UCLouvain

UCL Study

programme

2020 - 2021

Additionnal module in Mathematics

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APPMATH - **Introduction**

Introduction

Introduction

The aim of the in-depth minor in mathematics is to offer learning that is supplementary to the discipline of the Bachelor's major. The very wide range of courses has been devised for students of the Bachelor in Mathematics

- who wish to supplement their Bachelor course with courses that remain within the field of mathematics, and/or
- who wish to supplement their Bachelor course with courses close to mathematics but who do not wish to undertake a single-topic minor (minor in computer science, in physics, in engineering science, applied mathematics, etc.).

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APPMATH - Teaching profile

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Learning outcomes

The in-depth minor in mathematics contributes to the acquisition of the knowledge and skills appropriate to the Bachelor of Mathematics:

- disciplinary basics needed to pursue studies in mathematics or in closely related fields.
- capacity for abstract thought and critical spirit
- skills in scientific communication
- independent learning

These skills are detailed in the presentation of the programme for the Bachelor in Mathematics. Depending on the courses chosen, the student will have acquired supplementary training in closely related disciplines (physics, statistics and probability, economics, computing, applied mathematics). These courses help to develop the capacity for the analysis, in depth and from a variety of points of view, of a mathematical problem or a complex system belonging to scientific disciplines other than mathematics, in order to extract the essential features and to relate them to the most suitable theoretical tools.

Detailed programme

PROGRAMME BY SUBJECT

○ Mandatory	✕ Optional
△ Courses not taught during 2020-2021	⊘ Periodic courses not taught during 2020-2021
⊕ Periodic courses taught during 2020-2021	▧ Activity with requisites

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

Year
2 3

○ *Content:*

○ **Cours au choix (30 credits)**

From the following courses, students choose 10 credits in the second year and 20 credits in the third year, in agreement with their study adviser.

						Year 2	Year 3
✕ LMAT1235	Some notions of mathematical logic	Enrico Vitale	30h+15h	5 Credits	q2	x	
✕ LMAT1331	Commutative algebra	Marino Gran	30h+15h	4 Credits	q2	x	x
✕ LMAT2440	Number theory	Olivier Pereira Jean-Pierre Tignol	30h+15h	5 Credits	q1		x
✕ LMAT1261	Mécanique lagrangienne et hamiltonienne	Christian Hagendorf	22.5h +30h	5 Credits	q1	x	x
✕ LMAT1322	Real and harmonic analysis	Augusto Ponce	30h+30h	5 Credits	q2	x	x
✕ LMAT1323	Topology	Pedro Dos Santos Santana Forte Vaz	30h+15h	4 Credits	q1	x	x
✕ LMAT1342	Geometry 3	Luc Haine	30h+30h	5 Credits	q1	x	x
✕ LMAT1343	Algebraic curves	Luc Haine	30h+15h	5 Credits	q1		x
✕ LMAT2450	Cryptography	Olivier Pereira	30h+15h	5 Credits	q1		x
✕ LMAT2460	Finite mathematics and combinatorial structures	Jean-Charles Delvenne Raphaël Jungers	30h	5 Credits	q1		x
✕ LEPL1110	Eléments finis	Vincent Legat Jean-François Remacle	30h+30h	5 Credits	q2	x	x
✕ LINMA1170	Numerical analysis	François Henrotte (compensates Jean-François Remacle)	30h +22.5h	5 Credits	q1	x	x
✕ LINMA1691	Discrete mathematics - Graph theory and algorithms	Vincent Blondel Jean-Charles Delvenne	30h +22.5h	5 Credits	q1	x	x
✕ LINMA1702	Optimization models and methods I	François Glineur	30h +22.5h	5 Credits	q2	x	x

						Year	
						2	3
⌗ LINFO1123	Calculabilité, logique et complexité	Yves Deville	30h+30h	5 Credits	q2	x	x
⌗ LPHYS2211	Group theory	Philippe Ruelle	22.5h +22.5h	5 Credits	q2		x
⌗ LPHYS2114	Nonlinear dynamics	Christian Hagendorf	22.5h +22.5h	5 Credits	q1	x	x
⌗ LPHYS1241	Quantum Physics 1	Marco Drewes	30h+30h	5 Credits	q2	x	x
⌗ LPHYS1342	Quantum Physics 2	Christophe Ringeval	45h +22.5h	5 Credits	q1		x
⌗ LINGE1221	Econometrics	Sébastien Van Bellegem	30h+15h	5 Credits	q2		x
⌗ LECGE1222	Microeconomics	Johannes Johnen Arastou Khatibi François Maniquet	45h+15h	5 Credits	q1 or q2	x	x
⌗ LECGE1333	Game theory and information in economics	Vincent Vannetelbosch	30h+10h	5 Credits	q2	x	x
⌗ LECGE1330	Industrial organization	Paul Belleflamme	30h+15h	5 Credits	q1	x	x

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 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?"*

APPMATH - Information

Access Requirements

Specific access requirements

This minor is accessible from the second year, only to students enrolled in the Bachelor of Mathematics programme.

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

The in-depth minor in mathematics supplements the training of Bachelor of Mathematics students.

The Bachelor in Mathematics has access to the following programmes:

- master 120 in mathematics, research or teaching focus;
- master 60 in mathematics;
- master in statistics, general or biostatistics;
- master in actuarial science.

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
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