

Python for Data Science, AI & Development

by IBM

About this Course

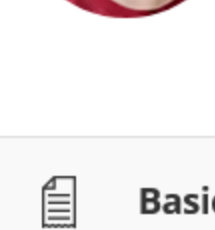
Kickstart your learning of Python with this beginner-friendly self-paced course taught by an expert. Python is one of the most popular languages in the programming and data science world and demand for individuals who have the ability to apply Python has never been higher.

This introduction to Python course will take you from zero to programming in Python in a matter of hours—no prior programming experience necessary! You will learn about Python basics and the different data types. You will familiarize yourself with Python Data structures like List and Tuples, as well as logic concepts like conditions and branching. You will use Python libraries such as Pandas, Numpy & Beautiful Soup. You'll also use Python to perform tasks such as data collection and web scraping with APIs.

You will practice and apply what you learn through hands-on labs using Jupyter Notebooks. By the end of this course, you'll feel comfortable creating basic programs, working with data, and automating real-world tasks using Python.

This course is suitable for anyone who wants to learn Data Science, Data Analytics, Software Development, Data Engineering, AI, and DevOps as well as a number of other job roles.

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Taught by: [Joseph Santarcangelo](#), Ph.D., Data Scientist at IBM

IBM Developer Skills Network

	Basic Info	Course 2 of 16 in the IBM Data Engineering Specialization
	Level	Beginner
	Commitment	5 weeks of study, 3-6 hours per week
	Language	English, Subtitles: Arabic, French, Bengali, Ukrainian, Chinese (Simplified), Greek, Italian, Portuguese (Brazil), Dutch, Korean, German, Pashto, Urdu, Russian, Thai, Indonesian, Swedish, Turkish, Azerbaijani, Spanish, Dari, Hindi, Japanese, Kazakh, Hungarian, Polish
	How To Pass	Pass all graded assignments to complete the course.
	User Ratings	Average User Rating 4.6

Syllabus

Module 1
<p>Python Basics</p> <p>This module teaches the basics of Python and begins by exploring some of the different data types such as integers, real numbers, and strings. Continue with the module and learn how to use expressions in mathematical operations, store values in variables, and the many different ways to manipulate strings.</p> <p> 6 videos, 5 readings</p> <ol style="list-style-type: none">Video: Course IntroductionReading: About this courseReading: Course OverviewReading: Helpful Tips for Course CompletionVideo: Introduction to PythonReading: Introduction to JupyterVideo: Getting Started with JupyterApp Item: Hands-on Lab: Write Your First ProgramVideo: TypesApp Item: Hands-on Lab: TypesGraded Assignment: Practice Quiz: TypesVideo: Expressions and VariablesApp Item: Hands-on Lab: Expression and VariablesGraded Assignment: Practice Quiz: Expressions and VariablesVideo: String OperationsUngraded Plugin: (Optional) Reading: Format Strings in PythonApp Item: Hands-On Lab: String OperationsGraded Assignment: Practice Quiz: String OperationsReading: Module 1 Summary: Python BasicsUngraded Plugin: Cheat Sheet: Python BasicsUngraded Plugin: Module 1 Glossary: Python Basics <p>Show less</p> <p> Graded: Module 1 Graded Quiz: Python Basics</p>
Module 2
<p>Python Data Structures</p> <p>This module begins a journey into Python data structures by explaining the use of lists and tuples and how they are able to store collections of data in a single variable. Next learn about dictionaries and how they function by storing data in pairs of keys and values, and end with Python sets to learn how this type of collection can appear in any order and will only contain unique elements.</p> <p> 3 videos, 1 reading</p> <ol style="list-style-type: none">Video: Lists and TuplesApp Item: Hands-On Lab: ListsApp Item: Hands-On Lab: TuplesUngraded Plugin: Cheat Sheet: Lists and TuplesGraded Assignment: Practice Quiz: Lists and TuplesVideo: DictionariesApp Item: Hands-On Lab: DictionariesGraded Assignment: Practice Quiz: DictionariesVideo: SetsApp Item: Hands-On Lab: SetsGraded Assignment: Practice Quiz: SetsReading: Module 2 Summary: Python Data StructuresUngraded Plugin: CheatSheet: Dictionaries & SetsUngraded Plugin: Module 2 Glossary: Python Data Structures <p>Show less</p> <p> Graded: Module 2 Graded Quiz: Python Data Structures</p>
Module 3
<p>Python Programming Fundamentals</p> <p>This module discusses Python fundamentals and begins with the concepts of conditions and branching. Continue through the module and learn how to implement loops to iterate over sequences, create functions to perform a specific task, perform exception handling to catch errors, and how classes are needed to create objects.</p> <p> 5 videos, 1 reading</p> <ol style="list-style-type: none">Video: Conditions and BranchingApp Item: Hands-On Lab: Conditions and BranchingUngraded Plugin: Reading: Conditions and BranchingGraded Assignment: Practice Quiz: Conditions and BranchingVideo: LoopsUngraded Plugin: Reading: Introduction to Loops in PythonApp Item: Hands-On Lab: LoopsGraded Assignment: Practice Quiz: LoopsVideo: FunctionsUngraded Plugin: Reading: Exploring Python FunctionsApp Item: Hands-On Lab: FunctionsGraded Assignment: Practice Quiz: FunctionsVideo: Exception HandlingUngraded Plugin: Reading: Exception HandlingApp Item: Hands-On Lab: Exception HandlingGraded Assignment: Practice Quiz: Exception HandlingVideo: Objects and ClassesUngraded Plugin: Reading: Objects and ClassesApp Item: Hands-On Lab: Objects and ClassesGraded Assignment: Practice Quiz: Objects and ClassesApp Item: Practice Lab: Text AnalysisReading: Module 3 Summary: Python Programming FundamentalsUngraded Plugin: Cheat Sheet: Python Programming FundamentalsUngraded Plugin: Module 3 Glossary: Python Programming Fundamentals <p>Show less</p> <p> Graded: Module 3 Graded Quiz: Python Programming Fundamentals</p>
Module 4
<p>Working with Data in Python</p> <p>This module explains the basics of working with data in Python and begins the path with learning how to read and write files. Continue the module and uncover the best Python libraries that will aid in data manipulation and mathematical operations.</p> <p> 6 videos, 1 reading</p> <ol style="list-style-type: none">Video: Reading Files with OpenUngraded Plugin: Reading: Reading Files with OpenApp Item: Hands-On Lab: Reading Files with OpenVideo: Writing Files with OpenUngraded Plugin: Reading: Writing Files with OpenApp Item: Hands-On Lab: Writing Files with OpenGraded Assignment: Practice Quiz: Reading and Writing Files with OpenVideo: Pandas: Loading DataUngraded Plugin: Reading: Loading DataUngraded Plugin: Reading: PandasApp Item: Practice Lab: Selecting Data in a DataFrameApp Item: Hands on Lab: Loading Data with PandasGraded Assignment: Practice Quiz: PandasVideo: One Dimensional NumpyApp Item: Hands-On Lab: One Dimensional NumpyUngraded Plugin: Reading: Matrix MathematicsVideo: Two Dimensional NumpyApp Item: Hands-On Lab: Two Dimensional NumpyUngraded Plugin: Reading: Beginner's Guide to NumPyUngraded Plugin: Reading: Some Context on APIsGraded Assignment: Practice Quiz: Numpy in PythonReading: Module 4 Summary: Working with Data in PythonUngraded Plugin: Cheat Sheet: Working with Data in PythonUngraded Plugin: Module 4 Glossary: Working with Data in Python <p>Show less</p> <p> Graded: Module 4 Graded Quiz: Working with Data in Python</p>
Module 5
<p>APIs and Data Collection</p> <p>This module delves into the unique ways to collect data by the use of APIs and web scraping. It further explores data collection by explaining how to read and collect data when dealing with different file formats.</p> <p> 6 videos, 3 readings</p> <ol style="list-style-type: none">Video: Application Program InterfaceApp Item: Hands-On Lab: Introduction to APIApp Item: Practice Project: GDP Data Extraction and ProcessingGraded Assignment: Practice Quiz: Simple APIsVideo: REST APIs & HTTP Requests - Part 1Video: REST APIs & HTTP Requests - Part 2Ungraded Plugin: Reading: Web Scraping and HTML BasicsApp Item: Hands-on Lab: Access REST APIs & Request HTTPApp Item: Hands-On Lab: API ExamplesVideo: (Optional) HTML for Web ScrapingVideo: (Optional) Web ScrapingUngraded Plugin: Reading: Web Scraping - A Key Tool in Data ScienceUngraded Plugin: Reading: Web Scraping Tables using PandasApp Item: Hands-on Lab: Web ScrapingVideo: Working with Different File FormatsApp Item: Hands-on Lab: Working with different file formatsGraded Assignment: Practice Quiz: REST APIs, Web Scraping, and Working with FilesReading: Module 5 Summary: APIs and Data CollectionUngraded Plugin: Cheat Sheet: APIs and Data CollectionUngraded Plugin: Module 5 Glossary: APIs and Data CollectionReading: Congratulations and Next StepsReading: Python Cheat Sheet: The Basics <p>Show less</p> <p> Graded: Module 5 Graded Quiz: APIs and Data Collection</p> <p> Graded: Final Exam for the Course</p>

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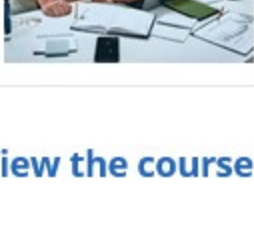
How It Works

General
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