# Python Scripting for Finance

Duration: 5 days; Instructor-led

## WHAT YOU WILL LEARN

The goal of this course is to provide an introduction to Python. The course will discuss topics necessary for the participant to be able to create and execute Python programs. The lectures and presentations are designed to provide knowledge and experiences to students that serve as a foundation for continued learning of presented areas.

## AUDIENCE

The course is aimed at participants new to the language and who may, or may not, have experience with other programming languages.

## PREREQUISITES

There are no prerequisites for this course, but some programming background is preferred.

## COURSE OBJECTIVES

- how Python works and its place in the world of programming languages
- to work with and manipulate strings
- to perform math operations
- to work with Python sequences
- to collect user input and output results
- flow control processing
- to write to, and read from, files
- to write functions
- to handle exceptions
- work with dates and times.

## OUTLINES

### Module 1: Python Introduction
- What's Python?
- Why do people use Python?
- A Python history lesson
- What's Python good for?
- Python portability
- Pros and Cons

### Module 2: Python Installation
- Installation in Linux
- Installation in Windows
- Running Code in the Interactive Shell
- Setting Python Path
- Using Python IDEs

### Module 3: Python Syntax
- Line Structure
- Multiline Statements
- Comments
- Docstrings
- Indentation
- Multiple Statements in One Line
- Quotations
- Escape Sequence of String
- String Concatenation
- String Formatters

### Module 4: Working with Variables in Python
- Variables Naming Rules
- Assigning and Reassigning Python Variables Python
- Python Data Types
- type() function
- isinstance() function
- Type Conversion
- math Module
- Generate Random Numbers

### Module 5: Numeric Operations in Python
- Arithmetic Operator
- Relational Operator
- Assignment Operator
- Logical Operator
- Membership Python Operator
- Identity Operator
- Bitwise Operator
- Operator Precedence

### Module 6: Decision making & Looping
- If statements
- if-else statement
- if-elif-else
- Ternary Operator
- While Loop
- For Loop
- Nested for Loops
- Loop Control Statements

**Module 7: Strings**
- Generating Strings in Python
- Immutable
- Common String Methods
- Type Conversion in Python
- Formatting String Output
- Format Specifier
- Variable Substitution
- String Indexing
- String Slicing
- String Iteration

**Module 8: Tuples**
- What is Python Tuple?
- Creating Python Tuple
- Access Python Tuple
- Slicing a Tuple
- Deleting a Python Tuple
- Tuple Functions
- Tuple Methods
- Tuple Operations
- Iterating on a Python Tuple

**Module 9: List**
- What is Python List?
- How to Create Python List?
- Access Python List
- Slicing a Python List
- Reassigning a Python List
- Delete a Python List
- Multidimensional Lists
- Concatenation of Python List
- Python List Operations
- Iterating on a list
- Python List Comprehension
- Built-in List Functions
- Built-in Methods

**Module 10: Sets**
- What is a set in Python?
- How to create a set?
- How to change a set in Python?
- How to remove elements from a set?
- Python Set Operations
- Set Union
- Set Intersection
- Set Difference
- Set Symmetric Difference

**Module 11: Dictionaries**
- Introduction to Python Dictionaries
- How to Create a Dictionary in Python?
- Access a Python Dictionary
- Reassigning a Python Dictionary
- Delete Python Dictionary
- In-Built Functions
- Dictionary Operations
- Nested Dictionary

**Module 12: Function**
- User-Defined Functions
- return statement
- Scope and Lifetime of Variables
- Types of Python Function Arguments
- Python Built-In Functions

**Module 13: Python Exception Handling**
- What is Python Exception?
- The try/except blocks
- Python Multiple Excepts
- Multiple Exception in one Except
- Generic except
- Finally Block
- Raise Keyword
- Assertions in Python
- Defining Your Own Exceptions

**Module 14: Basic Input/Output with Files**
- What is Python File?
- Python Open File
- Python File Modes
- Python Close File
- Read File
- Write to File

**Module 15: Date/Time**
- Introduction to Python Date and Time
- Python Time Tuple
- Local Time
- Formatted Time
- Calendar in Python
- Methods in Time Module
- Methods in the Calendar Module