BLACKBIRD FOR TRAINING

Foundations of Data Science: A Comprehensive Introduction

18 – 22 April 2027
Istanbul (Turkey)



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Why This Course

Data science has become one of the most important fields for organizations seeking to understand data, improve decisions, and uncover new opportunities. From business performance and customer behavior to forecasting and automation, data science helps professionals turn raw information into meaningful insights and practical solutions.

This 1-week Introduction to Data Science Training program provides participants with a clear and practical foundation in the main concepts, tools, and techniques used in the field. The course covers the data science lifecycle, Python basics, data collection, cleaning, exploratory analysis, visualization, introductory machine learning, and ethical data practices. Through hands-on exercises and real-world examples, participants will build the confidence to analyze data, create visual outputs, and apply basic machine learning models responsibly.

What You'll Learn and Practice

By joining this program, you will:

- Understand the core concepts, applications, and processes of data science.
- Learn the stages of the data science lifecycle.
- Use Python for basic data analysis tasks.
- Work with common data types and structures.
- Collect, clean, and prepare data for analysis.
- Handle missing data and apply basic preprocessing techniques.
- Apply introductory feature engineering methods.
- Use descriptive statistics to understand datasets.
- Create clear data visualizations and interpret visual patterns.
- Understand the difference between supervised and unsupervised learning.
- Apply basic classification, regression, and model evaluation concepts.
- Recognize ethical, privacy, and security considerations in data science.



The Program Flow

Day 1: Introduction to Data Science

- Understand the meaning, purpose, and applications of data science.
- Explore the data science process and project lifecycle.
- Learn how data science supports business and operational decision-making.
- Get introduced to Python for data science.
- Work with basic data types, variables, and data structures.

Day 2: Data Collection and Preprocessing

- Explore common data acquisition techniques and data sources.
- Clean and preprocess raw data for analysis.
- Identify and handle missing, inconsistent, or inaccurate data.
- Apply basic data transformation methods.
- Understand the fundamentals of feature engineering.

Day 3: Exploratory Data Analysis and Visualization

- Apply descriptive statistics to summarize and understand data.
- Use exploratory data analysis to identify trends, patterns, and outliers.
- Create data visualizations using Python libraries such as Matplotlib and Seaborn.
- Select suitable visual formats for different types of data.
- Interpret visual outputs and connect findings to practical insights.

Day 4: Introduction to Machine Learning

- Understand the difference between supervised and unsupervised learning.
- Explore basic classification algorithms and their practical uses.
- Understand regression analysis and prediction concepts.
- Learn how models are trained, tested, and evaluated.
- Apply basic model evaluation metrics to assess performance.

Day 5: Data Science in Practice

- Review real-world data science case studies and applications.
- Understand ethical considerations in data science projects.
- Apply best practices for data privacy and security.
- Explore common challenges in practical data science work.
- Discuss future trends shaping the field of data science.



Individual Impact

- Build a strong foundation in data science concepts and workflows.
- Gain practical confidence in using Python for basic data analysis.
- Improve the ability to clean, explore, and interpret data.
- Develop skills in creating meaningful data visualizations.
- Understand how basic machine learning models are applied.
- Strengthen awareness of ethical and responsible data practices.

Work Impact

- Support better decision-making through basic data analysis and interpretation.
- Improve the ability to identify trends, patterns, and insights from data.
- Help teams communicate findings through clear visualizations.
- Build foundational capability for future analytics and machine learning projects.
- Encourage responsible and privacy-aware data use within the organization.

Training Methodology

This program combines foundational concepts with hands-on practice through:

- Guided Python exercises for data analysis.
- Practical data cleaning and preprocessing activities.
- Exploratory data analysis using sample datasets.
- Visualization exercises with Matplotlib and Seaborn.
- Introductory machine learning demonstrations.
- Real-world case discussions on ethics, privacy, and data science applications.

Beyond the Course

Upon completion, participants will be able to:

- Perform basic data analysis using Python.
- Clean, prepare, and explore datasets with confidence.
- Create clear and useful data visualizations.
- Understand how simple machine learning models work.
- Apply ethical data handling and privacy-aware analysis practices.

