BLACKBIRD FOR TRAINING

Data Science and Analytics Training Course

23 – 27 August 2027
Düsseldorf (Germany)



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Ref: 3254829_180074 **Date:** 23 – 27 August 2027 **Location:** Düsseldorf (Germany) **Fees:** 5900 GBP

Introduction

In today's data-driven world, the ability to understand and analyze data is critical for strategic planning and informed decision-making. Data Science and Analytics combine statistical analysis, machine learning, and data visualization to transform raw data into actionable insights.

This Data Science course is designed to equip participants with the foundational knowledge and practical skills required to analyze complex datasets, interpret trends, and drive data-informed business decisions. Through hands-on exercises and real-world applications, participants will learn how to leverage data science techniques to optimize processes and enhance organizational performance. Whether you are pursuing a Data Science degree, a Data Science certificate, or aiming to work in Data Science positions, this course will lay the groundwork for success.

Course Objectives

By the end of this Data Science training, participants will be able to:

- Understand the core concepts of Data Science and Analytics, including statistics for data science and data science solutions.
- Collect, clean, and manipulate large datasets effectively.
- Apply statistical analysis and machine learning techniques to discover patterns and trends in data.
- Visualize data using modern tools to communicate insights clearly.
- Make data-driven decisions that enhance business strategy and operations.

Course Outlines

Day 1: Introduction to Data Science and Data Analytics



- What is Data Science? — Understanding its definition and significance in modern business.
- Key concepts: Big Data, Data Mining, Machine Learning, and Artificial Intelligence.
- Understanding the Data Science process:
    - Collection
    - Cleaning
    - Analysis
    - Visualization
- Tools and technologies used in Data Science: Python, R, SQL.
- Hands-on session: Introduction to Jupyter Notebooks and basic Python programming.
- Insights into Data Science vs Data Analytics — key differences and complementary skills.

Day 2: Data Collection, Cleaning, and Preparation

- Techniques for data collection from various sources: databases, APIs, and web scraping.
- Data cleaning methods: Handling missing values, removing duplicates, and correcting inconsistencies.
- Data transformation and normalization for accurate analysis.
- Introduction to Exploratory Data Analysis EDA to understand dataset characteristics.
- Practical exercise: Cleaning and preparing a real dataset for analysis.
- Understanding data science qualifications required for effective data management.

Day 3: Data Analysis and Machine Learning Techniques



- Introduction to statistics for data science: Mean, Median, Mode, Standard Deviation
- Supervised vs. Unsupervised Learning — key differences and applications.
- Key algorithms in Data Science analytics:
    - Linear Regression
    - Logistic Regression
    - K-Nearest Neighbors KNN
    - Decision Trees
    - Clustering Techniques K-Means, Hierarchical Clustering
- Model evaluation and improvement techniques.
- Hands-on session: Building and evaluating machine learning models.
- Introduction to Data Science projects and how to effectively manage them.

Day 4: Data Visualization and Interpretation

- Importance of data visualization in business data science and decision-making.
- Tools for visualization: Matplotlib, Seaborn, and Tableau.
- Creating effective charts:
    - Line Graphs
    - Bar Charts
    - Scatter Plots
    - Heatmaps
- Storytelling with data: How to present insights in a clear and impactful manner.
- Group Activity: Creating dashboards to present analysis findings.
- Understanding Data Science programming for effective visualization.

Day 5: Data-Driven Decision Making and Real-World Applications



- Understanding business intelligence and the role of Data Science for business.
- Case studies on Data Science applications in:
    - Marketing
    - Finance
    - Supply Chain
    - Healthcare
- Ethical considerations and data privacy in analytics.
- Developing a data-driven decision-making mindset.
- Final Project: Analyzing a dataset and presenting business insights.
- Overview of Data Science methods and how they are applied in real-world scenarios.

Why Attend this Course: Wins & Losses!

- Master the skills to analyze complex datasets and extract actionable insights.
- Learn to build machine learning models to predict trends and improve decision-making.
- Enhance your ability to visualize data effectively for strategic communication.
- Gain hands-on experience with industry-standard tools like Python, Tableau, and SQL.
- Prepare for Data Science positions and build a strong foundation for Data Science internships.
- Understand the core of Data Science vs Data Analytics and how they complement each other in business.
- Kickstart your journey in Data Science projects, whether in business data science or data science services.

Conclusion

Data Science and Analytics is the backbone of modern business intelligence and strategic decision-making. This course empowers participants with the knowledge and practical skills to collect, analyze, and interpret data for better business outcomes.

Through real-world applications and hands-on exercises, participants will gain the confidence to leverage data science techniques as powerful tools for driving growth and innovation. Whether you're pursuing a Data Science degree, looking for Data Science training, or planning Data Science projects, this course is the stepping stone to mastering Data Science solutions.

