

Intro to Python

**DATA ANALYSIS, VISUALIZATION, AND
SCRIPTING**

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A G E N D A

1. Get VS Code
2. Setup VS Code Environment
3. Code Basics!
4. Bioinformatics Crash Course

INSTALL PYTHON

1. Google Python
2. Click “Download” for your computer version
3. Run the installation
4. Verify install in terminal
 - a. Type “Python” in your terminal and hit run



INSTALL VS CODE

1. Google VS Code
2. Click “Download” for your computer version
3. Open up VS Code

Lets take a quick tour!



EXPLORER

CODING

Planetary_Sim_Shoo...

planetary_sim.ipynb

test.r

Extension Tab

planetary_sim.ipynb

Planetary_Sim_ShootTheMoon > planetary_sim.ipynb

Generate

+ Code

+ Markdown

Run All

Clear All Outputs

Outline

Select Kernel

Install Packages

import numpy as np

import matplotlib.pyplot as plt

import rebound

from astropy import units as u

import time

[1] Python

Define Units

sim = rebound.Simulation() # Create a simulation

sim.units = ('AU', 'yr', 'Msun') # Astoronomical Units, Years, Solar Masses

[2] Python

Random Number Generator

print(np.random.uniform(0, 2*np.pi))

print(np.random.uniform(0, 2*np.pi))

print(np.random.uniform(0, 2*np.pi))

print(np.random.uniform(0, 2*np.pi))

[3] Python

...

3.183579528761977

3.0904087252091044

2.8769411921917647

4.0801123788921

CHAT

COPILOT EDITS

TERMINAL

(base) Coding >

Launchpad

0 4

Live Share

R: (not attached)

Spaces: 4

Cell 1 of 9

Go Live

Prettier

VS CODE EXTENSIONS

1. Download the following extensions:

- a. Prettier
- b. Path Autocomplete
- c. Git
- d. GitHub Copilot
- e. Python
- f. Rainbow CSV
- g. Jupyter Notebooks

MAKE A GITHUB ACCOUNT

1. When prompted, connect your GitHub to your VS Code, we will use this for AI integration (Copilot)
2. To make an account use whatever email you would like, GitHub is free, and once you have an account you can connect it to VS Code to enable Copilot



WHY USE PYTHON?

- Unlike R, Python is like a swiss army knife, able to do numerous things like automate your email, perform complex image analysis, and visualize your crashing stock portfolio, all in the same language
- In comparison, R is more specialized, meant for statistical analysis and visualization, and while it can be used for bioinformatics, *typically* there are more frameworks built on Python

LETS GET CODING

- In the top left of your screen, click File, then “Open Folder” in VS Code
- Then open the folder I have sent in the Teams chat

