

[MNA001] BASIC OF MACHINE LEARNING

GENERAL INFORMATION

Studies	MASTER DEGREE IN DATA ANALYSIS, CYBERSECURITY AND CLOUD COMPUTING		Subject	Data Analysis
Semester	1	Course	1	Mention / Field of specialisation
Character	COMPULSORY		Language	CASTELLANO
Plan	2019	Modality	Adapted Face-to-face	Total hours
Credits	3	Hours/week	0	34 class hours + 41 non-class hours = 75 total hours

PROFESSORS

AGUIRRE ORTUZAR, AITOR

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
STATISTICAL METHODS	Knowledge of the basic foundations of statistical reasoning, in the design of studies, collection of information, analysis of data, and extraction of conclusions.

SKILLS

VERIFICA SKILLS

SPECIFIC

MNCE01 - Knowing, understanding and selecting the fundamentals of machine learning.

CROSS

MNCTR1 - Ability to work in multidisciplinary teams and in a multilingual environment (Basque/Spanish/English) and to communicate, both orally and in writing, knowledge, procedures, results and ideas related to the life cycle of the data, cybersecurity, and development and operations.

BASIC

M_CB9 - To share knowledge, conclusions and their rationale with specialised and lay audiences in a clear, unambiguous manner

LEARNING RESULTS

RA111 [!] *Identifica y utiliza conceptos estadísticos y algebraicos en el ámbito del aprendizaje automático*

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	3 h.	6 h.	9 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	2 h.	3 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.		8 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	11 h.	15 h.

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	5%
Individual written and/or oral tests or individual coding/programming tests	75%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems
Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 16 h.

NCH - Non-class hours: 19 h.

TH - Total hours: 35 h.

RA112 [!] *Es capaz de conocer y aplicar métodos de evaluación y métricas apropiadas en el aprendizaje automático, así como*

de defender su elección dentro de un grupo

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	5 h.	13 h.	18 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	3 h.	2 h.	5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.		5 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	7 h.	12 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	15%
Individual written and/or oral tests or individual coding/programming tests	65%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems
Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 18 h.
NCH - Non-class hours: 22 h.
TH - Total hours: 40 h.

CONTENTS

- Introduction
- Algebra and maths review
 - numpy bases
- Data analysis process
 - Pandas
 - Statistics review
 - Exploratory data analysis
- Metrics and evaluation methods

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Subject notes
 Topic related web quires
 Technical articles
 Moodle Platform
 Labs
 Class presentations
 Computer practical training

Bibliography

http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_in k.pl?grupo=MASTERDATUANALISIA11&ejecuta=5&