

Table of contents

Introduction	2
Teaching profile	3
- Learning outcomes	3
- Detailed programme	3
- Programme by subject	3
- Course prerequisites	4
- The programme's courses and learning outcomes	4
Information	5
- Liste des bacheliers proposant cette mineure	5
- Admission	5
- Teaching method	5
- Evaluation	5
- Possible trainings at the end of the programme	5
- Contacts	5
- Infos	6

Introduction

Teaching profile

Learning outcomes

By the end of the course the student will have strengthened the disciplinary knowledge useful in undertaking a Master in mathematics or in closely related fields.

In particular, he will be capable of :

- choosing and using the fundamental methods and tools of calculation to solve mathematical problems;
- recognise the fundamental concepts of important current mathematical theories. The student will have developed his capacity for abstract thought and his critical spirit and will in particular be able to:
 - argue within the context of the axiomatic method.
 - identify the key arguments and the structure of a proof, and also construct a proof independently.
 - evaluate the rigour of a mathematical or logical argument and identify any possible flaws in it.

Detailed programme

PROGRAMME BY SUBJECT

Courses may be spread over the second and third years of the Bachelor programme, while respecting the various prerequisites detailed in the course descriptions.

○ Mandatory

△ Courses not taught during 2015-2016

⊕ Periodic courses taught during 2015-2016

⊗ Optional

⊖ Periodic courses not taught during 2015-2016

■ Activity with requisites

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

Year

2 3

o Tronc commun

Courses LMAT1231 and LMATH1241 are compulsory. The student will choose at least one course from LMAT1221 and LMAT1222.

○ LMAT1231	Multilinear algebra and group theory	Marino Gran	30h+30h	6 Credits	2q	x	x
○ LMAT1241	Geometry II	Pierre Bieliavsky	45h+15h	6 Credits	1q	x	x
⊗ LMAT1221	Mathematical analysis 3	Augusto Ponce, Jean Van Schaftingen	45h+45h	9 Credits	1q	x	x
⊗ LMAT1222	Complex analysis	Luc Haine	30h+15h	5 Credits	2q	x	x

o Cours au choix

The student will complete the programme with courses chosen from the list shown below, in such a way as to total 30 credits.

⊗ LMAT1223	Differential equations	Jean Van Schaftingen	30h+15h	5 Credits	2q	x	x
⊗ LMAT1261	Mathematical methods of classic mechanics 2	Christian Hagendorf, Luc Haine	22.5h +30h	5 Credits	1q	x	x
⊗ LMAT1323	Topology	Yves Félix	22.5h +15h	4 Credits	1q	x	x
⊗ LMAT1321	Functional analysis and partial differential equations	Michel Willem	45h+45h	7 Credits	1q	x	x
⊗ LMAT1331	Commutative algebra	Jean-Pierre Tignol	45h	4 Credits	2q	x	x
⊗ LMAT2110	Éléments de géométrie différentielle	Luc Haine	30h+30h	5 Credits	1q	x	x
⊗ LPHY1221	Group theory	Philippe Ruelle	22.5h +15h	5 Credits	2q	x	x

COURSE PREREQUISITES

A document entitled [en-prerequis-2015-min-lmath100i.pdf](#) specifies the activities (course units - CU) with one or more pre-requisite(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?"

The document is available by clicking [this link](#) after being authenticated with UCL account.

Information

Liste des bacheliers proposant cette mineure

- > Bachelor in Physics [en-prog-2015-phys1ba]
- > Bachelor in Engineering [en-prog-2015-fsa1ba]
- > Bachelor in Economics and Management [en-prog-2015-ecge1ba]

Admission

The minor in mathematics is accessible to all Bachelor students whose programme allows it: see the summary table of the different minors.

It is especially recommended to Bachelor students whose major programme contains a solid basic training in mathematics. Particularly concerned are Bachelor students in management, in engineering science: civil engineering, in engineering science: architectural engineer, and in physics.

Teaching method

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".

Possible trainings at the end of the programme

Majors-minors which offer direct access to the master(s): Students with baccalaureates in physical science or engineering science, civil engineering elective or architectural civil engineering elective, will be admitted to the master's in mathematical science, possibly with a program adapted to suit their needs. Any student who is considering this possibility is asked to make contact as soon as possible with the conseiller aux études (course adviser) for the department of mathematics.

Contacts

Curriculum Management

Entite de la structure MATH

Acronyme	MATH
Dénomination	Ecole de mathématique
Adresse	Chemin du Cyclotron 2 bte L7.01.02 1348 Louvain-la-Neuve Tél 010 47 31 52 - Fax 010 47 25 30
Site web	https://www.uclouvain.be/math
Secteur	Secteur des sciences et technologies (SST)
Faculté	Faculté des sciences (SC)
Commission de programme	Ecole de mathématique (MATH)

Academic Supervisor : [Enrico Vitale](#)

Jury:

Usefull Contacts

Secrétaire de l'Ecole de mathématique : [Roseline Van Dyck](#)

Infos
