

# 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** INGLESE

**SSD code** SECS-S/06

**Curriculum** ECONOMICO

**Reference course** DIGITAL MANAGEMENT

**Course type** Laurea

**Location** Lecce

**Credits** 6.0

**Semester** Primo-Semestre

**Teaching hours** Ore-Attività-frontale: 36.0

**Exam type** Orale

**For enrolled in** 2020/2021

**Assessment** Voto-Finale

**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.

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## 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](mailto:paola.martino@unisalento.it)

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## OTHER USEFUL INFORMATION

More information will be available on the course webpage at [elearning.unisalento.it](http://elearning.unisalento.it)

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## 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.

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## REFERENCE TEXT BOOKS

Lectures notes will be provided. The teaching material will be made available through the Lecture webpage at [elearning.unisalento.it](http://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/>