

Data Science & Machine Learning Lab

Introduction to the course

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Course contents – theory

- Data science, Machine Learning algorithms & techniques
 - Data exploration and preparation
 - Classification
 - Regression
 - Clustering
 - Anomaly Detection
 - Association Rule extraction
 - Deep learning (notions)

Course contents – practice

- Python programming
 - NumPy
 - Pandas
 - Scikit-learn
 - PyTorch

Course contents – labs, case studies, RB

- 10 lab sessions
 - On open datasets
 - Covering theoretical & practical topics
 - Competitions
 - Exam simulations
- Company case studies
- Research Bites
 - Seminars on advanced DS&ML techniques, by PhD students

Lectures



Mondays



16:00 → 17:30



Room R4



Wednesdays



16:00 → 19:00



Room 10A

Labs

- Starting Oct. 5
- 3 teams
 - Will be announced on the course website
 - (We're trying to handle overlaps with other courses! Send an email to claudio.savelli@polito.it)



Mondays



10:00 → 13:00



LAIB4



Tuesdays



8:30 → 11:30



LAIB1



Thursdays



10:00 → 13:00



10C

Exam summary

- Two parts
- Written test
 - Quiz (14 pts) + coding (8 pts) parts
 - On the *Exam* platform
 - 4 exam attempts/year
- Project
 - Report (7 points) + performance (3 points)
 - 3 sessions/year (Winter/Summer/Fall)
- Partial grades will be valid for the entire academic year

Material

All slides, labs, solutions will be uploaded on the course website

https://dbdmg.polito.it/dbdmg_web/2026/data-science-and-machine-learning-lab-2026-27/

Additional books:

- Tan, Steinbach, Karpathe, Kumar, *Introduction to data mining*, 2nd edition, Pearson, 2019
- Han, Kamber, Pei *Data mining: concepts and techniques*, 3rd edition, Morgan Kaufmann, 2011
- Kent D. Lee , *Python Programming Fundamentals*, Springer, 2015
- Jake VanderPlas, *Python Data Science Handbook: Essential Tools for Working with Data*, O'Reilly, 2016