



PYTHON TRAINING

Data Analytics Machine Learning Python Supply Chain Management

Master Data Analytics, Machine Learning & Python for Supply Chain Management. Drive insights and optimize operations.

DURATION

40 Hours

LEVEL

Intermediate

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

Computer Pride | 1st Floor, ICEA Building, Kenyatta Avenue, Nairobi | www.computer-pride.co.ke

COURSE OVERVIEW

This intermediate-level certification course, "Data Analytics Machine Learning Python Supply Chain Management," is meticulously designed for professionals seeking to master the powerful convergence of data science, machine learning, and supply chain optimization using Python. In today's dynamic global economy, efficient supply chain management is paramount, and the ability to leverage data-driven insights for strategic decision-making is a critical differentiator. This course will equip you with the essential Python programming skills and the conceptual understanding of machine learning algorithms to transform raw supply chain data into actionable intelligence.

You will delve into core technologies such as Python's robust libraries, including Pandas for data manipulation, NumPy for numerical operations, Scikit-learn for machine learning, and visualization tools like Matplotlib and Seaborn. The curriculum is structured to provide a hands-on experience, enabling you to build predictive models for demand forecasting, optimize inventory levels, analyze supplier performance, and enhance logistics efficiency. By the end of this course, you will not only understand the theoretical underpinnings but also possess the practical ability to implement sophisticated data analytics and machine learning solutions to real-world supply chain challenges, ultimately driving cost savings, improving responsiveness, and fostering innovation within organizations.

Completing this certification will empower you to elevate your professional profile, making you an invaluable asset in any organization striving for data-centric excellence in its supply chain operations. You will gain a competitive edge by mastering tools and techniques that directly impact operational efficiency, risk mitigation, and strategic planning, opening doors to advanced roles in a rapidly evolving industry.

Duration	40 Hours
Level	Intermediate
Vendor	Python

COURSE CURRICULUM

01 Module 1: Python Fundamentals for Data Analytics in SCM

- Review of Python programming basics (data types, control flow, functions)
- Introduction to NumPy for efficient numerical operations
- Mastering Pandas for data loading, cleaning, manipulation, and analysis
- Data preprocessing techniques: handling missing values, outliers, and data transformations
- Introduction to statistical concepts relevant to supply chain data

02 Module 2: Exploratory Data Analysis & Visualization for Supply Chains

- Descriptive statistics and data summarization for SCM datasets
- Data visualization with Matplotlib and Seaborn
- Identifying trends, patterns, and anomalies in supply chain data (e.g., sales, inventory, lead times)
- Visualizing key supply chain performance indicators (KPIs)
- Feature engineering for supply chain specific datasets

03 Module 3: Machine Learning Foundations for Supply Chain Prediction

- Introduction to machine learning types: supervised, unsupervised, and reinforcement learning
- Regression models for demand forecasting (Linear Regression, Ridge, Lasso)
- Classification models for supply chain risk assessment (Logistic Regression, Decision Trees)
- Model training, validation, and evaluation metrics (MAE, RMSE, R-squared, Accuracy, Precision, Recall)

- Cross-validation techniques and hyperparameter tuning basics

04 Module 4: Advanced Machine Learning & Time Series Forecasting in SCM

- Time Series analysis fundamentals and decomposition
- Advanced forecasting models: ARIMA, SARIMA, Prophet, and basic neural network concepts (LSTMs)
- Clustering techniques for supplier segmentation, warehouse layout optimization, or customer profiling (K-Means, Hierarchical Clustering)
- Anomaly detection in supply chain data (e.g., fraud, equipment failure)
- Introduction to ensemble methods (Random Forest, Gradient Boosting)

05 Module 5: Supply Chain Optimization and Decision Making with Python

- Introduction to optimization concepts and mathematical programming
- Linear Programming for resource allocation and production planning using SciPy or PuLP
- Vehicle Routing Problem (VRP) concepts and heuristic approaches
- Inventory optimization strategies using simulation and predictive analytics
- Applying ML predictions for strategic procurement and logistics decisions

06 Module 6: Capstone Project: End-to-End SCM Analytics Solution

- Project conceptualization, problem definition, and data collection strategies
- Developing a comprehensive data analytics and machine learning solution for a real-world SCM challenge
- Implementing chosen models, evaluating performance, and iterating on solutions
- Communicating project findings, recommendations, and business impact
- Best practices for deploying SCM analytics solutions and continuous improvement

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Supply Chain Data Scientist**
- > **Logistics & Operations Optimization Analyst**
- > **Demand Forecasting & Inventory Planning Specialist**

FREQUENTLY ASKED QUESTIONS

Q: What foundational knowledge or technical skills are recommended before enrolling in this Intermediate-level 'Data Analytics Machine Learning Python Supply Chain Management' course?

While this is an intermediate course, it is designed for individuals with a foundational understanding of Python programming, including basic syntax, data structures (lists, dictionaries), control flow, and functions. A basic grasp of statistical concepts (e.g., mean, median, standard deviation) would also be beneficial. No prior advanced machine learning or specialized supply chain management experience is strictly required, but a strong analytical mindset and a keen interest in these domains are highly recommended.

Q: How does this course uniquely integrate machine learning with practical supply chain management challenges, beyond generic data analysis?

This course goes beyond generic data analysis by specifically focusing on the application of machine learning techniques to solve real-world, intricate supply chain problems. You will learn to build predictive models for precise demand forecasting, optimize inventory levels using advanced algorithms, assess and mitigate supplier risks through classification,

and enhance logistics routing efficiency. We emphasize hands-on projects that simulate actual SCM scenarios, ensuring you develop a practical toolkit for immediate application in optimizing procurement, production, warehousing, and distribution.

Q: What kind of hands-on projects or practical exercises will I complete to demonstrate my ability to apply Python for optimizing supply chain processes?

Throughout the course, you will engage in a variety of practical exercises and culminating projects. These include building a robust demand forecasting model using time series techniques, developing an inventory optimization system based on predictive analytics, designing a simulated logistics routing solution to minimize costs, and analyzing supplier performance data to predict potential disruptions. The course concludes with a comprehensive capstone project where you will apply all learned skills to address an end-to-end supply chain analytics challenge, demonstrating your ability to deliver actionable, data-driven insights.

ABOUT COMPUTER PRIDE



East Africa's Premier IT Training Center

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.

15+

Years of Excellence

10,000+

Professionals Trained

50+

Vendor Certifications

READY TO ENROL?

Take the next step in your technology career.

Location

1st Flr, ICEA Building
Kenyatta Ave, Nairobi

Email

info@computer-pride.co.ke

Phone

+254 705 900 900

www.computer-pride.co.ke