

# The Erdős Institute

## Python Prep

### Syllabus

The Erdős Institute's Python Prep content covers the basics of python. Those individuals wishing to complete our Data Science Boot Camp will need to understand this content. This content is meant to be consumed asynchronously. There are no live lectures or problem solving sessions for the Python Prep materials.

## First Steps

Before starting the Python Prep content you will need to complete the steps outlined in the “First Steps” Google doc linked to on the Python Prep website.

## GitHub repository

All of the jupyter notebook content is stored in our GitHub repository. You can find this repository by following the link provided on the Python Prep website.

## Content Breakdown

Below we breakdown the content contained in the GitHub repository.

### Lectures

Lectures present python coding through a series of jupyter notebooks which have corresponding videos hosted on the Python Prep website. Each lecture notebook will have two versions:

1. An empty version that you can fill in and play around with as desired,
2. A “Complete” version that was filled in while recording the lecture video.

### Lecture Order

You should complete the lectures in the following order:

1. Introduction
2. My First jupyter notebook
3. Basic Data Types
4. Strings
5. More Complicated Data Types
6. Shallow and Deep Copies
7. Conditionals and Loops
8. Writing Functions
9. Reading and Writing to File
10. Importing a Module or Package
11. Basic numpy
12. Basic pandas
13. Basic Plotting
14. Data File Types
15. Troubleshooting Errors
16. Next Steps
17. Classes and Objects in Python (Optional)
18. ydata-profiling (Optional)
19. Parquet Files (Optional)

## Practice Problems

This folder contains jupyter notebooks full of practice problems. Unless otherwise stated, each lecture notebook has a corresponding practice problem notebook for you to test your skills after completing the lecture. You should strive to reach a competency with the content so that you are able to complete these notebooks relatively quickly.

### Practice Problems Order

You should complete the practice problem notebooks in the following order:

1. Start Here!
2. jupyter notebooks
3. Data Structures Conditionals and Loops
4. Shallow and Deep Copies
5. Functions
6. Writing to File and Importing a Package
7. numpy
8. pandas
9. Plotting
10. Data File Types
11. Troubleshooting Errors
12. Classes and Objects in Python (Optional)
13. ydata-profiling (Optional)
14. Parquet Files (Optional)

### Skill Assessments

This folder contains a few notebooks that can serve as skill assessments. You should treat these notebooks like quizzes, meaning you should try to not refer back to the lectures or practice problems when completing them. Each notebook will have a set of solutions posted with them as well. These notebooks can be finished in any order:

- Start Here!: A starting point explaining the skill assessment notebooks
- Skill Assessment 1: Focuses more on base python like loops, list comprehensions, writing functions, etc.
- Skill Assessment 2: Focuses more on data analysis packages like pandas, numpy, and matplotlib.
- Skill Assessment 3: A blend of base python and data analysis packages.

### Data

The data folder contains the data used in the various jupyter notebooks in the repository.