UNIVERSITY OF LILLE

The University of Lille was born from the merger of 3 institutions (law and health, human and social sciences, sciences and technologies). European reference university, recognized for the excellence of its training throughout life. It places the student at the heart of its concerns, to promote its involvement and success. It offers 150 training modules, all backed by cutting-edge, international research conducted by 66 laboratories to meet the major challenges of our society.

FACULTY OF SCIENCE AND TECHNOLOGY

The Faculty of Science and Technology is a training and research unit of the University of Lille. It brings 9 training departments and 27 research structures in the following areas:
- Biology; Chemistry; Electronics; Electrical engineering; Automatic; Data processing; Mathematics; Mechanical; Physical; Earth Science; Station Marine Wimereux.

The Faculty of Science and Technology of the University of Lille offers a multidisciplinary training offer, quality accredited by the University’s College of Students and Masters. It hosts every year on the campus more than 7,000 students in initial training.

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HIGH PERFORMANCE COMPUTING, SIMULATION

SCIENTIFIC COMPUTING

MASTER 1 - MASTER 2

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FOR ACCESS

Find all the useful information in the catalog of courses of the University of Lille:
https://www.univ-lille.fr/formations

ACCESS TO MASTER 1

Prerequisites: bachelor knowledge in mathematics. The recommended degrees of bachelor are those of mathematics, mathematics-computer science or other scientific bachelors with a strong mathematical dominance.

Recommended degrees of bachelor
- Bachelor’s degree in Mathematics
- Other scientific bachelor’s degrees - engineering schools

Capacity: 20 places in master 1

Recruitment calendar
- Opening from 02/05/2019 to 20/06/2019
- Publication admission early July 2019

Selection methods: examination of the application from the downloadable from the training website with the list of documents to be provided.

Criteria for examining the application
- Solid mathematical background (in particular: differential calculus, analysis, linear algebra, applied mathematics)
- Level in English (B2 level is recommended)
- Coherence of the professional project

Submit your application on the platform https://ecandidat.univ-lille.fr

ACCESS TO MASTER 2

Prerequisites: a first year of scientific master’s degree (Biology, Chemistry, Computer Science, Mathematics, Mechanics, Physics, ...), a necessary key to apply. A validation of studies or professional experience is necessary for students wishing to apply but not having the required qualifications.

LAYOUT OF STUDIES

In order to offer the best conditions for success for the students it hosts, the University of Lille sets up various systems that allow students to start and pursue their studies as best they can, depending on their situations: student with a disability, athlete and high level artist, civic service, student in exile...

More info on https://www.univ-lille.fr/etudes/amenagements-des-etudes/

SUPPORT

SUAKO - University Service of Accompaniment
Information and Orientation (SUAKO)
- Information, advice and support, orientation and registration, Custom Interviews.

www.univ-lille.fr/etudes/preparer-son-insertion-professionnelle

BAIP - Help desk for professional integration
- Accompaniment to professional integration, research internship and first jobs.

www.univ-lille.fr/etudes/preparer-son-insertion-professionnelle/hubhouse

Hubhouse
- Support for entrepreneurship and business creation.

www.univ-lille.fr/etudes/preparer-son-insertion-professionnelle/hubhouse

Continuing and alternating training
The entire university degree offer is available for continuing education. You can also access this offer through a VAPP (Validation of Professional and Personal Acquired) or obtain the diplomas as part of a VMA (Validation of Acquired Experiences). Many diplomas are offered alternately as part of professional qualification or apprenticeship contract. For more information or personalized advice, visit the website of the Directorate of Continuing Education and Training (DFCA).

https://formationcontinue.univ-lille.fr/

- Axa : +33 822 24 07 00
- formationcontinue@univ-lille.fr
- vue@univ-lille.fr - alternances@univ-lille.fr

International relationship
- To study within the framework of an exchange program: https://international.univ-lille.fr/etudiants-etrangers/en-programme-international
- For the Erasmus + program: erasmus-students@univ-lille.fr
- For other programs and conventions (inter-exchange) : univ-lille.fr/etudes/programmes-conventionnels

To study individually: https://international.univ-lille.fr/etudiants-etrangers/individuel/
- NB: a proficiency certified in French is required.
The major assets of this training are its multi-disciplinary nature and its coherence. The students succeed as they benefit from a strong interaction between fundamental courses and practical modules, extended by numerous opportunities to learn and develop skills through co-supervised research projects. Thus, the students of the master’s degree enter the professional world with a strong mathematical and computer sciences background, enabling them to perform at a high level and take on valuable and rare positions both in the private market and in research laboratories.

### AIM OF THE TRAINING

**M1 and M2 CHPS**

This Master offers a high-level training in High Performance Computing for scientific simulation. Students who have validated this training have:

- For 1/3, found a job as an engineer or research engineer in a company or an applied research center;
- For 2/3, improved and completed their skills in Scientific Computing, preparing a PhD thesis.

The objective of the Master is to train scientists able to understand the models from physics and industry, to create and implement simulation methods for these models in an optimal way on the most recent parallel computer architectures.

The training provides:

- Knowledge in mathematical modeling of physical phenomena;
- A mastery of universal mathematical and computer tools (optimization, statistics, programming);
- The ability to simulate the equations of physics (Partial differential equations) efficient numerical schemes and methods;
- Expertise in programming languages and supercomputing: parallel computing, accelerator (GPU) programming, distributed computing.

### JOB OPPORTUNITIES & FURTHER STUDIES

**JOB OPPORTUNITIES**

The professional circles targeted at the end of the training are those of modeling and numerical computing, in particular large-scale national companies, SMEs, specialized technical centers and scientific organizations carrying out research and development activities in the disciplines requiring mastery of numerical simulation tools. The most frequent held positions are those of research and development engineer, design engineer, project manager, software engineer, consultant, IPEX expert, or research and development project manager. About 2/3 of the students of the master’s degree enter the professional field.

**FURTHER STUDIES**

About 1/3 of the master’s students continue with a PhD thesis. It is possible under certain conditions (access through application). The 3-year doctorate is carried out in a research laboratory in France or abroad. Cifre (industrial and academic contract) through application). The 3-year doctorate is carried out in a research laboratory in France or abroad. About 1/3 of the master’s students continue with a PhD thesis. It is possible under certain conditions (access through application). The 3-year doctorate is carried out in a research laboratory in France or abroad. Cifre (industrial and academic contract) through application).

### ORGANISATION OF THE TRAINING

The training is backed by regional doctoral schools «Sciences for the engineer» and «Science of matter, radiation and the environment».

- **For more information**, you can consult the training catalog: [www.univ-lille.fr/formation](http://www.univ-lille.fr/formation)

### ASSET OF THE TRAINING

- The major assets of this training are its multi-disciplinary nature and its coherence. The students succeed as they benefit from a strong interaction between fundamental courses and practical modules, extended by numerous opportunities to learn and develop skills through co-supervised research projects.
- There is a strong interaction between fundamental courses and practical modules, extended by numerous opportunities to learn and develop skills through co-supervised research projects.
- For their specialization in High Performance Computing, M2 students have powerful computing resources to carry out their projects in hybrid cluster integrating GPUs and Xeon Phi processors from the CRII computing center of Université de Lille as well as access to the Grid’5000 nation-wide computational grid.