

Degree programme	Type	Course
Bachelor in Artificial Intelligence	OB	1

Contact lecturer

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Prerequisites

No prerequisites.

Group languages

You can consult this information at the [end](#) of the document.

Objectives

En aquesta matèria s'oferirà una introducció a la Intel·ligència Artificial, per tal de donar una perspectiva històrica

Learning outcomes

- CM03 (Assess the risks of discrimination on any basis of AI applications.) Assess the risks of discrimination on any basis of AI applications.
- KM09 (Identify potential social, cultural, economic, or any other biases of AI algorithms.) Identify potential social, cultural, economic, or any other biases of AI algorithms.
- SM09 (Identify the impact of AI applications on fundamental ethical principles.) Identify the impact of AI applications on fundamental ethical principles.

Contents

INTRODUCTION TO AI

Origins

The first relevant advances

AI winter

New approaches

Successful cases

Future and open problems

Ethical issues

SEARCH

Heuristic search

Combinatorial explosion

Metaheuristics

Successful cases

KNOWLEDGE REPRESENTATION - LOGIC

The role of knowledge

Logic: proof, models

Propositional and predicate logic

Limitations of logic

LEARNING

Symbolic learning

Neural learning

Deep learning

Successful cases

NATURAL LANGUAGE

Natural language tasks

Question answering

Machine translation

Successful cases

LLMs

VISION

Edge detection

Segmentation

Consistency

Diffusion

ROBOTICS

Sensors and effectors

Architectures

Working and configuration spaces

Service robotics

Industrial robotics

ETHICS

Ethics in engineering

Moral agents

Alignment with individual/societal values

Autonomous car dilemmas

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Assimilation of theory and problems sessions	25.8	1.032	
Sessions of theory, problems and presentations	25	1	
Preparation of presentations	20	0.8	CM03, KM09, SM09

The sessions will be face-to-face in class and will be organized to introduce the contents of the subject, through r

Sessions will be organized two hours a week with all students. For the presentations, the division of the students

In the face-to-face sessions, the concepts detailed in the syllabus of the subject will be worked on. In some cases

The classes of problems will serve to exemplify what has been explained in the theory classes. The presentation:

The student will have to complete the face-to-face classes with the autonomous personal work in the realization of

The management of the teaching will be done through the UAB Virtual Campus platform, which will be used to view

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Test 2	0.3	2	0.08	KM09
Presentations	0.4	0.2	0.008	CM03, KM09, SM09
Test 1	0.3	2	0.08	KM09

The assessment of the subject will take into account three types of assessment activities: Two midterm exams as

The final grade of the course is obtained by combining the assessment of these 3 activities as follows:

Final Grade = (0.6 the two partial tests of individual evaluation) + (0.4 Presentations by groups)

Presentations:

- A minimum grade of 5 in this activity must be obtained in order to pass the subject.

Individual assessment: this section includes the results of the individual tests that will be done throughout the course.

- A minimum grade of 4.5 must be obtained in each of the two parts in order to pass the course.
- The final grade will be the average of the two partials:

Individual Assessment = (0.5 * Partial1) + (0.5 * Partial 2)

The assessment of the subject will take into account three types of assessment activities: Two midterm exams as

- A minimum grade of 5 must be obtained in the grade of the individual assessment in order to pass the course.

Recovery:

- First partial: a student who fails the first partial can recover it in the final exam.
- Second partial: a student who fails the first partial can recover it in the final exam.
- Presentation / Work: in case of not reaching 5 in the presentation/work, the group has to resubmit the corrected

Not assessable: A student will be considered non-assessable (NA) if he / she does not participate in the presenta

Suspended: If the calculation of the final grade is equal to or higher than 5 but does not reach the minimum requi

Honors: Granting an honors degree is the decision of the faculty responsible for the subject. UAB regulations stat

Important Note: Copies and plagiarism Without prejudice to other disciplinary measures deemed appropriate, and in accordance with current academic regulations, irregularities committed by a student that may lead to a variation in the grade will be graded with a zero (0). Assessment activities qualified in this way and by this procedure will not be recoverable. If it is necessary to pass any of these assessment activities to pass the subject, this subject will be suspended directly, without the opportunity to retake it in the same course. These irregularities include, but are not limited to: • The total or partial copy of an internship, report, or any other assessment activity • Let copy • Present a group work not done entirely by the group members • Present as own materials prepared by a third party, even if they are translations or adaptations, and in general works with non-original and exclusive elements of the student • Have communication devices (such as mobile phones, smart watches, etc.) accessibleduring individual theoretical-practical assessment tests (exams). • Talk to classmates during individual theoretical-practical assessment tests (exams); • Copying or attempting to copy other students during the theoretical-practical assessment tests (exams); • Use or attempt to use writings related to the subject during the performance of the theoretical-practical assessment tests (exams), when these have not been explicitly allowed. In these cases, the numerical grade of the transcript will be the lower value between 3.0 and the weighted average of the grades (and therefore it will not be possible to pass it by compensation). Copy of the program code will be used in the evaluation of problem and practice deliveries. Note on planning assessment activities: The dates of continuous evaluation and delivery of works will be published at the beginning of the course and may be subject to schedule changes for reasons of adaptation to possible incidents. These changes will always be reported to the Virtual Campus as it is understood that this is the usual platform for the exchange of information between teachers and students.

Bibliography

Inteligencia Artificial. Ramon López de Mántaras, Pedro Meseguer, in collection "Qué Sabemos de...", Los libros de la Catarata, 2017.

Artificial Intelligence. A modern approach. Stuart Russell, Peter Norvig. 4th edition. Pearson, 2020.

Software

None.

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course

CODE

Type of teaching	Group	Language	Semester	Shift
(TE) Theory	71	English	first semester	afternoon
(PAUL) Classroom practices	711	English	first semester	afternoon
(PLAB) Practical laboratories	711	English	first semester	morning-mixed
(PLAB) Practical laboratories	712	English	first semester	morning-mixed