

Machine Learning and Predictive Models

Professional training programme



SPARK TRAINING

Professional training courses for leaders, specialists, and organizations seeking practical capability development.

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— Workshop Overview

With advancements in technology, predictive models are now accessible to a wide range of users. This course provides a comprehensive overview of supervised Machine Learning algorithms and their critical role in enhancing predictions across industries and organizations. Participants will explore various models across different technologies, including SAS, Statistica, and SPSS. By the end of the course, they will be equipped to evaluate and select the most suitable solutions and technical packages tailored to their organization's needs, becoming expert practitioners in the field.

Why Attend

This course includes interactive discussion and the use of exercises and case studies. Each Machine Learning algorithm is supported by its own case study with step-by-step outputs that go in parallel with its multi-stage analysis. All algorithms are detailed with sequential screen shot applications on comparative technologies

Who Should Attend

Any level of professional interested in how Machine Learning can assist their organization, would benefit from this course. These include professionals from industries including, but not limited to, banking, insurance, retail, government, manufacturing, healthcare, telecom, and airlines.

— Learning Objectives

- Gain a clear understanding of Machine Learning concepts
- Differentiate between Data Analysis and Machine Learning methodologies
- Apply testing and validation techniques to Machine Learning models
- Present an overview of optimal analytic solutions
- Build and fine-tune predictive models for accurate estimations

Course Outline

**DAY
1**

Data Analysis and Simple Regression

- Fundamentals of Data Analysis Logic
- Comparing two groups: Means and proportions testing
- Visualizing group profiles in a single chart
- Analyzing multiple groups: Means and proportions testing
- Profiling multiple groups in one chart
- Introduction to Simple Regression
- Regression vs. Correlation
- Sensitivity analysis for quantitative variables

**DAY
2**

Multiple and Logistic Regressions

- Overview of Machine Learning principles
- Understanding Gradient Descent logic
- Differences between Multiple and Simple Regression
- Variability analysis in estimations
- Utilizing dummy variables in models
- Key distinctions between Logistic and Multiple Regressions
- Simplifying complex models through Stepwise Regression

**DAY
3**

Discriminant Analysis

- Optimized profiling techniques
- Two-Group Discriminant Function Analysis
- Case attribution and model evaluation
- Classification functions and Mahalanobis squared distances
- Probability-based methods and model reduction
- Generalized Discriminant Analysis

**DAY
4**

Decision Trees

- Introduction to Decision Trees
- Binary Trees and their quality assessment
- Rules and techniques for pruning
- CART Models: Classification and Regression Trees
- CHAID Trees and Random Forest Trees

DAY
5

Nearest Neighbor, Bayesian, Neural Network and Deep Learning

- Understanding conditional probabilities for prediction
- Prediction using probability models
- Distance-based predictions (Nearest Neighbor)
- K-Nearest Neighbors methodology
- Neural Network models: Weights, hidden layers, pros, and cons
- Introduction to Deep Learning concepts
- Overview of Big Data principles

— Upcoming Classroom Dates

DATE	LOCATION	FEE
5 - 9 October 2026	Rome - Italy	€2,125
16 - 20 November 2026	Munich - Germany	€1,725
7 - 11 December 2026	Amsterdam - Netherlands	€2,125
11 - 15 January 2027	Cape Town - South Africa	€1,420
8 - 12 February 2027	Frankfurt - Germany	€1,625
8 - 12 March 2027	Barcelona - Spain	€1,925
12 - 16 April 2027	Barcelona - Spain	€1,925
10 - 14 May 2027	Rome - Italy	€2,125

— Certificate and Registration

Participants who attend and complete the full programme receive a SPARK Training Certificate of Completion. For registration, in-house delivery, or availability questions, contact info@sparktraining.eu or +31 85 115 0004.