

Fundamentals of Data Analysis with Python

An introductory workflow for business professionals

FA-0729 · 2 days

Data & Analytics

Introduction

Explore a small analytical question from sample data to preparation, charts and interpretation. Use guided Python examples to understand the basic analytics lifecycle and identify what can and cannot be concluded from the data.

The two-day course concentrates on foundational operations and selected demonstrations. Broader clustering, classification and recommendation topics are awareness-level examples rather than a promise of independent data-science expertise.

Learning outcomes

- Use simple Python syntax and selected libraries in a supplied analysis example.
- Inspect and clean a small table with pandas.
- Create selected Matplotlib or Seaborn charts and explain their purpose.
- Describe the analytics lifecycle and distinguish exploration from prediction.
- Recognise the roles of training/evaluation data and common model families.
- Document limits and identify further practice needed.

Prerequisites

- Basic computer, spreadsheet/data and file-management familiarity; no prior Python expertise required.
- Access to a compatible supported Python/notebook environment and approved sample data.

- Google/Drive accounts and sharing permissions are needed only if the selected delivery uses those services; reliable internet is needed for hosted or remote work.

Training outline

1. Day 1 — Python and practical data preparation

- Syntax.
- Strings.
- Numbers.
- Lists.
- Dictionaries.
- Conditions.
- Loops.
- Functions.
- Lambda.
- Libraries.

Use short supplied examples; optional lambda details do not displace foundational practice.

Introduce pandas tables, inspect columns/types and handle selected missing or inconsistent values.

Trace the sample question, inputs and cleaning decisions; check the prepared output before drawing conclusions.

2. Day 2 — Charts, interpretation and model awareness

- Create a small set of Matplotlib/Seaborn views and compare findings with the analytical question.
- Separate fitting from evaluation, inspect a training/test example and fit preprocessing only on training data.
- Introduce k-means, k-nearest neighbours, decision trees and dimensionality reduction through selected worked demonstrations.
- Evaluate a result against a suitable baseline and explain limitations rather than assume every pattern supports prediction.
- If time permits, compare user-based and item-based collaborative recommendation concepts.
- Review the small analysis workflow and document next steps for deeper programming, statistics and modelling study.