

Characteristics

Geographic location(s)

Université Toulouse III - Paul Sabatier
Campus de Rangueil

Type of training

- > Initial training
- > Apprenticeship
- > Continuing education
- > VAE

Level of education

Master

Accessible in

- > Face-to-face teaching

Distinction

Mathématiques et Applications

Partner Institutions

Contacts

Responsible teacher :

Edouard Pauwels
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Accommodation capacity

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Terms of access

- > Master diplomas are open to candidates owning a first cycle degree (180 ECTS) or equivalent in a corresponding domain.
- > Admission is decided after a selection and based on the capacity of the diplomas as defined by the university.
- > Depot of applications must be done through the site e-candidat (see Candidater).

Presentation

In the first year of the master, the training is balanced between the two fields : algorithmics, language theory and machine learning on the computer science side, probability, statistics, optimization, and simulation on the mathematical side.

The second year has the particularity of offering students the opportunity to choose some of their courses from a list of options, and possibly color their training more towards mathematical aspects (e.g. experimental design and uncertainty analysis), or computer science (e.g. processing of various data, computer graphics, AI and decision making).

The teaching provided in this diploma will be built on a strong pooling of contents with the IAFA diploma for the Computer Science section and the MAPI3 diploma for the Mathematics and Applications section. The diploma offers a gradual increase in skills in these two areas in connection with AI. Access to the IMA Master diploma is open (upon application) in priority to students holding a double Math-Info license (or equivalent) and possessing, among others, skills in the following fields :

- notions in Probability, Statistics, linear algebra, analysis ;
- notions in Imperative Programming (Python, C), algorithmic.

Prospects and professional integration

- > R&D engineer
- > Scientific computing engineer
- > Statistician, risk analyst, Data-scientist
- > Project manager, consultant. AI researcher

Knowledge

- > Statistics
- > Machine Learning
- > Big Data
- > Imaging
- > Optimization and Operational Research
- > Random and deterministic modeling
- > Software: C ++
- > Software: R and Python

Solution research in complex spaces Knowledge representation and processing in advanced formalisms Design of solutions to complex problems using advanced information representation and processing methods, using artificial intelligence (AI) techniques.

Skills

- > Acquire a methodology for modeling a problem with randomized or applied models
- > Implement methods of solving complex problems and creating new methodologies. Apply the techniques and tools linked to new information and communication technologies, in particular to methods of knowledge processing and research in large spaces
- > Design an R&D approach, from the identification of a problem to the prototyping of its solution by analyzing a research bibliography, and the presentation of its work
- > Implement these concepts and methods in an industrial context

Program

Web site : <https://departement-math.univ-tlse3.fr/titulaire-d-une-licence>

