

**MATH2M1**

2014 - 2015

Master [60] in Mathematics

**At Louvain-la-Neuve - 60 credits - 1 year - Day schedule - In french**Dissertation/Graduation Project : **YES** - Internship : **NO**Activities in English: **YES** - Activities in other languages : **NO**Activities on other sites : **NO**Organized by: **Faculté des sciences (SC)**Programme code: **math2m1** - European Qualifications Framework (EQF): 7**Table of contents**

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## MATH2M1 - Introduction

### Introduction

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## MATH2M1 - Teaching profile

### Learning outcomes

The Master in Mathematics (60 credits) is clearly different from the 120 credit Master in Mathematics ; although it only takes a year of study, it is inspired by the same objectives, but aims in a more modest way to build on and refine the training in the bachelor's degree. It is designed to provide general training of a high quality in important areas of mathematics.

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

**d'approfondir les connaissances disciplinaires et les compétences transversales fondamentales dont l'acquisition a débuté en bachelier. Il aura notamment développé les connaissances et compétences disciplinaires fondamentales.**

- Choisir et utiliser les méthodes et les outils fondamentaux de calcul.
- Reconnaître les concepts fondamentaux d'importantes théories mathématiques actuelles.
- Etablir les liens principaux entre ces théories.

**de faire preuve d'abstraction, de raisonnement et d'esprit critique.**

- Dégager les aspects unificateurs de situations et expériences différentes.
- Reasonner dans le cadre de la méthode axiomatique.
- Construire et rédiger de façon autonome, claire et rigoureuse une preuve.

**de faire preuve d'autonomie.**

**Selon les cours choisis, l'étudiant aura aussi acquis la capacité d'analyser, en profondeur et sous divers points de vue, un problème mathématique ou un système complexe relevant de disciplines scientifiques autres que les mathématiques, pour en extraire les points essentiels et les mettre en relation avec les outils théoriques les mieux adaptés.**

- Rechercher des sources dans la littérature mathématique et juger de leur pertinence.
- Situer correctement un texte mathématique avancé par rapport aux connaissances acquises.

**communiquer de manière scientifique.**

- Rédiger un texte mathématique selon les conventions de la discipline.
- Structurer un exposé oral en l'adaptant au niveau d'expertise des interlocuteurs.
- Communiquer en anglais (niveau C1 pour la compréhension à la lecture, niveau B2 pour la compréhension à l'audition et l'expression orale et écrite, [CECRL](#)).

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rien à ajouter

### Programme structure

The programme comprises core subjects of 30 credits and optional subjects (30 credits).

[> Core courses](#) [ [en-prog-2014-math2m1-lmath210t.html](#) ]

[> Cours au choix](#) [ [en-prog-2014-math2m1-lmath320o.html](#) ]

## MATH2M1 Detailed programme

### Programme by subject

#### CORE COURSES [20.0]

- Mandatory  
 Courses not taught during 2014-2015  
 Periodic courses taught during 2014-2015
- Optional  
 Periodic courses not taught during 2014-2015  
 Two years course

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

<input type="radio"/> LMAT2998	<a href="#">Mémoire</a>	N.		18 Credits	
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#### **Philosophy (2 credits)**

Two credits to choose between

2 credits to choose between

<input type="circle-x"/> LSC2001	<a href="#">Introduction to contemporary philosophy</a>	<a href="#">Nathalie Frogneux</a>	30h	2 Credits	2q
<input type="circle-x"/> LSC2220	<a href="#">Philosophy of science</a>	<a href="#">Alexandre Guay</a>	30h	2 Credits	2q
<input type="circle-x"/> LFILO2003E	<a href="#">Ethics in the Sciences and technics (sem)</a>	N.		2 Credits	

## Cours au choix [40.0]

● Mandatory

△ Courses not taught during 2014-2015

⊕ Periodic courses taught during 2014-2015

⊗ Optional

⊖ Periodic courses not taught during 2014-2015

⊞ Two years course

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

⊗ LPHY2111	<a href="#">Introduction à la dynamique non linéaire</a>	Jean Bricmont	30h+15h	5 Credits	1q
⊗ LMAT2120	<a href="#">Galois theory and groups representations</a>	Pierre-Emmanuel Caprace, Jean-Pierre Tignol	45h+15h	5 Credits	2q
⊗ LMAT2130	<a href="#">Partial differential equations : Poisson and Laplace equations</a>	Augusto Ponce, Jean Van Schaftingen	30h+30h	5 Credits	1q
⊗ LMAT2140	<a href="#">Algebraic topology</a>	Pedro Dos Santos Santana Forte Vaz, Pascal Lambrechts	45h	5 Credits	2q
⊗ LMAT2150	<a href="#">Category theory</a>	Marino Gran, Enrico Vitale	45h	5 Credits	2q
⊗ LMAT2430	<a href="#">Lie theory and Riemannien geometry</a>	Pierre Bieliavsky	30h+15h	5 Credits	

## MATH2M1 - Information

### Admission

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

En plus de remplir les conditions d'accès décrites ci-dessous, les candidats devront apporter la preuve d'une maîtrise suffisante de la langue française (niveau B1 du [Cadre européen commun de référence](#)) .

- [University Bachelors](#)
- [Non university Bachelors](#)
- [Holders of a 2nd cycle University degree](#)
- [Holders of a non-University 2nd cycle degree](#)
- [Adults taking up their university training](#)
- [Personalized access](#)

#### University Bachelors

Diploma	Special Requirements	Access	Remarks
<b>UCL Bachelors</b>			
		Direct access	
<a href="#">Bachelor in Physics</a>	Si l'étudiant a suivi la Minor in Mathematics [30.0](unknown URL)	Direct access	
<a href="#">Bachelor in Engineering</a>	Si l'étudiant a suivi la Minor in Mathematics [30.0](unknown URL) ou s'il a suivi le programme de majeure en mathématiques appliquées	Direct access	
<b>Others Bachelors of the French speaking Community of Belgium</b>			
		Direct access	
Bachelier en sciences de l'ingénieur - orientation ingénieur civil		Access with additional training	
<b>Bachelors of the Dutch speaking Community of Belgium</b>			
		Direct access	
<b>Foreign Bachelors</b>			
		Direct access	

#### Non university Bachelors

Diploma	Access	Remarks

> Find out more about [links](#) to the university

#### Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			

	Direct access	
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<b>Masters</b>		
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	Direct access	
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## Holders of a non-University 2nd cycle degree

Diploma	Access	Remarks
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> Find out more about <a href="#">links</a> to the university		
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## Adults taking up their university training

> See the website [Valorisation des acquis de l'expérience](#)

It is possible to gain admission to all masters courses via the validation of professional experience procedure.

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## Personalized access

Reminder : all Masters (apart from Advanced Masters) are also accessible on file.

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## Admission and Enrolment Procedures for general registration

## Teaching method

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The courses enable students to acquire mathematical tools. They will mostly be accompanied by work which forms the main part of the assessment. Individual work, group work and work in the library will be encouraged. The "research courses" are directly linked to the most advanced research areas in the Department.

## Evaluation

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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".

Students will mainly be assessed on the basis of individual work (e.g. reading, consultation of databases and bibliographic references, writing monographs and reports, presentation of seminars, dissertation and work placement). Where necessary, students will also be assessed on how much they have learned from lectures. As far as possible, there will be continuous assessment, including regular 'open book examinations'. Certain activities will not be given a precise mark but will be officially certified. Assessment of the dissertation is in two stages : a 'progress report' at the end of the first year of the Master and the final presentation.

## Mobility and/or Internationalisation outlook

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## Possible trainings at the end of the programme

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The only university training directly accessible from the 60 credit Master is teacher training (30 credits). It is also possible, in one year, to gain the 120 credit Master in Mathematics. This gives access to doctorates and Advanced Masters. Students' attention is drawn to the fact that this progression will require the submission of two dissertations and may require up to 15 credits for additional courses.

## Contacts

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### Curriculum Managment

Entite de la structure MATH

Acronyme	<b>MATH</b>
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	<a href="https://www.uclouvain.be/math">https://www.uclouvain.be/math</a>
Secteur	Secteur des sciences et technologies (SST)
Faculté	Faculté des sciences (SC)
Commission de programme	Ecole de mathématique (MATH)

### Jury

Président : **Luc Haine**

Secrétaire : **Tom Claeys**

### Usefull Contacts

Secrétaire de l'Ecole de mathématique : **Roseline Van Dyck**



