Python 101 - Basics

- 5 Day Course
- Lecture & Labs
- Every course includes the opportunity to earn a Python Basics certification from Alta3 Research.

Course Overview

Python is an interpreted, object-oriented, high-level language that empowers you to automate your work so it can be completed predictably and accurately. This freely available language is installed on all major platforms without a charge. Given Python's vast libraries, you'll have a head start programming most tasks.

Be it system admins, network, cloud, or storage engineers, all lessons in our courseware are highly relevant for scripting within the workplace, including; data retrieval and storage from the local system, working with RESTful APIs, and decoding JSON.

Class is a combination of live instructor demo and hands-on labs.

Who Should Attend

- This course is an appropriate introduction to students of any background looking to get started with Python
- System Administrators
- Network Administrators and Engineers
- DevOps Engineers
- Management, Directors, VPs

What You'll Learn

- Current Python3 Standard Library
- Popular 3rd party libraries
- Version control with git
- Git integration with popular SCM (GitHub)
- Parsing and building files
- Pull JSON from API queries
- Manipulate Excel and other popular formats with pandas dataframes
- Building feature rich charts and graphs
- Searching with Regular Expressions (regex)
- Best practice techniques
- AI LLM prompt engineering for Python snippets and jumpstarting solutions

Outline

Certification

- 💻 Lecture + Lab: Alta3 Research Python Certification (OPTIONAL)

AI LLM Toolkit

- 💻 Lecture + Lab: Large Language Model toolkit for AI Solution Assistance

Software Control Management

- 💻 Lecture + Lab: SCM Option #1 - GitHub
- 💻 Lecture + Lab: SCM Option #2 - GitLab

Basics

- 💻 Lecture + Lab: Installing Python
- 💬 Lecture: Python Basics
- 💻 Lecture + Lab: The Shebang Line and File Permissions
- 💻 Lecture + Lab: The Standard Library, functions, and print()
- 💻 Lecture + Lab: Collecting user input()

Common Objects

- 💬 Lecture: Python Lists
- 💻 Lecture + Lab: Working with Lists
- 💻 Lecture + Lab: List Objects and Methods
- 💻 Lecture + Lab: Slicing complex lists (lists within lists)
- 💬 Lecture: Python Dictionaries
- 💻 Lecture + Lab: Python Dictionaries
- 💻 Lecture + Lab: Getting dir(obj) help() and pydoc
- 💬 Lecture: Python Strings
- 💻 Lecture + Lab: String Methods

Interacting with the OS

- 💻 Lecture + Lab: Copying Files and Folders
- 💻 Lecture + Lab: Moving and Renaming Files and Folders

Conditionals

- 💬 Lecture: Conditionals
- 💻 Lecture + Lab: Testing if conditionals
- 💻 Lecture + Lab: IPv4 Testing with if
- 🏆 Challenge: Writing your own if-logic script
- 💻 Lecture + Lab: Using while, if, elif, else (Monty Python)
- 💻 Lecture + Lab: Debugging and Troubleshooting while, if, elif, else

Loops

- 💻 Lecture + Lab: Introduction to looping
- 💻 Lecture + Lab: Looping with for
- 💻 Lecture + Lab: Using for, range(), and with

Working with Files

- 💬 Lecture: Reading and Writing to Files
- 💻 Lecture + Lab: Parsing Log Files
- 💻 Lecture + Lab: Creating Output Files from Data Sets
- 💻 Lecture + Lab: Read from Files
- 💻 Lecture + Lab: Archive with zipfile

Beyond Basics

- 💻 Lecture + Lab: Creating Functions
- 💻 Lecture + Lab: pip, import and PyPi Packages to Know
- 💻 Lecture + Lab: Exploring Network Interfaces
- 💻 Lecture + Lab: Defining Functions
- 💻 Lecture + Lab: Scripting Commands with Python
- 💻 Lecture + Lab: try and except

Working with Data Sets

- 💻 Lecture + Lab: Producing Graphs and Charts
- 💻 Lecture + Lab: os.walk() the Directory Tree
- 💻 Lecture + Lab: Excel JSON and CSV - Intro to Pandas
- 💬 Lecture: Converting JSON to Python Data Types
- 💻 Lecture + Lab: Python, APIs, and JSON
- 💻 Lecture + Lab: requests library - Open APIs

Regular Expressions

- 💻 Lecture + Lab: Searching with Regular Expressions
- 💻 Lecture + Lab: Use RegEx to Search Text

Testing and Tools

- 💻 Lecture + Lab: Best Practice and pylint
- 💻 Lecture + Lab: Testing code with pytest
- 💻 Lecture + Lab: Packaging Python Projects

Classes and Objects

- 💻 Lecture + Lab: Creating Classes
- 💻 Lecture + Lab: Inheritance
- 💻 Lecture + Lab: Using Classes

Self-Study Opportunities

- 💻 Lecture + Lab: Running Python Scripts with Crontab
- 💻 Lecture + Lab: Argument Parsing
- 💻 Lecture + Lab: Unpacking Arguments
- 💻 Lecture + Lab: Automating SMTP and Extended SMTP
- 💻 Lecture + Lab: XML Parsing with ElementTree
- 💻 Lecture + Lab: Timestamping - import time datetime

Prerequisites

- Keyboard proficiency

Certification

- Python Basics - Certification Project