

Study programmes 2023-2024

Faculty of Sciences

Master in mathematics (60 ECTS)

Cycle view of the study programme

B1 Or Th Pr Au Cr

Notice : ONLY AVAILABLE TO STUDENTS REGISTERED BEFORE THE 2021-2022 ACADEMIC YEAR.

Compulsory course (B1 : 16Cr)

SMEM0011-1	<i>Final thesis</i> - COLLÉGIALITÉ	B1	TA	-	-	-	16
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Optional courses (B1 : 44Cr)

In agreement with the Jury, choose courses not already taken for a total of 44 credits from the two lists below: (B1 : 44Cr)

Mathematics

[...] maximum 32 credits from :

Mathematical analysis

MATH0257-2	<i>Complex analysis</i> - JeanPierre SCHNEIDERS	B1	Q1	30	30	-	6
MATH0463-1	<i>Functional analysis</i> - Céline ESSER - [20h Mon. WS] (Even years)	B1	Q1	30	10	[+]	8
MATH0512-1	<i>Functional spaces and representational families</i> - Céline ESSER, Samuel NICOLAY - [20h Mon. WS] (Even years)	B1	Q1	30	10	[+]	8
MATH0513-1	<i>Functional spaces relating to measurement theory</i> - Samuel NICOLAY - [20h Mon. WS] (Even years)	-	Q2	30	10	[+]	8
MATH0209-3	<i>Measure Theory</i> - Samuel NICOLAY - [20h Mon. WS] (Odd years)	B1	Q1	30	10	[+]	8
MATH0074-1	<i>Theory of distributions</i> - Françoise BASTIN (Odd years)	B1	Q2	25	15	-	4
MATH0220-2	<i>Complements to complex analysis</i> - JeanPierre SCHNEIDERS - [20h Mon. WS] (Odd years)	B1	Q2	30	10	[+]	8
Prerequisite :							
MATH0257-2 - Analyse complexe							
Corequisite :							
MATH0074-1 - Théorie des distributions							
MATH0082-1	<i>Research problems in analysis</i> (english language) - Françoise BASTIN, Céline ESSER, Samuel NICOLAY, JeanPierre SCHNEIDERS - [20h Mon. WS]	B1	TA	30	10	[+]	10

Discrete mathematics

MATH0075-1	<i>Discrete mathematics</i> - Emilie CHARLIER (Even years)	B1	Q1	30	20	-	8
MATH0076-1	<i>Discrete mathematics project</i> - Emilie CHARLIER, Julien LEROY, Michel RIGO (Even years)	B1	TA	-	-	-	4
Corequisite :							
MATH0083-1 - Théorie ergodique							
MATH0075-1 - Mathématiques discrètes							
MATH0083-1	<i>Ergodic theory</i> - Julien LEROY (Even years)	B1	Q1	30	20	-	8
INFO0212-2	<i>Algorithmics and computability</i> - Emilie CHARLIER (Odd years)	B1	Q1	30	20	-	8
MATH0470-1	<i>Combinatorics on words</i> (english language) - Julien LEROY (Odd years)	B1	Q1	30	20	-	8
MATH0077-1	<i>Project on combinations</i> - Emilie CHARLIER, Julien LEROY, Michel RIGO (Odd years)	B1	TA	-	-	-	4
Corequisite :							
INFO0212-2 - Algorithmique et calculabilité							
MATH0470-1 - Combinatorics on words							
MATH0078-1	<i>Research problems in discrete mathematics</i> - Emilie CHARLIER, Julien LEROY, Michel RIGO - [20h Mon. WS]	B1	TA	30	10	[+]	10
Corequisite :							
MATH0077-1 - Projet de combinatoire							
MATH0076-1 - Projet de mathématiques discrètes							

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Probability and statistics

STAT0725-2	<i>Bayesian statistics</i> - Philippe LAMBERT - [20h Mon. WS] (Even years)	B1	Q2	30	10	[+]	8
STAT0723-2	<i>Linear models</i> - Gentiane HAESBROECK - [20h Mon. WS] (Even years)	B1	Q2	30	10	[+]	8
STAT0082-1	<i>Complement to multivariate statistics</i> - Gentiane HAESBROECK - [10h Mon. WS] (Odd years) Corequisite : MATH2021-1 - High-dimensional statistics	B1	Q1	20	10	[+]	3
STAT0078-1	<i>Practice of statistical consultancy</i> - Marie ERNST - [20h Mon. WS] (Odd years) Corequisite : MATH2022-1 - Monte Carlo methods in statistics	B1	Q2	20	-	[+]	4
GEST5006-1	<i>SAS Certification applied analytics</i> (english language) - Michael SCHYNS	B1	Q2	15	25	-	4
MATH2022-1	<i>Monte Carlo methods in statistics</i> (english language) - Arnout VAN MESSEM - [40h Proj.]	B1	Q2	24	12	[+]	8
STAT0727-2	<i>Non-parametric statistics</i> - Gentiane HAESBROECK - [20h Mon. WS] (Even years)	B1	Q1	30	10	[+]	8
MATH0079-1	<i>Stochastic process</i> - Laurent LOOSVELDT - [20h Proj.] (Odd years)	B1	Q2	30	10	[+]	8
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	B1	Q1	30	5	[+]	8
MATH0084-1	<i>Research problems in probability and statistics</i> (english language) - Céline ESSER, Gentiane HAESBROECK, Laurent LOOSVELDT, Arnout VAN MESSEM - [20h Mon. WS]	B1	TA	30	10	[+]	10

Other fields

MATH0017-3	<i>Mathematical Logic and Set Theory</i> - Julien LEROY - [20h Mon. WS]	B1	Q2	30	10	[+]	8
MATH0212-2	<i>General topology</i> - Céline ESSER - [10h Mon. WS]	B1	Q2	30	20	[+]	6
MATH0465-1	<i>Algebraic Topology</i> - JeanPierre SCHNEIDERS - [20h Mon. WS] (Even years)	B1	Q2	30	10	[+]	8
MATH0464-1	<i>Differential geometry II</i> - Pierre MATHONET - [20h Mon. WS] (Even years)	B1	Q1	30	10	[+]	8
MATH0489-1	<i>Lie algebra</i> - Pierre MATHONET - [20h Mon. WS] (Odd years)	B1	Q2	30	10	[+]	8
MATH2483-1	<i>History of mathematics</i> - Kevin BALHAN, Pierre MATHONET, Naïm ZENAÏDI	B1	Q2	25	20	-	4

Other disciplines

Notice : compatibility of the timetable with the courses in the Mathematics list cannot be guaranteed.

[...] maximum 10 credits among:

Computer science

INFO2009-2	<i>Introduction to computer science</i> - Bernard BOIGELOT	B1	Q1	24	14	-	4
INFO0061-4	<i>Computers organization</i> - Bernard BOIGELOT	B1	Q2	15	15	-	3
INFO0009-2	<i>Database (general organisation)</i> - Christophe DEBRUYNE - [25h Proj.]	B1	Q2	26	26	[+]	6
INFO0902-1	<i>Data structures and algorithms</i> - Pierre GEURTS - [40h Proj.]	B1	Q2	26	20	[+]	6
INFO0027-2	<i>Programming techniques</i> (english language) - <i>Algorithmics</i> - Laurent MATHY - [40h Proj.]	B1	Q2	14	14	[+]	6

	- <i>Software patterns</i> - Laurent MATHY - [30h Proj.]			10	10	[+]	
INFO0054-1	<i>Functional programming</i> - Christophe DEBRUYNE - [20h Proj.]	B1	Q1	24	24	[+]	6
INFO0062-1	<i>Object-oriented programming</i> (english language) - Bernard BOIGELOT - [20h Proj.]	B1	Q2	25	20	[+]	5
INFO0085-1	<i>Compilers</i> (english language) - Pascal FONTAINE - [75h Proj.]	B1	Q2	25	-	[+]	6
MATH0462-1	<i>Discrete optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q2	30	20	[+]	6
INFO8006-1	<i>Introduction to artificial intelligence</i> (english language) - Gilles LOUPPE - [45h Proj.]	B1	Q1	25	20	[+]	6
MATH0461-2	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	B1	Q1	30	20	[+]	6
Astrophysics and astronomy							
ASTR0204-2	<i>Astrophysics and geophysics</i> - MarcAntoine DUPRET, Valérie VAN GROOTEL	B1	Q1	30	30	-	8
SPAT0012-1	(pas organisé en 2023-2024) <i>General relativity</i> (english language) - Guillaume MAHLER	B1	Q1	30	10	-	2
SPAT0044-1	<i>Stellar structure and evolution I</i> (english language) - MarcAntoine DUPRET	B1	Q1	35	-	-	4
SPAT0045-1	<i>Stellar structure and evolution II</i> (english language) - MarcAntoine DUPRET	B1	Q2	20	20	-	4
Finance and management							
GEST0832-4	<i>Financial Markets</i> - Georges HÜBNER	B1	Q2	40	15	-	5
FINA0053-1	<i>Investments and Portfolio Management</i> (english language) - Georges HÜBNER Corequisite : GEST0832-4 - Marchés financiers	B1	Q2	30	-	-	5
MQGE0001-6	<i>Operations Research</i> (english language) - Jérôme DE BOECK	B1	Q1	45	-	-	5
LOGI0010-1	<i>Supply Chain Management</i> (english language) - Yasemin ARDA Corequisite : MQGE0001-6 - Operations Research	B1	Q2	45	-	-	5
MQGE0007-1	<i>Financial Mathematics and Stochastic Calculus</i> (english language) - Elise VANDOMME Corequisite : GEST0832-4 - Marchés financiers	B1	Q2	30	-	-	5
LOGI0012-1	<i>Logistics and Transportation</i> (english language) - Sabine LIMBOURG	B1	Q2	30	-	-	5
LOGI0013-1	<i>Operation Planning</i> (english language) - Yasemin ARDA Corequisite : LOGI0010-1 - Supply Chain Management	B1	Q2	30	-	-	5
FINA0052-1	<i>Financial Derivatives</i> (english language) - Fabien BONIVER, Julien HAMBUCKERS Corequisite : GEST0832-4 - Marchés financiers	B1	Q2	30	-	-	5
FINA0064-1	<i>Financial Risk Modeling</i> (english language) - Julien HAMBUCKERS Corequisite : MQGE0007-1 - Financial Mathematics and Stochastic Calculus FINA0053-1 - Investments and Portfolio Management	B1	Q1	30	-	-	5
FINA0051-1	<i>Banking and Insurance</i> (english language) - Fabien BONIVER, Georges HÜBNER	B1	Q2	30	-	-	5

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GEST0832-4 - Marchés financiers

Physics

MECA0203-3	<i>Continuum Mechanics</i> - Pierre DAUBY - [20h Mon. WS]	B1	Q1	30	10	[+]	8
PHYS0212-2	<i>Statistical physics</i> - Nicolas VANDEWALLE	B1	Q2	30	30	-	8
PHYS3033-1	<i>Quantum physics I</i> - Thierry BASTIN	B1	Q1	35	25	-	8
PHYS3034-1	<i>Quantum physics II</i> - Thierry BASTIN	B1	Q2	20	10	-	4

Additional ECTS Master in mathematics (60 ECTS)

The update course, worth a maximum of 60 credits, will be determined based on students' prior training.