Instructions for installing   
Python

# Introduction

This document describes the steps required to have a fully functional Python installation on Windows or Mac, including being able to run Starsim and accessing the APHRC Agent-Based Modelling Workshop training materials.

The steps are:

1. Install Python (for running code)
2. Install an interactive development environment ("IDE", for editing and working with code)

# Step 1: Install Python

We recommend using [Anaconda Python](https://www.anaconda.com/), since this is usually the most reliable. However, if this doesn't work, or if you already have an existing Python installation, you can also use [standard Python](https://www.python.org/). However, the software in this course relies on advanced numerical libraries (specifically [Numba](https://numba.pydata.org/)) which can be difficult to install through standard Python.

## Installing Anaconda Python

1. Go to <https://www.anaconda.com/download> and click 'Download' (choose the right operating system). Alternatively, on Windows, clicking [this](https://repo.anaconda.com/archive/Anaconda3-2024.02-1-Windows-x86_64.exe) link should install the .exe.
2. Run the setup file (e.g. on Windows, double-click the .exe). Follow the default options, but under 'Advanced Installation Options' check the box that says 'Add Anaconda3 to my PATH environment variable' (this will make it easier to run conda commands from a command prompt later). It should look like this:  
   A screenshot of a computer

   Description automatically generated
3. Click "Install"

# Step 2: Install an IDE

Unlike R, which only has one commonly used IDE ([RStudio](https://posit.co/products/open-source/rstudio/)), there are several different options for Python. Anaconda Python comes with [Spyder](https://www.spyder-ide.org/), which is similar to RStudio. However, there are two other commonly used Python IDEs, VS Code and PyCharm. They have more features than Spyder, but can also be harder to use. **If you want to use Spyder, skip this section.**

## PyCharm

### Installing PyCharm

1. Go to <https://www.jetbrains.com/pycharm/download>, scroll down to find your operating system, and click 'Download' under the **PyCharm Community Edition** (NOT the Professional version, which is only a 30-day free trial). Alternatively, on Windows, clicking [this](https://www.jetbrains.com/pycharm/download/download-thanks.html?platform=windows&code=PCC) link should install the .exe.
2. Run the installer (e.g. on Windows, double-click the .exe). Follow the default options, but under 'Installation Options,' check the box that says 'Create a Desktop Shortcut' (this will make it more easily accessible for users to find). Finally, install.

### Configuring PyCharm

1. Open PyCharm. If it insists that you open a project, use the Starsim project we cloned earlier.
2. Click on the following menu icon at the top left of the screen:A screenshot of a computer

   Description automatically generated
3. Click File > Settings > Project > Python Interpreter
4. To the right of 'Python Interpreter', select 'Add Interpreter' and click 'Add Local Interpreter'A screenshot of a computer

   Description automatically generated
5. In the new pop-up window, click 'Conda environment' and make sure the Conda executable is selected along with 'Use existing environment'
6. Click OK:A screenshot of a computer

   Description automatically generated
7. Back in the settings Window, make sure the Python Interpreter updated to Conda
8. Hit 'Apply' and 'OK'
9. Open the terminal within PyCharm, and type 'pip install -e .' (include the final dot!)

## VS Code

### Installing VS Code

1. Go to <https://code.visualstudio.com/Download> and click 'Windows' download. Alternatively, on Windows, clicking [this](https://code.visualstudio.com/docs/?dv=win64user) link should install the .exe.
2. Run the installer (e.g. on Windows, double-click the .exe). Follow the default options, but under 'Select Additional Tasks' check the box that says 'Create a Desktop icon' (this will make it more easily accessible to find). Finally, install.

### Configuring VS Code

1. To install the Python extension, simply open a Python file (such as starsim/examples/demo.py). It should install the extension automatically.
2. However, before you can run Python, you will need to close and re-open VS Code.

|  |
| --- |
|  |