MAP2M

2021 - 2022

Master [120] in Mathematical Engineering

At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In English
Dissertation/Graduation Project : **YES** - Internship : **optional**
Activities in English: **YES** - Activities in other languages : **YES**
Activities on other sites : **NO**
Main study domain : **Sciences de l'ingénieur et technologie**
Organized by: **Louvain School of Engineering (EPL)**
Programme acronym: **MAP2M** - Francophone Certification Framework: 7

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MAP2M - **Introduction**

Introduction

Introduction

This Master's degree programme develops the necessary knowledge and expertise for mathematical engineering:

- the design, analysis and implementation of mathematical models for the engineering of the complex systems of the industrial sector and the elaboration of effective strategies to optimise their performance;

- the implementation of theoretical and methodological tools in all areas of engineering sciences as well as in other fields such as economics, finance, environmental and life sciences.

Your profile

You

- have solid knowledge of mathematics

- are seeking an engineering programme with a focus on applied mathematics

- want access to engineering jobs (in manufacturing and services companies) or to the areas of life sciences, environment or finance;

- want to take advantage of the most recent research advances in your area of specialisation.

Your future job

Mathematical engineers are present in all industrial sectors: industrial chemistry, pharmaceutical and food industries, electronics and telecommunications, energy, metallurgy, aeronautics, civil engineering, mass distribution, banking or consulting services, nanotechnologies and medical technology.

They play a role in research and development, oversee production or management and work in marketing and sales (of high tech products).

We find them in departments of finance, computer science, training and quality control, in the public sector, higher education and in the Minister of equipment and transport (www.fabi.be)

Your programme

This Master's degree programme offers you

- training in mathematical modelling in all areas of engineering sciences;
- flexibility when it comes to building your programme (major and elective courses compose more than half of the programme);
- the opportunity to complete part of the programme abroad or at KULeuven;
- via complementary modules, direct access to the second year Master's degree programme in general statistics, biostatistics or actuarial sciences.

MAP2M - Teaching profile

Learning outcomes

The Master in Mathematical Engineering is an interdisciplinary engineering master centred on the notion of mathematical model that has become instrumental in engineering sciences. Through a training in modelling, simulation and optimization (MSO), the students learn to design, analyse and implement mathematical models to be applied to complex systems of the industrial or corporate world, and to create efficient strategies to optimize their performance.

The mandatory courses provide the students with the necessary common skills in MSO. They span the domains of numerical analysis and scientific computing, dynamical systems, matrix computations, stochastic models, optimization models and methods.

Students are moreover offered several coherent lists of courses, called "options". Some of the options provide them with advanced skills in various branches of MSO: optimization and operations research, dynamical systems and control, and computational engineering. The other options pertain to data science, financial mathematics, cryptography & information security, biomedical engineering, business risks and opportunities, and launching of small and medium-sized companies.

Below is the competency framework common to all the engineering masters. The Master in Mathematical Engineering distinguishes itself by the interdisciplinary engineering scope of the competencies and by the fact that modelling-related competencies are strengthened by the strong MSO background acquired by the students.

On successful completion of this programme, each student is able to :

1.demonstrating their mastery of a solid body of knowledge in basic engineering sciences allowing them to understand and solve problems related to their discipline

1.1 Identify and use concepts, laws, and appropriate reasoning to solve a given problem

1.2 Identify and use appropriate modelling and calculation tools to solve problems

1.3 Verify the plausibility and confirm the validity of results

2. organise and carry out a procedure in applied engineering to develop a product (and/or service) that meets a need or solves a particular problem:

2.1 Analyse the problem and formulate a corresponding specifications note
2.2 Model the problem and design one or more original technical solutions that correspond to the specifications note
2.3 Evaluate and classify the solutions in terms of all the criteria found in the specifications note: efficiency, feasibility, quality, ergonomics and environmental security
2.4 Implement and test a solution through a mock up, a prototype or a numerical model
2.5 Formulate recommendations to improve the operational character of the solution being studied

3. organise and carry out a research project in order to understand a physical phenomenon or a new problem relevant to the discipline

3.1 Document and summarize the existing body of knowledge in the area under consideration
3.2 Propose a model and/or an experimental device in order to simulate or test hypotheses relating to the phenomenon being studied
3.3 Write a cumulative report that explains the potential of the theoretical or technical innovations resulting from the research project

4. contribute as part of a team to the planning and completion of a project while taking into account its objectives, allocated resources, and constraints

4.1 Frame and explain the project's objectives (in terms of performance indicators) while taking into account its issues and constraints (resources, budget, deadlines)
4.2 Collaborate on a work schedule, deadlines and roles
4.3 Work in a multidisciplinary environment with peers holding different points of view; manage any resulting disagreement or conflicts
4.4 Make team decisions and assume the consequences of these decisions (whether they are about technical solutions or the division of labour to complete a project)

5. communicate effectively (orally or in writing) with the goal of carrying out assigned projects in the workplace.

5.1 Identify the needs of the client or the user: question, listen and understand all aspects of their request and not just the technical aspects.
5.2 Present your arguments and adapt to the language of your interlocutors: technicians, colleagues, clients, superiors
5.3 Communicate through graphics and diagrams: interpret a diagram, present project results, structure information
5.4 Read and analyse different technical documents (rules, plans, specification notes)
5.5 Draft documents that take into account contextual requirements and social conventions
5.6 Make a convincing oral presentation using modern communication techniques.

6. Demonstrate that you are able to do your job with a professional conscience and in a socially responsible manner. Show that you can evaluate the socio-technical relevance of a solution before putting it into place.

6.1 Rigorously apply the standards of your discipline (terminology, measurement units, quality standards and security)
6.2 Find solutions that go beyond strictly technical issues by considering sustainable development and the socio-economic ethics of a project
6.3 Demonstrate critical awareness of a technical solution in order to verify its robustness and minimize the risks that may occur during implementation.
6.4 Evaluate oneself and independently develop necessary skills for "lifelong learning" in the field

Programme structure

The Master's degree programme consists of:

• A core curriculum (27 credits)

• The professional focus (30 credits).

• Elective courses (in the options, modules, courses of interest, or other courses if suitably motivated) to reach a total of at least 120 credits, including at least 20 credits among options 1 (optimization), 2 (systems) and 3 (computational engineering).

The graduation (or end of studies) project is normally carried out at the end of the programme (second year). Depending on the students' programme, he/she may take the courses in the first or second year if the course prerequisites allow it. This may be particularly useful for those students who pursue a portion of their studies outside of UCL as part of an exchange programme.

If during the student's previous studies, he or she has already taken a course that is part of the programme (either required or elective) or they have participated in an academic activity that is approved by the programme commission, the student may count this activity toward their graduation requirements (but only if they respect programme rules). The student will also verify that he/she has obtained the minimum number of credits required for the approval of their diploma as well as for the approval of their major (in order to include their academic distinctions in the diploma supplement).

These types of programmes will be submitted for approval by the relevant Master's degree programme jury

MAP2M Programme

Detailed programme by subject

CORE COURSES [27.0]

O Mandatory
⊗ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
🟨 Activity with requisites
⊕ Open to international students
⊗ Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

					Year	
					1	2
O LINMA2990	Graduation project/End of studies project			[FR] [q1+q2] [] [25 Credits]		x
O LEPL2020	Professional integration work « *Les modules du cours LEPL2020 sont organisés sur les deux blocs annuels du master. Il est fortement recommandé à l'étudiant.e de les suivre dès le bloc annuel 1, mais il.elle ne pourra inscrire le cours que dans son programme de bloc annuel 2.*	Myriam Banaï Francesco Contino (coord.) Delphine Ducarme Jean-Pierre Raskin		[EN] [q1+q2] [30h+15h] [2 Credits]	x	x

PROFESSIONAL FOCUS [30.0]

○ Mandatory
⊗ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
🟨 Activity with requisites
🌐 Open to international students
🌐 Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

					1	2

○ *Content:*

					1	2
○ LINMA2171	Numerical Analysis : Approximation, Interpolation, Integration	Pierre-Antoine Absil	EN	[q1] [30h+22.5h] [5 Credits]	x	
○ LINMA2370	Modelling and analysis of dynamical systems	Jean-Charles Delvenne	EN	[q1] [30h+22.5h] [5 Credits]	x	
○ LINMA2380	Matrix computations	Raphaël Jungers	EN	[q1] [30h+22.5h] [5 Credits]	x	
○ LINMA2470	Stochastic modelling	Philippe Chevalier	EN	[q2] [30h+22.5h] [5 Credits]	x	
○ LINMA2471	Optimization models and methods II	François Glineur Geovani Nunes Grapiglia	EN	[q1] [30h+22.5h] [5 Credits]	x	
○ LINMA2710	Scientific computing	Pierre-Antoine Absil Karl Meerbergen (compensates Anthony Papavasiliou)	EN	[q2] [30h+22.5h] [5 Credits]	x	

OPTIONS

The student selects at least 20 credits from the first three options

Majors for the Master's degree in mathematical engineering

> Major in Optimization and operations research engineering   *[en-prog-2021-map2m-lmap221o]*
> Major in Systems and control engineering   *[en-prog-2021-map2m-lmap222o]*
> Major in Computational engineering   *[en-prog-2021-map2m-lmap223o]*
> Major in Data science   *[en-prog-2021-map2m-lmap224o]*
> Major in Financial mathematics   *[en-prog-2021-map2m-lmap226o]*
> Major in Cryptography and information security   *[en-prog-2021-map2m-lmap234o]*
> Major in biomedical engineering   *[en-prog-2021-map2m-lmap230o]*
> Cours au choix disciplinaires   *[en-prog-2021-map2m-lmap237o]*

Options et cours au choix en connaissances socio-économiques

> Business risks and opportunities   *[en-prog-2021-map2m-lmap233o]*
> Major in small and medium sized business creation   *[en-prog-2021-map2m-lmap235o]*
> Cours au choix en connaissances socio-économiques   *[en-prog-2021-map2m-lmap200o]*

Others elective courses

> Others elective courses   *[en-prog-2021-map2m-lmap229o]*

MAJORS FOR THE MASTER'S DEGREE IN MATHEMATICAL ENGINEERING

The student shall select at least 20 credits among the first three options

MAJOR IN OPTIMIZATION AND OPERATIONS RESEARCH ENGINEERING

This option provides the students with advanced skills in optimization models and methods (continuous or discrete, deterministic or stochastic) and introduces them to various domains of application, among which operations research (quantitative methods for decision making).

⚪ Mandatory
⊗ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
🟨 Activity with requisites
⊕ Open to international students
⊛ Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 20 to 25 credits

Year
1 2

o **Content:**

⊗ LINMA2415	Quantitative Energy Economics	Gauthier de Maere d'Aertrycke (compensates Anthony Papavasiliou)	EN [q2] [30h+22.5h] [5 Credits]	x	x
⊗ LINMA2450	Combinatorial optimization	Julien Hendrickx Geovani Nunes Grapiglia	EN [q1] [30h+22.5h] [5 Credits]	x	x
⊗ LINMA2460	Optimization : Nonlinear programming	Geovani Nunes Grapiglia	EN [q2] [30h+22.5h] [5 Credits]	x	x
⊗ LINMA2491	Operational Research	Mehdi Madani (compensates Anthony Papavasiliou)	EN [q2] [30h+22.5h] [5 Credits]	x	x
⊗ LINMA2345	Game theory	Matthew Philippe (compensates Raphaël Jungers)	EN [q2] [30h+22.5h] [5 Credits]	x	x

MAJOR IN SYSTEMS AND CONTROL ENGINEERING

This option provides students with advanced skills in the modelling and analysis of dynamical systems and in the design of control laws, with applications in biological systems and ecological and epidemiological processes in particular.

◎ Mandatory
⎈ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
■ Activity with requisites
★ Open to international students
★ Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 20 to 30 credits

					Year	
					1	**2**
⎈ LGBIO2060	Modelling of biological systems	Philippe Lefèvre	EN	[q1] [30h+30h] [5 Credits]	x	x
⎈ LINMA2300	Analysis and control of distributed parameter systems		EN	[q1] [30h+30h] [5 Credits] △	x	x
⎈ LINMA2361	Nonlinear dynamical systems	Pierre-Antoine Absil	EN	[q1] [30h+22.5h] [5 Credits]	x	x
⎈ LINMA2671	Advanced control and applications	Julien Hendrickx	EN	[q1] [30h+30h] [5 Credits]	x	x
⎈ LINMA2875	System Identification	John Lataire	EN	[q2] [30h+30h] [5 Credits]	x	x
⎈ LINMA2510	Mathematical ecology	Eric Deleersnijder Emmanuel Hanert Thierry Van Effelterre	EN	[q2] [30h+22.5h] [5 Credits] ⊕	x	x

o **Content:**

MAJOR IN COMPUTATIONAL ENGINEERING

This option provides students with advanced skills in modelling techniques and numerical simulation methods to analyse and solve various engineering problems.

- **O** Mandatory
- **⊗** Optional
- △ Not offered in 2021-2022
- ⊘ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- 🟨 Activity with requisites
- ⊕ Open to international students
- ⊛ Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 20 to 25 credits

					Year
					1	2

o Content:

					Year 1	Year 2
⊗ LGCIV2041	Numerical analysis of civil engineering structures	Luca Sgambi	EN [q2] [20h+15h] [5 Credits]	x	x
⊗ LINMA2111	Discrete mathematics II : Algorithms and complexity	Jean-Charles Delvenne Jean-Charles Delvenne (compensates Vincent Blondel)	EN [q1] [30h+22.5h] [5 Credits]	x	x
⊗ LINMA2720	Mathematical modelling of physical systems	Roland Keunings	EN [q2] [30h+22.5h] [5 Credits]	x	x
⊗ LMECA2170	Numerical Geometry	Vincent Legat Jean-François Remacle	EN [q1] [30h+30h] [5 Credits]	x	x
⊗ LMECA2300	Advanced Numerical Methods	Philippe Chatelain Christophe Craeye (coord.) Vincent Legat Jean-François Remacle	EN [q2] [30h+30h] [5 Credits]	x	x

MAJOR IN DATA SCIENCE

This option proposes a selection of courses of statistics, data mining, algorithmics and data architectures that introduce the students to several facets of Data Science.

- O Mandatory
- ⊗ Optional
- △ Not offered in 2021-2022
- ⊘ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- 🟨 Activity with requisites
- ⊕ Open to international students
- ⊛ Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 20 to 30 credits

Year
1 2

O *Content:*

O Compulsory courses in data science

O LINMA2472	Algorithms in data science	Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	EN [q1] [30h+22.5h] [5 Credits]	x	x

⊗ Elective courses in data science

⊗ LELEC2870	Machine learning : regression, deep networks and dimensionality reduction	John Lee Michel Verleysen	EN [q1] [30h+30h] [5 Credits]	x	x
⊗ LINFO2145	Cloud Computing	Etienne Riviere	EN [q1] [30h+15h] [5 Credits]	x	x
⊗ LINFO2172	Databases	Siegfried Nijssen	EN [q2] [30h+30h] [6 Credits]	x	x
⊗ LINFO2262	Machine Learning :classification and evaluation	Pierre Dupont	EN [q2] [30h+30h] [5 Credits]	x	x
⊗ LINFO2364	Mining Patterns in Data	Siegfried Nijssen	EN [q2] [30h+15h] [5 Credits]	x	x
⊗ LINFO2275	Data mining & decision making	Marco Saerens	EN [q2] [30h+15h] [5 Credits]	x	x
⊗ LSTAT2020	Statistical softwares and basic statistical programming	Céline Bugli	FR [q1] [15h+15h] [4 Credits]	x	x
⊗ LDATS2360	Seminar in data management: basic	Céline Bugli	FR [q1] [15h+10h] [5 Credits]	x	x
⊗ LDATA2010	Information visualisation	John Lee	EN [q1] [30h+30h] [5 Credits]	x	x

MAJOR IN FINANCIAL MATHEMATICS

The objective of this major is to introduce students to quantitative financial techniques and actuarial sciences by presenting deterministic and stochastic mathematical methods used in financial markets. The main subjects covered deal with the evaluation of financial assets and insurance products in continuous-time. Special attention is paid to numerical simulation methods. In addition, for students who will to enroll in the Master's degree programme in actuarial sciences, all the compulsory courses of the programme ACTU2M validated in this major will be valorized.

◎ Mandatory
╳ Optional
△ Not offered in 2021-2022
∅ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
■ Activity with requisites
◉ Open to international students
◉ Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

From 15 to 20 credits

					Year	
					1	2
◎ **Content:**						
╳ LINMA2725	Financial mathematics	Pierre Devolder	[FR]	[q1] [30h+22.5h] [5 Credits]	x	x
╳ LACTU2020	Fixed income mathematics	Pierre Devolder	[FR]	[q1] [45h+15h] [7 Credits]	x	x
╳ LACTU2030	LIFE INSURANCE	Donatien Hainaut	[FR]	[q1] [45h] [7 Credits]	x	x
╳ LACTU2170	STOCHASTIC FINANCE	Donatien Hainaut	[FR]	[q2] [30h] [5 Credits]	x	x

MAJOR IN CRYPTOGRAPHY AND INFORMATION SECURITY

As with the Master's degree engineering programmes in electricity, computer sciences and applied mathematics, this major provides students with the knowledge of fundamental algorithms and mathematics in order to better understand information security as well as the design and implementation of solutions for problems related to electronic circuits and information systems.

- **O** Mandatory
- ⚌ Optional
- △ Not offered in 2021-2022
- ⊘ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- 🟨 Activity with requisites
- ⊕ Open to international students
- ⊛ Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

1 2

o *Content:*

⚌ Elective courses

In order to validate this option INFO and MAP students have to take at least 20 credits and the ELEC, DATE and DATI students have to take at least 15 credits among:

⚌ LELEC2760	Secure electronic circuits and systems	François-Xavier Standaert	[EN] [q2] [30h+30h] [5 Credits]	x	x
⚌ LINFO2144	Secured systems engineering	Axel Legay	[EN] [q2] [30h+15h] [5 Credits]	x	x
⚌ LINFO2347	Computer system security	Ramin Sadre	[EN] [q2] [30h+15h] [5 Credits]	x	x
⚌ LINGI2348	Information theory and coding	Jérôme Louveaux Benoît Macq Olivier Pereira	[EN] [q2] [30h+15h] [5 Credits]	x	x
⚌ LMAT2440	Number theory	Olivier Pereira Jean-Pierre Tignol	[FR] [q1] [30h+15h] [5 Credits]	x	x
⚌ LMAT2450	Cryptography	Olivier Pereira	[EN] [q1] [30h+15h] [5 Credits]	x	x
⚌ LELEC2770	Privacy Enhancing technology	Olivier Pereira (coord.) François-Xavier Standaert	[EN] [q1] [30h+30h] [5 Credits]	x	x

MAJOR IN BIOMEDICAL ENGINEERING

The goal of this major is to train engineers who are capable of meeting the future technological challenges in the scientific and technical areas of biomedical engineering. This major provides students with basic knowledge of several areas of biomedical engineering such as bioinstrumentation, biomaterials, medical imaging, mathematical modelling, artificial organs and rehabilitation, and biomechanics. Through the collaboration between the Louvain School of Engineering and the School of Medicine, students benefit from an interdisciplinary programme where the art of engineering is applied to the complex and varied biomedical field.

⚙ Mandatory
⌗ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
🟨 Activity with requisites
⊕ Open to international students
⊕ Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

<div align="center">Click on the course title to see detailed informations (objectives, methods, evaluation...)</div>

From 15 to 30 credits

Year
1 2

⚙ *Content:*

⚙ Elective courses in biomedical engineering

Students enrolled in this major must select a minimum of 15 credits among the following elective courses except for those students enrolled in the Master's degree programme in computer science and engineering who are required to take 20 credits.

⌗ LGBIO2010	Bioinformatics		Pierre Dupont	EN	[q1] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2020	Bioinstrumentation		André Mouraux Michel Verleysen	EN	[q1] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2030	Biomaterials		Sophie Demoustier Christine Dupont	EN	[q1] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2040	Biomechanics		Greet Kerckhofs	EN	[q2] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2050	Medical Imaging		Greet Kerckhofs John Lee Benoît Macq Frank Peeters	EN	[q1] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2060	Modelling of biological systems		Philippe Lefèvre	EN	[q1] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2072	Mathematical models in neuroscience		Frédéric Crevecoeur	EN	[q1] [30h+30h] [5 Credits]	x	x

○ Mandatory
⚌ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
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Click on the course title to see detailed informations (objectives, methods, evaluation...)

				Year	
				1	**2**

○ *Content:*

⚌ Complement to the major in financial mathematics

In addition, students who would like to enrol subsequently in the Master in Actuarial Sciences will be able to add value to all the compulsory courses in the ACTU2M programme that they will have validated in the financial mathematics option.

				1	2
⚌ LACTU2010	NON LIFE INSURANCE	Michel Denuit	[FR] [q1] [45h] [7 Credits]	x	x
⚌ LACTU2040	PENSION FUNDING	Pierre Devolder	[FR] [q2] [30h+15h] [5 Credits]	x	x
⚌ LACTU2210	Quantitative Risk Management	Christian Hafner	[EN] [q2] [30h] [5 Credits]	x	x

⚌ Module in Biostatistics and Technometry

Students taking 30 credits in this module will be able to complete the Master in Statistics, Biostatistics orientation [120 credits] in one year. More information via the Secretariat of the School of Statistics, Biostatistics and Actuarial Sciences (LSBA): info-stat-actu@uclouvain.be

				1	2
⚌ LBIRA2110B	Applied Econometrics	Xavier Draye Frédéric Gaspart Bernadette Govaerts	[FR] [q1] [27.5h+7.5h] [3 Credits]	x	x
⚌ LSTAT2040	Statistical analysis	Anouar El Ghouch	[FR] [q2] [30h+15h] [5 Credits]	x	x
⚌ LSTAT2130	Introduction to Bayesian statistics	Philippe Lambert	[EN] [q2] [15h+5h] [4 Credits]	x	x
⚌ LSTAT2220	Analysis of survival and duration data	Ingrid Van Keilegom	[FR] [q1] [15h+5h] [4 Credits]	x	x
⚌ LSTAT2310	Statistical quality control.	Bernard Francq	[FR] [q1] [15h+5h] [4 Credits]	x	x
⚌ LSTAT2330	Statistics in clinical trials.	Catherine Legrand Annie Robert	[FR] [q2] [22.5h+7.5h] [5 Credits]	x	x
⚌ LDATS2360	Seminar in data management: basic	Céline Bugli	[FR] [q1] [15h+10h] [5 Credits]	x	x
⚌ LDATS2370	Data Management II : SAS ADVANCED PROGRAMMING	Christophe Kabacinski	[FR] [q2] [15h+10h] [5 Credits]	x	x

⚌ Module in General Statistics and Mathematics

Students taking 30 credits in this module will be able to complete the Master in Statistics [120 credits] in one year. More information via the Secretariat of the School of Statistics, Biostatistics and Actuarial Sciences (LSBA): info-stat-actu@uclouvain.be

				1	2
⚌ LELEC2870	Machine learning : regression, deep networks and dimensionality reduction	John Lee Michel Verleysen	[EN] [q1] [30h+30h] [5 Credits]	x	x
⚌ LINFO2262	Machine Learning :classification and evaluation	Pierre Dupont	[EN] [q2] [30h+30h] [5 Credits]	x	x
⚌ LINMA2472	Algorithms in data science	Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	[EN] [q1] [30h+22.5h] [5 Credits]	x	x
⚌ LINFO2275	Data mining & decision making	Marco Saerens	[EN] [q2] [30h+15h] [5 Credits]	x	x
⚌ LSTAT2020	Statistical softwares and basic statistical programming	Céline Bugli	[FR] [q1] [15h+15h] [4 Credits]	x	x
⚌ LSTAT2040	Statistical analysis	Anouar El Ghouch	[FR] [q2] [30h+15h] [5 Credits]	x	x
⚌ LSTAT2110	Data Analysis	Johan Segers	[FR] [q1] [30h+7.5h] [5 Credits]	x	x
⚌ LSTAT2120	Linear models	Christian Hafner	[EN] [q1] [30h+7.5h] [5 Credits]	x	x
⚌ LSTAT2130	Introduction to Bayesian statistics	Philippe Lambert	[EN] [q2] [15h+5h] [4 Credits]	x	x
⚌ LSTAT2150	Nonparametric statistics: smoothings methods	Rainer von Sachs	[EN] [q1] [15h+5h] [4 Credits]	x	x
⚌ LSTAT2170	Times series	Rainer von Sachs	[EN] [q2] [22.5h+7.5h] [5 Credits]	x	x
⚌ LSTAT2180	Resampling methods with applications	Eugen Pircalabelu	[EN] [q1] [15h+5h] [4 Credits]	x	x

				Year 1	2
⌗ LDATS2360	Seminar in data management: basic	Céline Bugli	[q1] [15h+10h] [5 Credits]	x	x

⌗ Courses of interest

				Year 1	2
⌗ LECON2021	Economic Fluctuations and Foundations of Macro Policy	Grégory de Walque (compensates David De La Croix)	[q2] [30h] [5 Credits]	x	x
⌗ LECON2031	Applied Econometrics : Time Series	Francesca Monti	[q1] [30h+12h] [5 Credits]	x	x
⌗ LECON2033	Applied econometrics: Microeconometrics	Bertrand Verheyden (compensates Muriel Dejemeppe)	[q1] [30h+12h] [5 Credits]	x	x
⌗ LELEC1360	TELECOMMUNICATIONS	Luc Vandendorpe	[q2] [30h+30h] [5 Credits]	x	x
⌗ LELEC2880	Estimation and communication theory	Jérôme Louveaux (coord.) Luc Vandendorpe	[q2] [30h+30h] [5 Credits]	x	x
⌗ LELEC2885	Image processing and computer vision	Christophe De Vleeschouwer (coord.) Laurent Jacques	[q1] [30h+30h] [5 Credits]	x	x
⌗ LELEC2900	Signal processing	Laurent Jacques Luc Vandendorpe	[q2] [30h+30h] [5 Credits]	x	x
⌗ LINGI2348	Information theory and coding	Jérôme Louveaux Benoît Macq Olivier Pereira	[q2] [30h+15h] [5 Credits]	x	x
⌗ LMAT1371	Probability Theory	Johan Segers	[q2] [30h+22.5h] [5 Credits]	x	x
⌗ LMAT2130	Partial differential equations	Heiner Olbermann	[q1] [30h+15h] [5 Credits]	x	x
⌗ LMAT2410	Partial differential equation : heat equation, brownian moves and numerical aspects		[q2] [30h+15h] [5 Credits] △	x	x
⌗ LMAT2460	Finite mathematics and combinatorial structures	Jean-Charles Delvenne Raphaël Jungers	[q1] [30h] [5 Credits]	x	x
⌗ LMECA1100	Deformable solid mechanics.	Issam Doghri	[q1] [30h+30h] [5 Credits]	x	x
⌗ LMECA1321	Fluid mechanics and transfer phenomena.	Vincent Legat Grégoire Winckelmans	[q1] [30h+30h] [5 Credits]	x	x
⌗ LMECA2660	Numerical methods in fluid mechanics	Grégoire Winckelmans	[q2] [30h+30h] [5 Credits]	x	x
⌗ LMECA2771	Thermodynamics of irreversible phenomena.	Miltiadis Papalexandris	[q2] [30h+30h] [5 Credits]	x	x
⌗ LELME2732	Robot modelling and control	Renaud Ronsse	[q2] [30h+30h] [5 Credits]	x	x
⌗ LSTAT2100	Discrete data analysis.	Anouar El Ghouch	[q2] [30h+7.5h] [5 Credits]	x	x
⌗ LDATS2350	Data Mining	Robin Van Oirbeek	[q2] [15h+15h] [5 Credits]	x	x
⌗ LGCIV2056	Marine Hydrodynamics	Eric Deleersnijder	[q1] [30h+15h] [5 Credits]	x	x
⌗ LLSMS2034	Supply Chain Planning (in English)	Marc Foret Mathieu Van Vyve	[q2] [30h] [5 Credits]	x	x
⌗ LMAPR2018	Rheology	Evelyne Van Ruymbeke	[q2] [30h+30h] [5 Credits]	x	x
⌗ LGBIO2072	Mathematical models in neuroscience	Frédéric Crevecoeur	[q1] [30h+30h] [5 Credits]	x	x

OPTIONS ET COURS AU CHOIX EN CONNAISSANCES SOCIO-ÉCONOMIQUES [3.0]

BUSINESS RISKS AND OPPORTUNITIES

⭘ Mandatory
⚸ Optional
△ Not offered in 2021-2022
⊘ Not offered in 2021-2022 but offered the following year
⊕ Offered in 2021-2022 but not the following year
△ ⊕ Not offered in 2021-2022 or the following year
🟨 Activity with requisites
🌐 Open to international students
🌐 Not open to international students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

					Year	
					1	2

⭘ *Content:*

⭘ LEPL2211	Business issues introduction	Benoît Gailly	EN [q2] [30h] [3 Credits]	x	x
⭘ LEPL2212	Financial performance indicators	André Nsabimana	EN [q2] [30h+5h] [4 Credits]	x	x
⭘ LEPL2214	Law, Regulation and Legal Context	Vincent Cassiers Werner Derycke (coord.) Bénédicte Inghels	FR [q1] [30h+5h] [4 Credits]	x	x

⭘ One course between
From 3 to 5 credits

⚸ LEPL2210	Ethics and ICT	Axel Gosseries Olivier Pereira	EN [q2] [30h] [3 Credits]	x	x
⚸ LLSMS2280	Business Ethics and Compliance Management	Carlos Desmet	EN [q1] [30h] [5 Credits]	x	x

⭘ Cours de fondements en marketing
Les cours MLSMM2136 Tendances en Digital Marketing Ou MLSMM2134 E-comportement du consommateur sont optionnels suite à la réussite du cours MGEST1220 lors du premier bloc annuel.

⭘ MGEST1220	Marketing	Nadia Sinigaglia	FR [q1] [45h+20h] [5 Credits]	x	
⚸ MLSMM2136	Trends in Digital Marketing	Ingrid Poncin	FR [q2] [30h] [5 Credits]		x
⚸ MLSMM2134	e-Consumer Behavior	Karine Charry	FR [q2] [30h] [5 Credits]		x

⚸ Alternative to the major in business risks and opportunities for computer science students
Computer science students who have already taken courses in this field while pursuing their Bachelor's degree may choose between 16-20 credits from the courses offered in the management minor for computer sciences.

MAJOR IN SMALL AND MEDIUM SIZED BUSINESS CREATION

- **O** Mandatory
- **⌘** Optional
- △ Not offered in 2021-2022
- ⊘ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- 🟨 Activity with requisites
- 🌐 Open to international students
- 🌐 Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

					Year	
					1	2

o *Content:*

O Required courses for the major in small and medium sized businesses

					1	2
O LCPME2001	Entrepreneurship Theory (in French)	Frank Janssen	[FR] [q1] [30h+20h] [5 Credits]		x	
O LCPME2002	Managerial, legal and economic aspects of the creation of a company (in French)	Yves De Cordt Marine Falize	[FR] [q1] [30h+15h] [5 Credits]		x	
O LCPME2003	Business plan of the creation of a company (in French) *Les séances du cours LCPME2003 sont réparties sur les deux blocs annuels du master. L'étudiant doit les suivre dès le bloc annuel 1, mais ne pourra inscrire le cours que dans son programme de bloc annuel 2.*	Frank Janssen	[FR] [q2] [30h+15h] [5 Credits]			x
O LCPME2004	Advanced seminar on Entrepreneurship (in French)	Frank Janssen	[FR] [q2] [30h+15h] [5 Credits]		x	

⌘ Prerequisite CPME courses
Student who have not taken management courses during their previous studies must enroll in LCPME2000.

					1	2
O LCPME2000	Venture creation financement and management I	Yves De Rongé Olivier Giacomin	[FR] [q1] [30h+15h] [5 Credits]		x	

[3.0]

- ⊙ Mandatory
- ✕ Optional
- △ Not offered in 2021-2022
- ⊘ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- 🟨 Activity with requisites
- 🌐 Open to international students
- 🌐 Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year

1 2

⊙ *Content:*

Code	Title	Teacher(s)	Info	1	2
✕ LEPL2211	Business issues introduction	Benoît Gailly	[EN] [q2] [30h] [3 Credits]	x	x
✕ LFSA2995	Company Internship	Dimitri Lederer, Jean-Pierre Raskin	[FR] [q1+q2] [30h] [10 Credits]	x	x
✕ LFSA2212	Innovation classes	Benoît Macq, Jean-Pierre Raskin, Benoît Raucent	[EN] [q1] [30h+15h] [5 Credits]	x	x
✕ LINMA2360	Project in mathematical engineering	Pierre-Antoine Absil, Laurent Jacques (compensates Anthony Papavasiliou)	[EN] [q1+q2] [30h+22.5h] [5 Credits]	x	x
✕ LINMA2120	Applied mathematics seminar	Pierre-Antoine Absil, Frédéric Crevecoeur (coord.), Jean-Charles Delvenne, François Glineur, Julien Hendrickx, Laurent Jacques, Raphaël Jungers, Geovani Nunes Grapiglia, Anthony Papavasiliou	[EN] [q1+q2] [30h] [5 Credits]	x	x
✕ LINMA2415	Quantitative Energy Economics	Gauthier de Maere d'Aertrycke (compensates Anthony Papavasiliou)	[EN] [q2] [30h+22.5h] [5 Credits]	x	x
✕ LMECA2645	Major technological hazards in industrial activity.	Denis Dochain	[FR] [q2] [30h] [3 Credits]	x	x
✕ LACTU2170	STOCHASTIC FINANCE	Donatien Hainaut	[FR] [q2] [30h] [5 Credits]	x	x
✕ LACTU2030	LIFE INSURANCE	Donatien Hainaut	[FR] [q1] [45h] [7 Credits]	x	x
✕ LLSMS2034	Supply Chain Planning (in English)	Marc Foret, Mathieu Van Vyve	[EN] [q2] [30h] [5 Credits]	x	x
✕ LGBIO2220	Industrial project in biomedical engineering	Sophie Demoustier, Philippe Lefèvre, Renaud Ronsse	[EN] [q1+q2] [30h+30h] [5 Credits]	x	x
✕ LELEC2590	Seminars in electronics and communications	Denis Flandre, Isabelle Huynen, Jérôme Louveaux	[EN] [q2] [30h] [3 Credits]	x	x
✕ LMECA2711	Quality management and control.	Nicolas Bronchart	[EN] [q2] [30h+30h] [5 Credits]	x	x
✕ LSTAT2380	Statistical consulting	Christian Ritter	[EN] [q1+q2] [30h] [5 Credits]	x	x
✕ LSTAT2390	Applied statistics workshops	Catherine Legrand, Christian Ritter	[EN] [q1+q2] [15h] [3 Credits]	x	x
✕ LINFO2399	Industrial seminar in computer science	Yves Deville, Bernard Geubelle	[EN] [q2] [30h] [3 Credits]	x	x
✕ LINFO2402	Open Source Project		[EN] [q1+q2] [0h] [5 Credits]	x	x

OTHERS ELECTIVE COURSES

OTHERS ELECTIVE COURSES

- ⬡ Mandatory
- ⌗ Optional
- △ Not offered in 2021-2022
- ⊘ Not offered in 2021-2022 but offered the following year
- ⊕ Offered in 2021-2022 but not the following year
- △ ⊕ Not offered in 2021-2022 or the following year
- 🟨 Activity with requisites
- ⊕ Open to international students
- ⊛ Not open to international students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

				Year	
				1	2

⬡ *Content:*

Les étudiant·e·s peuvent également inscrire à leur programme tout cours faisant partie des programmes d'autres masters de l'EPL moyennant l'approbation du jury restreint.

⬡ Languages

Students may select from any language course offered at the ILV. Special attention is placed on the following seminars in professional development:

				1	2
⌗ LALLE2500	Professional development seminar German	Caroline Klein (coord.)	DE [q1+q2] [30h] [3 Credits]	x	x
⌗ LALLE2501	Professional development seminar-German	Caroline Klein (coord.)	DE [q1+q2] [30h] [5 Credits]	x	x
⌗ LESPA2600	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	ES [q1] [30h] [3 Credits]	x	x
⌗ LESPA2601	Vocational Induction Seminar - Spanish (B2.2/C1)	Paula Lorente Fernandez (coord.)	ES [q1] [30h] [5 Credits]	x	x
⌗ LNEER2500	Seminar of Entry to professional life in Dutch - Intermediate level	Isabelle Demeulenaere (coord.) Marie-Laurence Lambrecht	NL [q1 or q2] [30h] [3 Credits]	x	x
⌗ LNEER2600	Seminar of entry to professional life in Dutch - Upper-Intermediate level	Isabelle Demeulenaere (coord.) Dag Houdmont	NL [q1 or q2] [30h] [3 Credits]	x	x

⌗ Group dynamics

				1	2
⌗ LEPL2351	Group dynamics - Q1	Claude Oestges (coord.) Benoît Raucent Vincent Wertz (compensates Thomas Pardoen)	FR [q1] [15h+30h] [3 Credits]	x	x
⌗ LEPL2352	Group dynamics - Q2	Claude Oestges (coord.) Benoît Raucent Vincent Wertz (compensates Thomas Pardoen)	FR [q2] [15h+30h] [3 Credits]	x	x

⌗ Autres UEs hors-EPL

L'étudiant·e peut choisir maximum 8 ects de cours hors EPL considérées comme non-disciplinaires par la commission de diplôme

Course prerequisites

There are no prerequisites between course units (CUs) for this programme, i.e. the programme activity (course unit, CU) whose learning outcomes are to be certified and the corresponding credits awarded by the jury before registration in another CU.

The programme's courses and learning outcomes

For each UCLouvain training programme, a reference framework of learning outcomes specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

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MAP2M - Information

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Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the hiher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

SUMMARY

Specific access requirements

This programme is taught in English with no prerequisite in French. The student is supposed to have at least a B2 level in the European Framework of Reference. A certificate is required for the holders of a non-Belgian degree, see selection criteria of the access on the file.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Engineering		Direct access	Students who have neither major nor minor in the field of their civil engineering Master's degree may have an adapted master programme.
Others Bachelors of the French speaking Community of Belgium			
Bachelor in Engineering		Direct access	Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil engineering master degree may have an adapted master programme.
Bachelors of the Dutch speaking Community of Belgium			
Bachelor in engineering		Access with additional training	Students who have no specialisation in the field of their civil enginering master degree may have an adapted master programme with up to 60 additional credits.
Foreign Bachelors			
Bachelor in engineering	Bachelors degree of Cluster Institution	Direct access	Students with a Bachelor's degree in engineering sciences who have not taken the equivalent of a minor in the field of their civil enginering master degree may have an adapted master programme.

Bachelor in Engineering	For others institutions	Access based on application	See personalized access

Non university Bachelors

> Find out more about links to the university

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			

Masters			
Master in Engineering		Direct access	

Holders of a non-University 2nd cycle degree

Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about Validation of priori experience.

Access based on application

Admission on the basis of a submitted dossier may be granted either directly or on the condition of completing additional coursework of a maximum of 60 ECTS credits, or refused.

The first step of the admission procedure requires to submit an application online: https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html

Selection criteria are summarized here (epl-admission@uclouvain.be).

Admission and Enrolment Procedures for general registration

Unconditional admission to a Master's degree in Applied mathematics engineering is afforded to bachelors in engineering, with a major or minor in applied mathematics.

Admission to this Master's via a customized curriculum is also afforded to bachelors of science (in particular mathematics and physics), bachelors in bioengineering, as well as bachelors in engineering with no major nor minor in applied mathematics, under the following conditions.

A student with no major nor minor in applied mathematics, nor a curriculum deemed equivalent, shall submit a résumé to the Applied mathematics diploma committee, who will propose a customized Master's curriculum (drawing on the volume of elective courses, without any additional credits). The procedure mentioned in note 1 of the conditions of admission applies.

A student who is not a bachelor in engineering, shall submit a résumé to the Faculty of Applied sciences. If this application is accepted, the Faculty will propose a customized Master's curriculum (15 additional credits and possibility part of the volume of elective courses, or else an additional year of studies). The procedure mentioned in note 2 of the conditions of admission applies.

In some cases, a student might have to follow both above-mentioned procedures (when not a bachelor in engineering and with no minor in applied mathematics). The procedures mentioned in notes 1 and 2 of the conditions of admission then apply.

Teaching method

Interdisciplinary methods

The Master's degree programme in engineering and Applied Mathematics is by its very nature interdisciplinary because it consists of a wide range of major courses some of which are research-based (Cryptography and information security, biomedical engeering) and offered by other academic departments (financial mathematics); this naturally reinforces the interdisciplinary nature of the programme.

The programme aims to give students knowledge and skills in mathematical modelling that is used in all engineering disciplines as well as in other areas such as economics, environmental sciences or life sciences.

A final interdisciplinary aspect to the programme is the graduation project, which is frequently completed outside the department of mathematical engineering. The graduation project makes up half of the workload for the second year of the programme. It offers students the opportunity to work in-depth on a given subject and due to its size and context, introduces students to the engineering or research professions. This project may focus on a topic relating to an applied mathematics research cluster (or possibly in collaboration with an external industrial partner); or it may focus on subjects related to applied mathematics in other research clusters at the Louvain School of Engineering as well as the faculties of science, economics, management or actuarial sciences.

Diverse learning situations

The pedagogy used in the Master's degree programme in engineering is similar to that in the Bachelor's degree programme in engineering. Students are exposed to a variety of pedagogies: lectures, individual projects and small group work, exercise and problem-solving sessions, case studies, experimental laboratories, computer simulations, educational software, internships in industry or research, individual or group work, seminars given by external scientists.

These various learning situations develop students' knowledge of their discipline in a way that is interdisciplinary and non-technical. They permit students to build their knowledge in an iterative and progressive manner all the while developing their independence, organisational and time management skills as well as their ability to communicate. Students have access to the newest information technology (materials, software, networks) during their studies.

For example, the Business Creation major has an interactive approach and promotes "problem-based learning". Throughout the programme, students must work as part of multidisciplinary teams. The project has an interdisciplinary focus and groups of three students, ideally from different faculties, may collaborate on a business creation project.

Evaluation

The evaluation methods comply with the *regulations concerning studies and exams*. ***More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".***

Evaluation methods conform to the rules used to evaluate coursework and exams. Further details about the methods specific to each academic department may be found in their respective evaluation descriptions ("Evaluating students' knowledge").

Student work is evaluated according to University rules (see the rules for evaluating coursework and exams) namely written and oral exams, laboratory exams, individual or group work, public presentations of projects and theses defences.

For more information on evaluation methods, students may consult the relevant evaluation descriptions.

To obtain a passing grade, the marks received for the teaching units are offset by their respective credits.

Mobility and/or Internationalisation outlook

Since its creation, the Louvain School of Engineering (EPL) has participated in diverse exchange programs that were put into place at the European level and beyond.

Possible trainings at the end of the programme

The Master's degree programme in engineering and Applied Mathematics satisfies the prerequisites for other Master's degree programmes that may be obtained upon completion of an additional year:

1.Master [120] en sciences actuarielles (UCLouvain)

Students who take LINMA2725, LACTU2020, LACTU2030, LACTU2070 and at least 15 credits in the Complement to the major in financial mathematics (see "Elective courses") will get direct access to the second year of the Master [120] en sciences actuarielles.

2.Master's degree [120] in general economics (UCLouvain)

Students who take 30 credits in the Module en biostatistique et technométrie will be able to complete in one year the Master [120] en statistique, orientation biostatistique.

3.Master's degree [120] in general statistics (UCLouvain)

Students who take 30 credits in the Module en statistique générale et mathématique will be able to complete in one year the Master [120] en statistique, orientation générale.

Furthermore, most of the UCLouvain Master's degree programmes (generally 60) are open to UCLouvain Master's degree diploma holders. For example:

-Different Master's degree programmes (60) in management (automatic admission based on written application): see this list

-The Master's degree (60) in information and communication at Louvain-la-Neuve or the Master's degree (60) in information and communication at Mons

Doctoral degree programmes

Enrolment in a doctoral degree programme in engineering sciences is open to students holding a Master's degree in civil engineering. The Institute ICTEAM is associated with several specialised doctoral schools in particular the school "Systems, Optimization, Control and Networks" (for details see https://uclouvain.be/sites/socn/).

Contacts

Curriculum Management

Entity

Structure entity	SST/EPL/MAP
Denomination	(MAP)
Faculty	Louvain School of Engineering (EPL)
Sector	Sciences and Technology (SST)
Acronym	MAP
Postal address	Avenue Georges Lemaître 4-6 - bte L4.05.01
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Academic supervisor: Julien Hendrickx

Jury

- Président du Jury: Jean-Didier Legat
- Secrétaire du Jury: Julien Hendrickx

Useful Contact(s)

- Secrétariat: Pascale Premereur