

# MACHINE LEARNING

Department of Economics and Management  
University of Pavia

AY 2025-2026

# Course overview

## Objectives:

- ▶ Build the foundations of data analysis and modeling;
- ▶ Learn the fundamentals of programming for data analysis;
- ▶ Practice (in R) with real and simulated data.

# Course overview

Main tools:

- ▶ Univariate and multivariate exploratory analysis
- ▶ Simple linear model
- ▶ Multiple linear model
- ▶ Residual analysis
- ▶ Model comparison and selection of the best model
- ▶ Decision trees
- ▶ Cluster analysis

# Class schedule and contacts

Lectures:

- ▶ Wednesday 1-3 pm
- ▶ Thursday 3-5 pm

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# Course material

- ▶ Slides, R codes and data (on the KIRO page)
- ▶ Textbook:  
James, G., Witten, D., Hastie, T., Tibshirani, R. (2021). An Introduction to Statistical Learning: with Applications in R (2nd ed.). Springer. ISBN 978-1-0716-1418-1.

# Final exam

Final exam: Computer-delivered exam with real data analysis tasks, to assess:

- ▶ knowledge of theoretical foundations;
- ▶ programming skills;
- ▶ capability of interpreting the outputs.