SCIENCE, TECHNOLOGY, HEALTH

M2 Mathematics, Modeling and Simulation (MMS)

ECTS
60 credits

Duration
1 year

Component
Collège Sciences et Technologies pour l'Energie et l'Environnement (STEE)

Language(s)
English

Presentation

The program offers up-to-date knowledge in areas of applied mathematics related to modeling with partial differential equations.

Objectives

This program aims to provide solid skills in applied mathematics (partial differential equations analysis, numerical analysis, scientific computing and high-performance computing, and optimization).

* Courses focus on applications in industrial problems, fluid mechanics, waves propagation, and optimal design,...
* This program prepares students for leading positions in private and public organizations in research and development departments.

Your university

Skills

At the end of this program, the students in "**Mathematics, Modeling, and Simulation Master's degree**" will be able to:

* Elaborate and analyze mathematical models arising from physics, biology, geology, industry,
* Elaborate and analyze numerical schemes,
* Develop, adapt, and use industrial or research numerical simulation software.

Additional information

Scholarships

* Region Aquitaine Scholarships for non-EU students

The International Master Programs Admission Office

master.programs@univ-pau.fr

Organisation

Organization

MASTER 2 Mathematics, Modeling and Simulation	
SEMESTER 1	
Course Title	**ECTS**
Analysis of PDE	6
Numerical Analysis of PDEs	6
ELECTIVES 1	
	4
Finite Volume Methods for Hyperbolic Systems	4
Scientific computing	4
Scientific computation with Python (M1 course, specific to the ENS KOUBA dual-degree)	4
High-Performance Computing	4
Reservoir simulation	4
Industrial Software	4
Mesh and applications	4
Stochastic PDE	4
Inverse problems	4
Asymptotic analysis	4
Mathematical modeling and numerical analysis for Hyperbolic problems	4
Advanced Analysis	4
Mathematical Engineering of deep learning	6
ELECTIVES 2	
French or English as a foreign language	2
SEMESTER 2	
Integrator project	10
Internship from 5 to 6 months	20

Trainings

Intership : Mandatory

Intership duration : 5 months

Admission

Admission requirements

English Language Requirements

CECRL B2 level in English. Students are allowed to use English or French during exams.

Admission Requirements

All students who have completed four years in higher education institutions can apply. Skills in mathematics are required for mathematical and numerical analysis.

A limited number of students: 30

How to apply

Tuition Fees and partial exemptions

Administrative tuition in France is determined at a national level. The French Ministerial Order of April 19, 2019, amended on June 9, 2020, sets university tuition for a Master's Program as follows: European nationals: **€243,** extra-European nationals: **€3770.**

For the academic year 2022-2023, the Board of Directors has extended its policy of automatically providing a **partial reduction of these fees at the UPPA**. As a result, extra-European nationals will be granted automatic partial reductions such that **they will be able to pay the same enrollment fees as European nationals.**

Extra fees:

In addition to academic tuition, most students must pay a student body fee (CVEC, which cost €92 in 2020-2021).

NB: Admitted candidates in any course of study who have taken a break of more than two years from their studies will enroll via the UPPA's **Continuing Education service** *(Formation Continue / FORCO). They are exempt from the CVEC, however, they may be subject to a different tuition scale.*

Student capacity

30

And after

Further study

This program will enable students to pursue doctoral studies, either in an academic context or in an industrial context (a collaboration between the industry and UPPA).

Professional insertion

Sectors:

* **Industrial or academic**

Fields:

* **Scientific computing, mathematical and numerical analysis, modeling**

Positions:

* **Engineer, PhD Student, researcher**

Useful info

Contacts

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Place

Pau

Campus

Pau