

# Python Mastery Kickstarter Course Syllabus

---

Basics,  
Terminology &  
Concepts, IDE

Elementary  
syntax &  
operations

Data type  
hierarchy, Data  
structures

Type dynamics  
manipulation in  
depth

Control  
statements &  
Iterators

Functions &  
Object-oriented  
programming

Exceptions &  
File Handling

Modules &  
Final projects

Note: At end of each section  
practices & quizzes will unlock  
in your profile including the  
needed course review materials



# KICKSTARTER COURSE



# 01

## Basic Terminology & Concepts

What is a program?

What is a programming language?

Algorithm & flowchart

Debugging

Python culture and community

What is python? & It's implementation

What python can do?

Why python?

compiled vs interpreted

Different phases of a Python project

What is a Python Package?

What is a package manager?

Package Management in Depth:

Pip

Conda

Pip vs Conda

Installing Python

Platforms & IDEs for python

Anaconda

Jupyter notebook

Jupyter lab

Miniconda vs Anaconda

Installing Anaconda

Add Anaconda to Path (Optional)

How to install a python package

Reloading a module

Dependency

Dependency hell

Installing packages using pip

Install packages using Conda

Getting started with Navigator

Managing Navigator

Virtual Environment: What is it and how it works?

Managing Environments Using Navigator

Managing Python

Managing packages

Python version history



# KICKSTARTER COURSE



## 02

---

Virtuakenvrapper

VE summary: Choosing the right tool

Pipenv & Poetry

Indentation in Python

Document your code: Comments

Python imports 101

Variable

Variable naming

Multiword variable

Reserved names

Variable assignment

Variable types

Get the type

Some practice with variables

Operators

Arithmetic Operators

Modulo the percent Operator

Assignment Operators

Comparison Operators

Logical Operators

Identity Operators

Membership Operators

Bitwise Operators

Order of operations

Some practice with operators

Len function

User input



# KICKSTARTER COURSE



## 03

---

### Python Keywords

### Python Data structure: Data Type Hierarchy

#### Boolean

##### Boolean operators

#### Numbers

#### Integer

#### Float

#### Complex

#### Strings

##### Index

##### Slicing

##### String methods

##### Concatenating and Joining

##### Format string

##### Advance formatting

##### Converting

### Escape sequences & their usage



# KICKSTARTER COURSE



## 04

---

### Arrays

- Array class
- Array methods

### Lists

- List slicing
- List methods
  - The powerful append method

### Matrices

### Tuples

- Tuple methods



# KICKSTARTER COURSE



## 05

---

### Dictionaries

- Incremental Dics
- Restriction on keys
- Dict methods

### Practice with Dict

- Nested dictionaries

### Sets

- Set methods

### Frozensets

### None type

Binary Types: bytes, bytearray, memoryview

Selecting ideal data structure



# KICKSTARTER COURSE



## 06

---

Type conversion, type casting

Implicit Type Conversion

Explicit Type Conversion

Difference Between Type Casting and Type Conversion

Type casting

Static Typing

Dynamic typing

Duck typing

Type hinting

Mypy

Annotations

Type comments

Type checking

Multi Line Statements & Strings

Implicit

Explicit

Control statements

If

Nested if

If ... else

elif

If elif else

Short hand if else

Loops

While

While else

Nested while else

For

For in

Range

Nested for

For else

The powerful Enumerate

Range, Break and Continue



# KICKSTARTER COURSE



## 07

---

### Functions

#### Fruitful functions and void functions

#### Build-in functions

#### Importing modules

##### Dynamic imports

#### User define functions

#### Calling a function

#### Parameters and arguments

##### Default parameter value

#### Return and Pass statements

#### Function recursion

#### Emulating Switch-Case Statements

#### Dir function

#### Help function

#### Eval function

#### Exec function

#### Scope and namespaces





# KICKSTARTER COURSE



## 08

---

Functional programming vs object-oriented programming

Object oriented programming

Class

Attributes

Instance

Instance attributes

Object

Method

Self

Dunder

Init function

Creating a class

Assign attributes to a class

Accessing attributes of the class

Create methods inside a class

The self-parameter in use

init()

Str()

Inheritance

Object class

Single inheritance

Multiple inheritance

Multilevel inheritance

Hierarchical inheritance

Polymorphism

Encapsulation

Abstraction

Remember scopes?

Global keyword usecases

Global vs. Local variables



# KICKSTARTER COURSE



## 09

---

Exception handling and errors  
Raising and handling  
Types of exceptions

Try  
Except  
Else  
Finally

Identifying invalid syntaxes

File handling  
Types of file handling

File types

File methods  
Open function  
Read function  
Tell and seek functions  
Write function  
Close function  
ReadLine function

Paths in python once in for all

Running python scripts properly

Some Pythonic Outliers:  
Boolean functions  
Any and all

Bin()  
Ord()  
Chr()

This

antigravity()

zip()



# KICKSTARTER COURSE



## 10

---

Running code correctly

Some important Modules:

Math module

cMath module

Random module

Statistic modules

Sys module

OS module

Pathlib module

Time module

Date module

Famous functions of python

Glossary

# 11 & 12

---

Final Projects

Convert py to exe (pyinstaller)



## KICKSTARTER COURSE





[WWW.PYMASTERYCOURSE.COM](http://WWW.PYMASTERYCOURSE.COM)

*© Saman Chitsazian [2023]. All rights reserved. No part of this list may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law.*