



Course Name: Python Professional Certification Course

Course Overview:

This comprehensive course introduces Python and Anaconda for data analysis, covering data structures, control flow, and functions, progressing to advanced topics such as data cleaning with Pandas, visualization with Matplotlib and Seaborn, and statistical analysis with Scipy. Participants will explore machine learning fundamentals using Scikit-Learn, tackle time series analysis, and culminate their learning in a real-world project to consolidate their skills across all modules.

What will you learn from this course?

From this curriculum, you will learn the fundamentals of Python programming and data analysis using Anaconda, including handling various data types and structures. The course covers in-depth data cleaning, transformation, and visualization techniques, alongside statistical analysis and machine learning with libraries like Pandas, Matplotlib, Seaborn, Scipy, and Scikit-Learn. You'll also gain hands-on experience with time series analysis and apply your skills in a comprehensive final project.

Internship Program:

In addition to the course, you will participate in a 3-month internship involving six live projects. Upon successful completion, you will receive an Internship Certificate.

Letter of Recommendation:

Upon successfully completing the program and internship, you will also receive a Letter of Recommendation (LOR).

Duration: 24 Hours + 3 Months (Internship Program)

Requirements:

Python, Anaconda

Pre-requisite:

No pre-requisite

Curriculum

Module 1: Introduction to Python and Anaconda

1. Introduction to Python Data Analysis
2. Installing Anaconda and Jupyter Notebooks
3. Data Types in Python
4. Variables, Strings, and Numbers in Python
5. Lists and Tuples in Python
6. Control Flow Statements in Python
7. Conditional Statements in Python
8. Loops in Python

Module 2: Functions and File Handling

1. Functions in Python
2. File Handling in Python
3. NumPy and Arrays in Python
4. Pandas and DataFrames in Python

Module 3: Data Cleaning and Transformation

1. Reading and Writing Data with Pandas
2. Data Cleaning with Pandas
3. Data Transformation with Pandas

Module 4: Data Visualization with Matplotlib and Seaborn

1. Data Visualization with Matplotlib
2. Line Plots and Scatter Plots in Matplotlib
3. Histograms and Bar Charts in Matplotlib
4. Styling Plots with Matplotlib
5. Seaborn for Data Visualization
6. Heatmaps and Clustermaps in Seaborn
7. Pairplots and FacetGrids in Seaborn
8. Styling Plots with Seaborn

Module 5: Statistical Analysis with Scipy

1. Statistical Analysis with Scipy •
2. Hypothesis Testing with Scipy
3. Correlation Analysis with Scipy
4. Regression Analysis with Scipy

Module 6: Machine Learning Basics

1. Machine Learning Basics
2. Classification and Regression
3. Model Training and Evaluation
4. Cross-Validation and Overfitting

Module 7: Linear Regression in Scikit-Learn

1. Linear Regression in Scikit-Learn
2. Logistic Regression in Scikit-Learn
3. K-Nearest Neighbors in Scikit-Learn

Module 8: Decision Trees and Random Forests in Scikit-Learn

1. Decision Trees and Random Forests in Scikit-Learn
2. Clustering with K-Means in Scikit-Learn
3. Principal Component Analysis in Scikit-Learn

Module 9: Time Series Analysis with Pandas

1. Time Series Analysis with Pandas
2. Resampling and Shifting Data with Pandas
3. Moving Averages and Exponential Smoothing with Pandas

Module 10: Final Project and Review

1. Apply Python Data Analysis skills to a real-world project
2. Review of all concepts covered in the syllabus

Module 11. Python Professional Internship Program

6 Live Professional Projects