

## Table of contents

Introduction .....	2
Teaching profile .....	3
- Learning outcomes .....	3
- Detailed programme .....	4
- Programme by subject .....	4
- Course prerequisites .....	4
- The programme's courses and learning outcomes .....	4
Information .....	5
- Liste des bacheliers proposant cette mineure .....	5
- Admission .....	5
- Evaluation .....	5
- Possible trainings at the end of the programme .....	5
- Contacts .....	5

## Introduction

### Introduction

---

## Teaching profile

### Learning outcomes

---

The primary objective of the "polytechnic" minors organized by the Faculté des Sciences Appliquées is to allow students taking a baccalaureate in engineering science, if they so wish, to acquire, through a polytechnic major/minor, basic training in two specialist areas of engineering science, and thus to broaden their technical range of skills, or prepare for a master's in engineering science in a domain which spans the various basic courses offered at baccalaureate level.

The disciplinary objectives of the minor in applied mathematics are to allow the student to acquire training in the basic concepts of the discipline, and, more specifically, to:

- Acquire basic skills in and knowledge of the fundamental disciplines in applied mathematics (optimization and operational research, algorithm and discrete mathematics, differential equations and dynamic systems, numerical analysis, statistics and probability)
- Gain an introduction into how mathematical models for engineering are designed, analyzed implemented in industry and organizations as well as drawing up effective strategies to improve the way such models work

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

- Acquérir les connaissances et les compétences de base dans les disciplines fondamentales des mathématiques appliquées (optimisation et recherche opérationnelle, algorithmique et mathématiques discrètes, équations différentielles et systèmes dynamiques, analyse numérique, statistiques et probabilités).
- S'initier à la conception, l'analyse et la mise en œuvre de modèles mathématiques pour l'ingénierie dans le monde industriel ou organisationnel et pour l'élaboration de stratégies efficace d'optimisation de leur performance.

## Detailed programme

### PROGRAMME BY SUBJECT

- Mandatory  
 △ Courses not taught during 2017-2018  
 ⊕ Periodic courses taught during 2017-2018
- ✘ Optional  
 ⊖ Periodic courses not taught during 2017-2018  
 ■ Activity with requisites

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

Year

2 3

#### ○ Cours obligatoires de la mineure en mathématiques appliquées. (30 credits)

Les étudiants ayant le cours LMECA1120 dans leur majeure MECA le remplacent par LMAT1223. Les étudiants ayant le cours LINMA1510 dans leur majeure (ELEC, GBIO, MECA) le remplacent par LINMA1315. Les étudiants suivant la majeure GC prennent le cours LMECA1120 au sein de leur majeure lors du le bloc annuel 2, et complètent ensuite leur programme de mineure en prenant LINMA1315 lors du bloc annuel 3.

○ LINMA1170	<a href="#">Numerical analysis</a>	François Henrotte (compensates Jean-François Remacle) Jean-François Remacle	30h +22.5h	5 Credits	1q		x
○ LINMA1691	<a href="#">Discrete mathematics - Graph theory and algorithms</a>	Vincent Blondel Jean-Charles Delvenne	30h +22.5h	5 Credits	1q		x
○ LINMA1702	<a href="#">Optimization models and methods I</a>	François Glineur	30h +22.5h	5 Credits	2q	x	
○ LINMA1510	<a href="#">Linear Control</a>	Denis Dochain	30h+30h	5 Credits	2q		x
○ LINMA1731	<a href="#">Stochastic processes : Estimation and prediction</a>	Pierre-Antoine Absil Luc Vandendorpe (coord.)	30h+30h	5 Credits	2q		x
○ LMECA1120	<a href="#">Introduction to finite element methods.</a>	Vincent Legat	30h+30h	5 Credits	2q	x	

### COURSE PREREQUISITES

A document entitled (nb: not available for this programme Imap100i) specifies the activities (course units - CU) with one or more prerequisite(s) within the study programme, that is the CU whose learning outcomes must have been certified and for which the credits must have been granted by the jury before the student is authorised to sign up for that activity.

These activities are identified in the study programme: their title is followed by a yellow square.

As the prerequisites are a requirement of enrolment, there are none within a year of a course.

The prerequisites are defined for the CUs for different years and therefore influence the order in which the student can enrol in the programme's CUs.

In addition, when the panel validates a student's individual programme at the beginning of the year, it ensures the consistency of the individual programme:

- It can change a prerequisite into a corequisite within a single year (to allow studies to be continued with an adequate annual load);
- It can require the student to combine enrolment in two separate CUs it considers necessary for educational purposes.

For more information, please consult [regulation of studies and exams](#).

### THE PROGRAMME'S COURSES AND LEARNING OUTCOMES

For each UCL training programme, a [reference framework of learning outcomes](#) specifies the competences expected of every graduate on completion of the programme. You can see the contribution of each teaching unit to the programme's reference framework of learning outcomes in the document "In which teaching units are the competences and learning outcomes in the programme's reference framework developed and mastered by the student?"

## Information

### Liste des bacheliers proposant cette mineure

- > Bachelor in Engineering [ en-prog-2017-fsa1ba ]
- > Bachelor in Mathematics [ en-prog-2017-math1ba ]

## Admission

### Specific Admission Requirements

This polytechnic minor is intended chiefly for students enrolled on the baccalaureate in engineering science (civil engineer and civil engineer architect).

The minor in applied mathematics is accessible to students who are enrolled on a baccalaureate in mathematical science, physical science or IT science.

All of the minor courses are accessible provided the student undertakes basic training in mathematics, the content of which is equivalent to that of mathematics courses over the three first quadrimesters of the baccalaureate civil engineer. For the course INMA1731, basic training in probability and statistics is also required

## Evaluation

**The evaluation methods comply with the regulations concerning studies and exams (<https://uclouvain.be/fr/decouvrir/rgee.html>). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".**

## Possible trainings at the end of the programme

Majors-minors leading directly to a master's course(s) :

For students who have performed well and obtained a bachelor's qualification in engineering science - civil engineering, the polytechnic minors guarantee them, as part of a program which includes one of these minors, unconditional access, without additional training, to the civil engineering master's which corresponds to this minor.

- For the minor in applied chemistry and physics: the civil engineering master's in chemistry and material science and the civil engineering master's physicist
- For the minor in construction : the civil engineering master's in construction
- For the minor in electricity: the civil engineering master's electrician
- For the minor in IT: the civil engineering master's in IT
- For the minor in mechanics: the civil engineering master's mechanic
- For the minor in applied mathematics: the civil engineering master's in applied mathematics
- For a program which combines the major in electricity/minor in mechanics, or major in mechanics/minor in electricity: the civil engineering master's electromechanic.

## Contacts

**Attention, you are currently reading an archived page: below contact informations were for program study 2017-2018 only. To get current contact informations please got to [current program study site](#).**

## Curriculum Management

Entity	
Structure entity	SST/EPL/MAP
Denomination	(MAP) ( <a href="https://uclouvain.be/repertoires/entites/map">https://uclouvain.be/repertoires/entites/map</a> )
Faculty	Louvain School of Engineering (EPL) ( <a href="https://uclouvain.be/repertoires/entites/epl">https://uclouvain.be/repertoires/entites/epl</a> )
Sector	Sciences and Technology (SST) ( <a href="https://uclouvain.be/repertoires/entites/sst">https://uclouvain.be/repertoires/entites/sst</a> )
Acronym	MAP
Postal address	Avenue Georges Lemaître 4-6 - bte L4.05.01 1348 Louvain-la-Neuve Tel: <a href="tel:+32210472597">+32 (0) 10 47 25 97</a> - Fax: <a href="tel:+32210472180">+32 (0) 10 47 21 80</a>
Academic supervisor: Pierre-Antoine Absil	
Useful Contact(s)	
	<ul style="list-style-type: none"><li>• Nathalie Ponet</li></ul>

**Attention, you are currently reading an archived page: below contact informations were for program study 2017-2018 only. To get current contact informations please got to [current program study site](#).**

