BLACKBIRD FOR TRAINING

Advanced Data Analysis with Python Course

16 – 20 November 2026
Baku (Azerbaijan)



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Introduction

Unlock the power of data with our Advanced Data Analysis with Python course. This intensive program is designed for professionals who want to deepen their understanding of data analysis techniques using Python. Dive into advanced statistical methods, machine learning algorithms, and data visualization tools to uncover actionable insights from complex datasets. Whether you're aiming to enhance your analytical skills or lead data-driven projects, this course will equip you with the knowledge and practical experience to excel in the evolving field of data science.

By the end of the course, you will have the expertise to tackle real-world challenges with advanced analytical techniques using Python, positioning you to make data-driven decisions with confidence.

Course Objectives

By the end of this course, participants will be able to:

- Master advanced statistical techniques for in-depth data analysis, including hypothesis testing, confidence intervals, and regression analysis.
- Develop proficiency in machine learning algorithms for predictive modeling, classification, and clustering tasks using Python's powerful libraries.
- Enhance data cleaning and preprocessing skills to handle complex and unstructured datasets, ensuring high-quality data for analysis.
- Create compelling data visualizations using libraries like Matplotlib, Seaborn, and Plotly to effectively communicate insights.
- Apply data analysis methods to solve real-world business problems, helping organizations make data-driven decisions.
- Build and evaluate models for regression, classification, and clustering tasks, and learn best practices for model optimization and validation.
- Learn how to interpret data effectively and derive actionable insights for business and operational improvement.



Course Outlines

Day 1: Introduction to Python for Data Analysis

- Overview of Python and its libraries for data analysis NumPy, pandas, SciPy.
- Setting up the Python environment and tools Jupyter Notebooks, Anaconda.
- Introduction to data types, structures, and basic operations in Python.
- Hands-on exercises with NumPy and pandas for data manipulation and exploration.

Day 2: Data Cleaning and Preprocessing

- Techniques for cleaning and preparing data for analysis, including handling missing data, duplicates, and outliers.
- Data transformation and normalization methods to improve analysis accuracy.
- Using pandas for data wrangling, feature engineering, and preparing datasets for machine learning tasks.

Day 3: Advanced Data Analysis Techniques

- Applying statistical methods to analyze data distributions, correlations, and relationships.
- Introduction to hypothesis testing and confidence intervals for data analysis.
- Implementing correlation and regression analysis using Python.
- Hands-on exercises with real datasets to apply advanced techniques.

Day 4: Data Visualization and Interpretation

- Creating insightful visualizations using Matplotlib, Seaborn, and Plotly.
- Designing effective charts and plots to illustrate data trends and patterns.
- Interpreting and communicating results through data storytelling.
- Developing interactive visualizations with Plotly for dynamic data insights.

Day 5: Machine Learning and Model Building

- Introduction to machine learning concepts and algorithms for regression and classification tasks.
- Building and evaluating predictive models using scikit-learn.
- Techniques for model validation, performance assessment, and optimization.
- Applying machine learning models to solve real-world problems and case studies.

Why Attend This Course: Wins & Losses!

Advanced Data Analysis with Python is your opportunity to:



- Master Python for Data Science: Learn how to use Python for in-depth data analysis, advanced statistical techniques, machine learning, and data visualization.
- Acquire Hands-on Experience: Work with real-world datasets to apply advanced data analysis techniques and gain practical, transferable skills.
- Unlock Career Opportunities: This course will enhance your data analysis skills and make you proficient in using Python for data science, opening up new job opportunities in a rapidly growing field.
- Solve Business Challenges: Learn to apply data analytics to solve business problems, improve operational efficiency, and make data-driven decisions.
- Boost Your Resume: Complete the course with a certification that will help validate your expertise in data analysis using Python, boosting your professional profile.

Conclusion

The Advanced Data Analysis with Python course provides you with the critical skills and knowledge needed to perform in-depth analysis, make data-driven decisions, and solve complex business problems. Whether you are looking to advance your career or lead data-centric projects, this course will equip you with the tools and techniques required for success in the fast-evolving field of data science.

Don’t miss the opportunity to enhance your data analysis and machine learning capabilities with Python. Register now to start mastering the tools and techniques that will help you excel in data analytics and business intelligence.

