

DIGITAL MANAGEMENT (LB46)

(Lecce - Università degli Studi)

Teaching MACHINE LEARNING IN MANAGEMENT

GenCod A005993

Owner professor FABRIZIO DURANTE

Teaching in italian MACHINE LEARNING IN MANAGEMENT **Course year** 3

Teaching MACHINE LEARNING IN MANAGEMENT

Language ENGLISH

SSD code SECS-S/06

Curriculum ECONOMICO

Reference course DIGITAL MANAGEMENT

Course type Laurea

Location Lecce

Credits 6.0

Semester First Semester

Teaching hours Front activity hours: 36.0

Exam type Oral

For enrolled in 2020/2021

Assessment Final grade

Taught in 2022/2023

Course timetable

<https://easyroom.unisalento.it/Orario>

BRIEF COURSE DESCRIPTION

Introduction to machine learning (supervised and unsupervised learning). All the presented tools are illustrated in several real case studies with the software R.

REQUIREMENTS

Basic elements of calculus and statistics for data analysis.

COURSE AIMS

Knowledge and understanding:

Knowledge and understanding of machine learning algorithms, including supervised and unsupervised methods.

Applying knowledge and understanding:

Ability to extract relevant information from big dataset for management and business innovation.

Ability to identify the machine learning models that are suitable to correctly analyse a specific business problem.

Ability to use a specific programming language to implement machine learning procedures.

Making judgments:

Making judgements on the output of a machine learning methods also by analyzing its pros and cons.

Communication skills:

To present in a concise way the results of a quantitative analysis with machine learning algorithm and to discuss its implications in management.

Learning skills:

Ability to formalize in an algorithmic form a problem of interest in management.

TEACHING METHODOLOGY

Frontal lectures, exercises, computer labs.

ASSESSMENT TYPE

The exam consists of two parts:

- a written exam with review questions and short exercises, including questions about R coding and output interpretation.
- preparation and presentation of a quantitative analysis with machine learning methods (i.e., project work) with the help of the software R.

To pass the exam students must obtain a positive evaluation on both the project and the written exam. Both parts weigh 50% of the total points.

There is no difference in the assessment procedures between attending and non-attending students.

University of Salento "*promuove e garantisce l'inclusione e la partecipazione effettive degli studenti con disabilità*" (art. 10 of the Statute). Students that have a disability or impairment that requires accommodations (i.e., alternate testing, readers, note takers or interpreters) could contact the Disability and Accessibility Offices in Student Services: paola.martino@unisalento.it

OTHER USEFUL INFORMATION

More information will be available on the course webpage at elearning.unisalento.it

FULL SYLLABUS

Introduction to Data Science and Machine Learning.
Unsupervised learning. K-means algorithms.
Supervised learning: linear regression. Ridge and Lasso regression.
K-Nearest neighbour algorithms.
Supervised learning: classification. Logistic regression.
Decision trees.

REFERENCE TEXT BOOKS

Lectures notes will be provided. The teaching material will be made available through the Lecture webpage at elearning.unisalento.it.

Suggested reading:

· Boehmke, B. and Greenwell, B.: *Hands-on Machine Learning with R*. Free available at <https://bradleyboehmke.github.io/HOML/>

· Hull, J.C.: **Machine Learning in Business – An introduction to the world of data science, 2021. Third edition. Slides available at <https://www-2.rotman.utoronto.ca/~hull/>**

James, G., Witten, D., Hastie, T., Tibshirani, R.: *An Introduction to Statistical Learning with Applications in R*. Springer, 2022. Second edition. Free available at <https://www.statlearning.com/>