

Intelligence artificielle

Lecturer

Tom LENAERTS (Coordinator)

Course mnemonic

INFO-F311

ECTS credits

5 credits

Language(s) of instruction

French

Course period

First term

Campus

Plaine

Course content

This course will allow students to learn about the basics of artificial intelligence. Four themes will be covered,

- > Search and planning; covering topics such as informed and uninformed search, local research, games and adversarial search.
- > Probabilistic reasoning; covers topics such as Bayesian networks and Markov models.
- > Decision-making under uncertainty; with topics like Markov Decision Processes and Reinforcement Learning.
- > machine learning; with topics like naive Bayes, regression, perceptrons and neural networks.

Objectives (and/or specific learning outcomes)

With this course, students should have enough technical knowledge and skills to work on AI-related projects and successfully complete AI-related courses in the Master CS program at ULB and other universities.

Pre-requisites and co-requisites

Pre-requisites courses

INFO-F203 | Algorithmique 2 | 5 crédits

Required knowledge and skills

Programming, algorithmics and standard mathematics knowledge obtained in the first Bachelor year.

Teaching method and learning activities

Theoretical sessions (24h) and exercises (24h) and five (one optional) projects (60h).

- > The theory session is each time 1 hour followed by a 1-hour exercises session, and this twice per week.
- > The exercises are organised after each 1hour theory session, where students will solve Ai problems related to each part of the course.
- > The project consists of five programming assignments that will be provided during the year at different intervals. They will cover the main themes of this course.

References, bibliography and recommended reading

This course is directly based on AI - a Modern Approach, 4th edition [<http://aima.cs.berkeley.edu/global-index.html>] . There are both an English and French version of this book. You can also get access to an online copy via this link [<https://www.pearson.fr/book/?gcoi=27440100705580>] .

the ULB library [<https://bib.ulb.be/fr/bibliotheques/bst>] also has 4-5 copies of this book available.

Course notes

Université virtuelle

Other information

Place(s) of teaching

Plaine

Evaluation method(s)

Project and written examination

Evaluation method(s) (additional information)

- > The exam consists of a series of exercises/problems/questions seen in the practical sessions of the course. On UV, a set of exercises with solutions is provided which contains sample exam questions.
- > Projects are implementations of different parts of the course. Last year, this consisted of implementations in a PacMan environment of search algorithms, adversary algorithms, probabilistic models, reinforcement learning agents, and machine learning agents. While the type of projects will be the same, the AI environment may change.

Determination of the mark (including the weighting of partial marks)

The final course grade is calculated in a conditional manner as follows.

If the exam mark and the total project mark are each 10/20 or more:

- > 60% of the final mark is obtained on the exam and
- > 40% of the total mark obtained on the projects

If the grade on the exam or of the projects is less than 10/20, the lower grade is used as final score.

Main language(s) of evaluation

French

Other language(s) of evaluation, if applicable

English and Dutch

Programmes

Programmes proposing this course at the faculty of Sciences

BA-INFO | Bachelor in Computer science | unit 3

