



PYTHON TRAINING

Data Analysis Python Predictive Modeling Course

Master Python for data analysis and build powerful predictive models to drive data-driven decisions.

DURATION

48 hours

LEVEL

Intermediate

FORMAT

Instructor-Led

-
- Globally Recognized Certification
 - Expert-Led Hands-On Training
 - Flexible Scheduling

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COURSE OVERVIEW

This intermediate-level Data Analysis Python Predictive Modeling course is meticulously designed to equip professionals with the essential skills to transform raw data into actionable insights and accurate predictions using Python. You will delve deep into the core Python libraries such as Pandas for robust data manipulation, NumPy for numerical operations, Matplotlib and Seaborn for compelling data visualization, and the powerful Scikit-learn for building and evaluating predictive models. This course bridges the gap between basic Python programming and advanced data science applications, preparing you to tackle real-world analytical challenges. Through hands-on exercises and practical case studies, you will master the end-to-end process of data analysis, from data acquisition and cleaning to exploratory data analysis, feature engineering, and the deployment of various predictive algorithms.

Duration	48 hours
Level	Intermediate
Vendor	Python

COURSE CURRICULUM

01 Module 1: Python Fundamentals for Data Analysis & Environment Setup

- Python refresher: Data types, control flow, functions
- Introduction to Anaconda and Jupyter Notebooks
- Essential Python libraries: NumPy for numerical computing
- Introduction to Pandas DataFrames and Series
- Data loading and saving (CSV, Excel, SQL databases)

02 Module 2: Data Wrangling and Exploratory Data Analysis (EDA)

- Data cleaning: Handling missing values, duplicates, outliers
- Data transformation: Merging, joining, concatenating DataFrames
- Feature engineering techniques
- Descriptive statistics and data aggregation
- Data visualization with Matplotlib and Seaborn (histograms, scatter plots, box plots)

03 Module 3: Introduction to Machine Learning & Regression Models

- Core concepts of machine learning (supervised vs. unsupervised)
- Bias-variance trade-off and model overfitting/underfitting
- Linear Regression: Theory and implementation
- Polynomial Regression and regularisation techniques (Lasso, Ridge)
- Model evaluation metrics for regression (MAE, MSE, R-squared)

04 Module 4: Classification Models & Advanced Predictive Techniques

- Logistic Regression for binary and multi-class classification
- Decision Trees and Random Forests
- Support Vector Machines (SVMs)
- K-Nearest Neighbors (KNN)
- Model evaluation metrics for classification (accuracy, precision, recall, F1-score, ROC-AUC)

05 Module 5: Model Selection, Tuning & Deployment Concepts

- Cross-validation techniques (k-fold, stratified)
- Hyperparameter tuning with GridSearchCV and RandomizedSearchCV

- Feature scaling and dimensionality reduction (PCA)
- Introduction to pipeline creation
- Basic model persistence and deployment considerations (e.g., pickle)

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Predictive Modeler**
- > **Business Intelligence Analyst**
- > **Junior Data Scientist**

FREQUENTLY ASKED QUESTIONS

Q: What are the prerequisites for enrolling in this Data Analysis Python Predictive Modeling course?

Participants are expected to have a foundational understanding of Python programming concepts, including variables, data structures (lists, dictionaries), loops, and functions. While prior experience with data analysis or statistics is beneficial, it is not strictly required as core concepts will be revisited and applied practically throughout the course.

Q: Which specific predictive modeling algorithms will I learn to implement and evaluate in this course?

This course focuses on practical implementation and evaluation of key supervised learning algorithms. You will gain hands-on experience with Linear Regression, Polynomial Regression, Lasso and Ridge Regression, Logistic Regression, Decision Trees, Random Forests, Support Vector Machines (SVMs), and K-Nearest Neighbors (KNN). We will cover their underlying principles, application scenarios, and performance metrics.

Q: How does this course differ from a general 'Introduction to Data Science' program?

This course offers a specialized and intensive deep dive into the practical application of Python for data analysis and predictive modeling, rather than a broad overview of all data science domains. While an 'Introduction to Data Science' might cover a wider array of topics including big data technologies or cloud platforms, this program specifically hones your skills in data wrangling, exploratory data analysis, and building robust predictive models using Python's most relevant libraries, preparing you for roles specifically focused on analytical and predictive tasks.

ABOUT COMPUTER PRIDE



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With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

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Take the next step in your technology career.

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