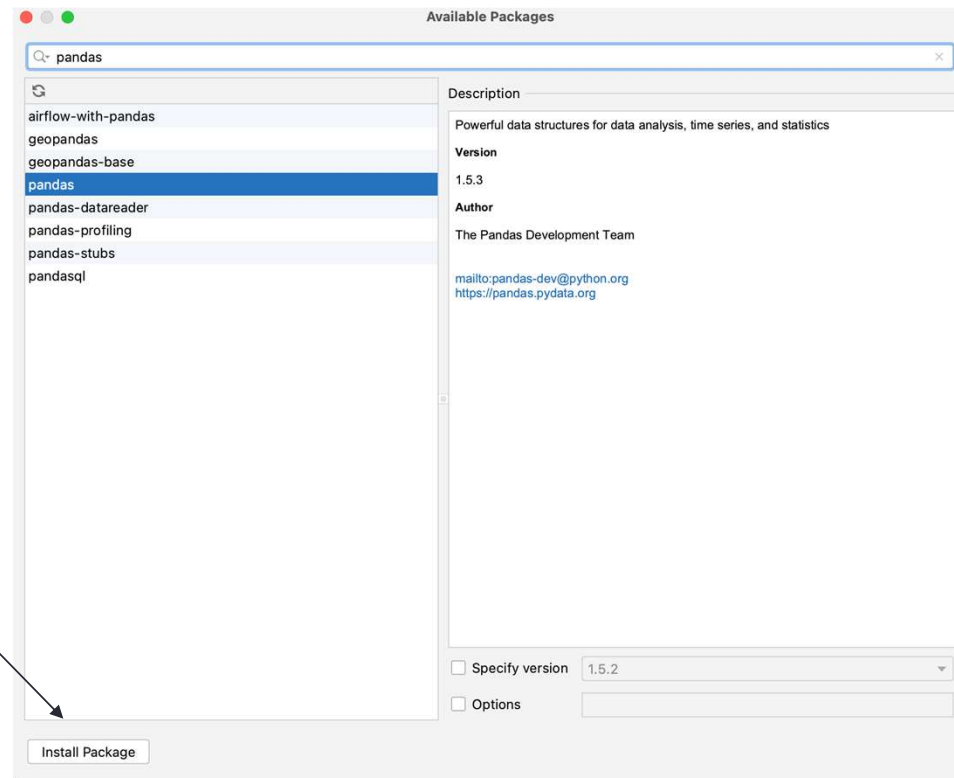


Installing Python libraries on Mac OS ...



... Installing Python libraries on Mac OS

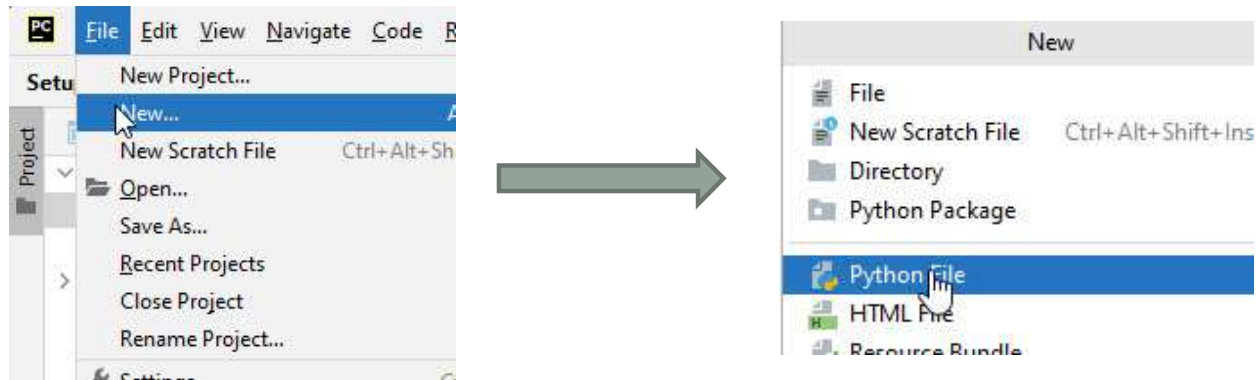
- Enter the desired library name in the search bar



Click Install Package

Your First Python Program

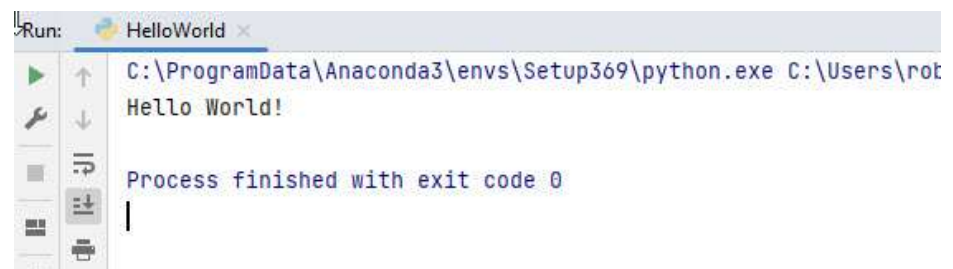
- Print “Hello World!” to your console



Enter your program and click on
Run (selecting the program)

Python code

```
print("Hello World!")
```



Python Libraries

- The next Python track uses the os library
- Libraries you need are often pre-loaded into PyCharm, but you need to add them to your PyCharm project

```
import os
```

Library Documentation

- Python library documentation is available for all the libraries you use
- os library documentations is available at <https://docs.python.org/3/library/os.html>

Link to the os library documentation and get familiar with the style. If needed, library extracts will be given to you in your exam API

↙
`os.chdir(path)`

Change the current working directory to *path*.

This function can support specifying a file descriptor. The descriptor is the file.

This function can raise `OSError` and subclasses such as `FileNotFoundError`.

Raises an auditing event `os.chdir` with argument `path`.

New in version 3.3: Added support for specifying *path* as a file object.

Changed in version 3.6: Accepts a path-like object.