EAE Business School Barcelona

Bachelor Degree in Business Administration and Management and Business Transformation

Course: Artificial intelligence and machine learning

Subject: Computer science

Credito: 6 ECTS

Program: Bachelor

Modality: On-Site

Year: Second

Semester: First

1. Index

2. Presentation

Organizations can use information from Business Intelligence and data analysis to improve business decisions, identify problems, spot market trends, and find new revenue or business opportunities. But with the evolution of AI (Artificial Intelligence) is the basis of the next era of business reinvention. This subject will help explore AI capabilities and reach new dimensions to transform every area, industry and business for the better. The subject aims for multidisciplinary students to receive AI training to understand their potential and identify adoption opportunities in each sector. This empowers each project with creativity and the power of technology in transforming the business towards a more sustainable and efficient business.

3. Learning outcome of the degree

- RAT1 - The graduate will be able to recognize the tasks of the different functional areas within a company or organization, taking into account previous theoretical learning about business structures.
- RAT4 - The student will describe the techniques of management in the development of business organizations by means of different written tests.
- RAT6 - The graduate will be able to understand the different data analysis techniques used to assess the feasibility of a business project.
- RAT9 - The student will be able to provide clear and precise explanations of any knowledge/information, both orally and in writing, in Catalan, Spanish and a third language, particularly English.
- RAT10 - The student will be able to apply digital technologies (at the right time) in his/her field of expertise.
- RAT12 - The graduate will be able to develop both traditional and digital marketing and promotional projects in a business environment.
- RAT18 - The student will be able to provide innovative, creative and entrepreneurial solutions in professional situations.
- RAT19 - The student will be able to evaluate the sustainability and social impact of the proposals presented, with ethical, environmental and professional responsibility.
- RAT20 - The student will be able to apply the gender perspective in the professional tasks.
- RAT22 – After completing the degree, the student will be able to design work processes to achieve organizational efficiency.
- RAT23 – The graduate will be able to actively propose a plan for the implementation and support of information and communication systems for the digital transformation of the organization, according to a project based on a real business case.

4. Learning outcomes of the subjects

- RAM3 - The student will be able to clearly identify the ethical, cultural and social problems brought about by technological systems.
- RAM4 - The student will be able to practice the proper use of technology, information and software systems for a digital transformation.
- RAM7 - The student will be able to correctly interpret management techniques and economic aspects related to the production of technological tools.
- RAM8 - The student will be able to properly use management techniques and technological tools for a digital transformation.

5. Contents

- Introduction to Artificial Intelligence
- Troubleshooting by search
- Algorithms for inference
- Forward chaining
- Backward chaining
- Uncertainty in Artificial Intelligence through probabilities
- Supervised learning: classification problems
- Bayes' theorem
- Supervised learning: classification problems
- Machine vision
- Programming no code / low code.

6. Methodology

Learning outcomes developed	Teaching methodology	Training activities
Knowledge	Master class	Teacher's presentations
	Instructional sessions	Student's presentations
	Tutoring	Meetings for the resolution of doubts
	Learning based on readings	Reading and analysis of documents
Skill	Learning based on projects	Problem solving

	Learning based on audio-visual	Audiovisual analysis
	Case-based learning	Search and processing of information. Problem solving
Competence	Project-based work	Reporting Submissions of reports or papers

7. Evaluation

Evaluation system	Weight
Continuous evaluation: exercises, problems, reporting, papers, case studies	40 %
Mid-term exam	20 %
Final exam	40 %

When computing the final grade, the on-going activities (participation, in-class quizzes, seminar cases and group projects, midterm exam) will be weighted only if the final exam grade is equal to or greater than 4.0. Therefore, to obtain a passing course grade, the final exam grade must be equal to or greater than 4.0. If the final exam grade is less than 4.0, the final exam grade becomes the final course grade, irrespective of the other grades. Students must take the final exam if they want to receive a quantitative course evaluation. Students who do not sit the final exam will receive a "No Show" overall course grade.

"The maximum grade that students may obtain on the revaluation tests [...] shall be 5,0. In addition, "the grade of the revaluation tests will, in any case, constitute the final grade of the subject". **Thus, only those students who having completed the partial exam, the final exam and have completed 100% of the activities of continuous assessment of the subject, are suspended (final grade of the subject less than 5) will be entitled to the exam."**

Single Evaluation: The single assessment consists of a single examination equivalent to 100% of the grade of the subject. The exam, and therefore the subject, is passed with a grade of 5 out of 10 in this final test.

To benefit from the single assessment, it is necessary to send the teacher a written request during the first 15 working days of the course.

8. Bibliography

- Vega, M. Á., Mora, L. M. Q., & Badilla, M. V. C. (2020). Inteligencia artificial y aprendizaje automático en medicina. *Revista médica sinergia*, *5*(8), e557-e557.
- de Souza, E. R. (2023). Evaluación de la accesibilidad web: oportunidades con inteligencia artificial y aprendizaje automático. *Cuadernos del Centro de Estudios de Diseño y Comunicación*, (191).
- Guevara, P. R. (2023). El aprendizaje de las máquinas: El 'Machine learning', una rama de la inteligencia artificial en auge. *Alfa*, (55), 6-11.
- De La Cruz, M. A. T., Benites, E. M. M., Cachinelli, C. G. C., & Caicedo, E. V. A. (2023). Incidencias de la inteligencia artificial en la educación. *RECIMUNDO*, *7*(2), 238-251.