UCL Study programme 2024 - 2025

Minor in Mathematics

The version you're consulting is not definitive. This programme still may change. The final version will be published on 1th June.

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Introduction

MINMATH - 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.

Programme

DETAILED 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 decriptions.

O Mandatory
⊠ Optional
△ Not offered in 2024-2025
⊘ Not offered in 2024-2025 but offered the following year
⊕ Offered in 2024-2025 but not the following year
△ ⊕ Not offered in 2024-2025 or the following year
Activity with requisites
Open to incoming exchange students
Not open to incoming exchange students
[FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

30 crédits

				Year	
				2	3

O *Content:*

⊠ Module de consolidation des prérequis

Ce module est constitué de cours au choix que les étudiant.e.s peuvent ajouter à leur programme s'ils n'ont pas suivi de cours équivalents, afin d'avoir les prérequis pour les autres cours. Les étudiant.e.s concerné.e.s sont invité.e.s à suivre 2 unités d'enseignement parmi les 3 proposées.

⊠ LMAT1122	Mathematical analysis : differentiation		[FR] [q2] [45h+45h] [8 Credits]	x	x
⊠ LMAT1131	Linear Algebra	Marino Gran	[FR] [q1] [45h+45h] [8 Credits]	x	x
⊠ LMAT1141	Geometry I	Pascal Lambrechts	[FR] [q2] [45h+30h] [7 Credits]	x	x

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

O LMAT1231	Multilinear algebra and group theory	Pierre-Emmanuel Caprace	[FR] [q1] [30h+30h] [5 Credits] *> English-friendly*	x	x
O LMAT1241	Geometry II	Pierre Bieliavsky	[FR] [q2] [45h+30h] [6 Credits] *> English-friendly*	x	x
⊠ LMAT1221	Mathematical analysis : integration	Heiner Olbermann	[FR] [q1] [30h+30h] [5 Credits] *> English-friendly*	x	x
⊠ LMAT1222	Complex analysis 1		[FR] [q2] [30h+15h] [5 Credits] *> English-friendly*	x	x

				Year 2	Year 3
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	Heiner Olbermann	FR [q2] [30h+15h] [5 Credits] > *English-friendly*	x	x
LMAT1261	Lagrangian and Hamiltonian mechanics		FR [q1] [22.5h+30h] [5 Credits] > *English-friendly*	x	x
LMAT1323	Topology		FR [q1] [30h+15h] [4 Credits] > *English-friendly*	x	x
LMAT1321	Functional analysis and partial differential equations		FR [q1] [45h+45h] [7 Credits] > *English-friendly*	x	x
LMAT1331	Commutative algebra	Enrico Vitale	FR [q1] [30h+15h] [4 Credits]	x	x
LMAT1342	Geometry 3		FR [q1] [30h+30h] [5 Credits] > *English-friendly*	x	x
LPHYS2211	Group theory	Philippe Ruelle	EN [q2] [22.5h+22.5h] [5 Credits] > *French-friendly*	x	x
LMAT1236	Introduction to logic: set theory		FR [q2] [30h+15h] [5 Credits] > *English-friendly*	x	x
LMAT1237	Introduction to logic: model theory		FR [q2] [30h+15h] [5 Credits] > *English-friendly*	x	x
LMAT1271	Calculation of probability and statistical analysis	Rainer von Sachs	FR [q2] [30h+30h] [6 Credits] > *English-friendly*	x	x
LMAT1371	Probability Theory		FR [q2] [30h+22.5h] [5 Credits]	x	x
LMAT1151	Numerical analysis : tools and software of calculus	Jean Van Schaftingen	FR [q1] [30h+45h] [5 Credits] > *English-friendly*	x	x
LMAT1351	Approximation: methods et theory	Tom Claeys	EN [q1] [30h+30h] [5 Credits] > *French-friendly*	x	x

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.

MINMATH - Information

Bachelors offering this minor

> Bachelor in Physics *[en-prog-2024-phys1ba]*
> Bachelor in Engineering *[en-prog-2024-fsa1ba]*
> Bachelor in Economics and Management *[en-prog-2024-ecge1ba]*

Access Requirements

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.

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

Entity

Structure entity	SST/SC/MATH
Denomination	(MATH)
Faculty	Faculty of Science (SC)
Sector	Sciences and Technology (SST)
Acronym	MATH
Postal address	Chemin du Cyclotron 2 - bte L7.01.02 1348 Louvain-la-Neuve Tel: +32 (0) 10 47 31 52 - Fax: +32 (0) 10 47 25 30
Website	https://uclouvain.be/fr/facultes/sc/math

Academic supervisor: Jean Van Schaftingen

Useful Contact(s)

- Study advisor for mathematics: Pierre Bieliavsky
- Administrative manager for the annual program of the student registred in the Faculty of sciences: Nathalie Micha
- Secretary of the School of mathematics: Catherine De Roy