

# 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 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