

**Python for Marketers**

**Course Number:** PYTH-228  
**Duration:** 5 days

**Overview**

This in-person or online Python for Marketers training course teaches marketing professionals how to gather, manipulate, and analyze data using the Python programming language. The first two days ramp participants up on Python. Then participants learn how to use their new Python skills to gather marketing data, clean it, and create compelling data visualizations. In addition, participants learn how to run A/B tests on groups of data, segment customer data, and much more.

If your team already knows Python, we have a [3-day Python for Marketers class](file:////training/python-for-marketing-python-experience) without the introduction to Python Programming.

**Prerequisites**

Some programming experience is helpful but not required. Students should be comfortable working with files and folders and understand basic statistics.

**Materials**

All Python for Marketers training students receive comprehensive courseware.

**Software Needed on Each Student PC**

* Any Windows, Linux, or macOS operating system
* Anaconda Python 3.6 or later
* Additional Python libraries, including seaborn, selenium, and BeautifulSoup
* Spyder IDE and Jupyter notebook (Comes with Anaconda)

**Objectives**

* Get started with the Python programming language
* Gather data by scraping websites and querying web APIs
* Effectively clean, aggregate, and manipulate data
* Create compelling data visualizations
* Apply statistical techniques for running A/B tests on groups of data
* Use popular techniques to segment customer data
* Perform regression analysis to identify factors that have an impact on topics of interest
* Acquire skills for performing basic analysis on text data

**Outline**

* Introduction
* Getting Acquainted with the Command Line
  + Paths, directories, and filenames
  + Navigating through filesystem
  + Create, copy, and move files and directories
* Introduction to Python
  + Starting Python
  + Using the interpreter
  + Running a Python script
  + Using an IDE
* Variables, data types, and operators
  + Variables
  + Basic data types (Strings, Integers, Floating Point, Boolean)
  + Writing to the screen
  + Converting between data types
  + Operators
* Flow Control
  + Conditional statements (if, elif, else)
  + Boolean expressions
  + While loop
  + Break and continue
* Sequences
  + Lists and tuples
  + Indexing and slicing
  + Iterating through sequences
  + For loop
  + List comprehensions
  + Generator expressions
  + Nested expressions
* Using Files
  + Opening a text file
  + Reading a text file
  + Writing to a text file
* Dictionaries and Sets
  + Creating dictionaries
  + Creating sets
  + Iterating through dictionaries and sets
* Functions
  + Defining functions
  + Parameters
  + Variable scope
  + Returning values
  + Lambda functions
* Handling exceptions
  + Exceptions
  + Try/catch/finally
* Modules and Packages
  + Importing modules
  + Namespaces
  + Creating packages
* Classes
  + Defining classes
  + Constructors
  + Instance methods and data
  + Attributes
  + Inheritance
* Scraping data from web sites
  + Connecting to websites using requests package
  + Parsing static HTML/CSS pages using BeautifulSoup package
  + Scraping dynamic website content using Selenium
  + Advanced: Building a web spider using scrapy
* Using Web APIs
  + Collecting data from a publicly available web API
* Numerical Python with NumPy
  + ND arrays
  + NumPy operations
  + Broadcasting
  + Structured arrays
  + Vectorization
* Data Manipulation using Pandas
  + Series vs Dataframe
  + Datatypes in Pandas
  + Importing data: CSV/Excel/JSON/HTML
  + Dataframe indexing
  + Selecting subsets of dataframe
  + Creating and deleting variables
  + Identifying duplicate data
* Advanced Pandas Methods
  + Uni and multivariate statistical summaries
  + Handling missing data
  + Aggregating data
  + Pivot tables
  + Merging dataframes
  + Pandas string methods
* Data Visualization using Matplotlib and Seaborn
  + Creating histograms
  + Creating bar plots
  + Creating box plots
  + Creating scatter plots
  + Group-by plotting
  + Plot formatting
* A/B Testing for group differences
  + p-values
  + T-test
  + Chi-squared test
* Regression Analysis
  + Linear Regression
  + Logistic Regression
* Customer segmentation
  + K-means clustering algorithm
  + Hierarchical clustering algorithm
  + RFM Analysis
* Text Analysis
  + Tokenizing text
  + Stopwords
  + Cleaning and processing text
  + Creating word clouds
  + Named Entity Recognition
  + Sentiment analysis
* Conclusion