Study Programme

Academic year 2025-2026

Faculty of Sciences

Master of Science in Mathematics

Language of instruction: Dutch

Programme version 9

1 Minors   30 credits

Subscribe to 1 minor from the following list. Subject to approval by the faculty.

1.1 Minor Research   30 credits

Subscribe to 12 credit units from the following list, with
- 6 credit units from the courses with reference a,
- 6 credit units from the courses with reference b.

Subscribe to no less than 1 and no more than 2 modules from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003683	Seminar	6	a		A:J	165
		Hendrik Van Maldeghem -- Department of Mathematics: Algebra and Geometry					
2	C003684	Internship	6	a		A:J	180
		Marnix Van Daele -- Department of Mathematics, Computer Science and Statistics					
3	C003685	Literature Study	6	b		A:J	165
		Michèle Vanmaele -- Department of Mathematics, Computer Science and Statistics					

1.1.1 Advanced Research Courses

Subscribe to no less than 6 and no more than 18 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004119	Capita Selecta in Analysis	6				180
2	C003017	Capita Selecta in Algebra [en]	6			A:2[a]	165
3	C004399	Capita Selecta in Incidence Geometry [en, nl]	6			A:1[a]	180
		Koen Thas -- Department of Mathematics: Algebra and Geometry					
4	C004400	Capita Selecta in Galois Geometry	6				180
		Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
5	C003687	Capita Selecta in Logic	6				165
6	C003688	Capita Selecta in Statistics	6				165
7	C003689	Capita Selecta in Numerical Mathematics	6				165
8	C000145	Algorithmic Graph Theory	6			A:2	165
		Gunnar Brinkmann -- Department of Mathematics, Computer Science and Statistics					
9	C002329	Astrophysical Simulations	6			A:1	180
		Maarten Baes -- Department of Physics and Astronomy					
10	C003690	Quantum Black Holes and Holography [en, nl]	6			A:2[a]	180
		Michal Heller -- Department of Physics and Astronomy					

1.1.2 Elective Courses

Subscribe to no more than 12 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C002180	Polar Spaces	6			A:2	165
		Hendrik Van Maldeghem -- Department of Mathematics, Computer Science and Statistics					
2	C003009	Galois Geometry	6			A:1	165
		Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
3	C002677	Proof Theory	6			(A:1)[d]	165
		Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
4	C002999	Clifford Analysis	6				165
5	C001998	Infinitesimal Analysis	6				165

6	C000217	Coding Theory	6	A:2	165
		Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
7	C001026	Computer Algebra	6	A:2	165
		Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
8	C004109	Functional Analysis [en]	6	(A:1)[d]	180
		Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
9	C002337	Finite Geometry [en]	6	A:2[a]	165
		Bart De Bruyn -- Department of Mathematics, Computer Science and Statistics			
10	C002676	Continuum Mechanics	6		180
		Geert Verdoolaege -- Department of Applied Physics			
11	C004451	General Relativity [en]	6	A:1	180
		Archisman Ghosh -- Department of Physics and Astronomy			
12	C002512	Cosmology and Galaxy Formation	6	A:1	180
		Sven De Rijcke -- Department of Physics and Astronomy			
13	C001427	Introduction to the Dynamics of Atmospheres	6	A:1	180
		Piet Termonia -- Department of Physics and Astronomy			
14	C001747	Quantum Field Theory [en, nl]	6	A:1	180
		Thomas Mertens -- Department of Physics and Astronomy			
15	C000819	Quantum Electrodynamics	6	B:2[a]	180
		Dimitri Van Neck -- Department of Physics and Astronomy			
16	C004220	Statistical Physics	6	A:1	180
		Jan Ryckebusch -- Department of Physics and Astronomy			
17	C000627	Computability and Complexity	6		165
		Giovanni Solda -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
18	C004370	Mathematical Modelling of Fuzziness	6	A:1	165
		Chris Cornelis -- Department of Mathematics, Computer Science and Statistics			
19	C001719	Capita Selecta in Soft Computing	6	(A:2)[d]	165
		Chris Cornelis -- Department of Mathematics, Computer Science and Statistics			
20	C004011	Advanced Numerical Methods	6	A:2	180
		Julian Köllermeier -- Department of Mathematics, Computer Science and Statistics			
21	C001497	Approximation Methods for Boundary Value Problems	6		165
22	C001307	Applied Functional Analysis	6		165
23	C001700	Representation Theory and Applications	6		165
24	C000242	Financial Mathematics: Discrete Stochastic Models	6	A:1	165
		David Vyncke -- Department of Mathematics, Computer Science and Statistics			
25	C001814	Financial Mathematics: Continuous Stochastic Models	6	A:2	165
		Michèle Vanmaele -- Department of Mathematics, Computer Science and Statistics			
26	C002678	Statistical Inference [en]	6	A:2	165
		Oliver Dukes -- Department of Mathematics, Computer Science and Statistics			
27	C002679	Survival Analysis [en]	6	A:2	165
		Els Goetghebeur -- Department of Mathematics, Computer Science and Statistics			
28	C004413	Causal Machine Learning	6		180
		Stijn Vansteelandt -- Department of Mathematics, Computer Science and Statistics			
29	C004084	History and Philosophy of Sciences: Mathematics	6	(A:2)[d]	165
		Maarten Van Dyck -- Department of Philosophy and Moral Sciences			
30	C004214	Galaxies	6	A:2	180
		Ilse De Looze -- Department of Physics and Astronomy			
31	C000802	Partial Differential Equations [en]	6	A:1	165
		Michael Ruzhansky -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
32	C003824	Analytic Number Theory [en, nl]	6	A:2	165
		Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
33	C003011	Mathematical Logic II [en, nl]	6	A:2	165
		Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
34	C003012	Banach Spaces and Banach Algebras	6	A:1	165
		Hans Vernaeve -- Department of Mathematics: Analysis, Logic and Discrete Mathematics			
35	C003013	Linear Algebraic Groups [en]	6	A:2	165
		Tom De Medts -- Department of Mathematics, Computer Science and Statistics			

Nr	Course		CRDT	Ref	MT1	Session	Study
36	C004221	Structure of the Universe	6			A:1	180
		Arjen van der Wel -- Department of Physics and Astronomy					
37	E011320	Queueing Theory [en]	6			A:1	180
		Joris Walraevens -- Department of Telecommunications and Information Processing					
38	C003668	Quantum Computing [en]	6			A:2	180
		Frank Verstraete -- Department of Physics and Astronomy					
39	C003789	Computational Biology	6			A:2	180
		Peter Dawyndt -- Department of Mathematics, Computer Science and Statistics					
40	C004071	Strongly Correlated Quantum Systems [en]	6			(A:2)[d]	180
		Jutho Haegeman -- Department of Physics and Astronomy					
41	C003349	Discrete Algorithms	6			A:2	165
		Veerle Fack -- Department of Mathematics, Computer Science and Statistics					
42	C003758	Machine Learning [en]	6			A:1	180
		Yvan Saeys -- Department of Mathematics, Computer Science and Statistics					
43	C003785	Automata, Computability and Complexity	6			A:2	180
		Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
44	C004421	Relativistic Hydrodynamics - from Quantum Field Theory to Black Holes [en]	6			(A:1)[d]	180
		Michal Heller -- Department of Physics and Astronomy					
45	C004222	Atomic and Molecular Physics	6			B:2	180
		Jonas Joos -- Department of Solid State Sciences					
46	C004221	Structure of the Universe	6			A:1	180
		Arjen van der Wel -- Department of Physics and Astronomy					

1.2 Minor Economics and Insurance   30 credits

Subscribe to no less than 28 and no more than 32 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	F000446	Markets and Prices	6				180
2	F000758	Economics	5				150
		Bruno Merlevede -- Department of Economics					
3	F000653	Insurances	6				180
4	C000291	Commercial Law	3			A:1	90
		Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law					
5	F000852	Taxation	5				150
		Annelies Roggeman -- Department of Accounting, Corporate Finance and Taxation					
6	F000683	Investment Analysis [en]	6			A:1	180
		Michael Frömmel -- Department of Economics					
7	F000093	Financial Markets and Institutions	5				150
8	F000083	Macroeconomics	6			A:1	180
		Freddy Heylen -- Department of Economics					
9	F000717	Financial Risk Management [en]	6			A:1	180
		Frank De Jonghe -- Department of Economics					
10	E076431	Introduction to Entrepreneurship	3				90
11	E076460	Dare to Venture	4				120
12	F000551	Business Skills [en]	4			C:2	120
		Mieke Audenaert -- Department of Marketing, Innovation and Organisation					
13	F000804	Financial Mathematics	6			A:2	180
		Michèle Vanmaele -- Department of Mathematics, Computer Science and Statistics					

2 Majors   30 credits

Subscribe to 30 credit units from 1 major from the following list. Subject to approval by the faculty.

2.1 Major Pure Mathematics   30 credits

Subscribe to 30 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C002180	Polar Spaces	6		1	A:2	165
		Hendrik Van Maldeghem -- Department of Mathematics, Computer Science and Statistics					
2	C003009	Galois Geometry	6		1	A:1	165
		Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					

Nr	Course		CRDT	Ref	MT1	Session	Study
3	C004109	Functional Analysis [en]	6	1		(A:1)[d]	180
		Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
4	C003011	Mathematical Logic II [en, nl]	6	1		A:2	165
		Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
5	C002999	Clifford Analysis	6	1			165
6	C000802	Partial Differential Equations [en]	6	1		A:1	165
		Michael Ruzhansky -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
7	C003012	Banach Spaces and Banach Algebras	6	1		A:1	165
		Hans Vernaeve -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
8	C003013	Linear Algebraic Groups [en]	6	1		A:2	165
		Tom De Medts -- Department of Mathematics, Computer Science and Statistics					
9	C001700	Representation Theory and Applications	6	1			165

2.2 Major Mathematical Physics   30 credits

Subscribe to 30 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C000802	Partial Differential Equations [en]	6	1		A:1	165
		Michael Ruzhansky -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
2	C004109	Functional Analysis [en]	6	1		(A:1)[d]	180
		Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
3	C001700	Representation Theory and Applications	6	1			165
4	C004451	General Relativity [en]	6	1		A:1	180
		Archisman Ghosh -- Department of Physics and Astronomy					
5	C002999	Clifford Analysis	6	1			165
6	C001747	Quantum Field Theory [en, nl]	6	1		A:1	180
		Thomas Mertens -- Department of Physics and Astronomy					
7	C003668	Quantum Computing [en]	6	1		A:2	180
		Frank Verstraete -- Department of Physics and Astronomy					
8	C004220	Statistical Physics	6	1		A:1	180
		Jan Ryckebusch -- Department of Physics and Astronomy					
9	C004222	Atomic and Molecular Physics	6	1		B:2	180
		Jonas Joos -- Department of Solid State Sciences					
10	C004221	Structure of the Universe	6	1		A:1	180
		Arjen van der Wel -- Department of Physics and Astronomy					

2.3 Major Applied Mathematics and Computer Science   30 credits

Subscribe to 30 credit units from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C000802	Partial Differential Equations [en]	6	1		A:1	165
		Michael Ruzhansky -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
2	C001026	Computer Algebra	6	1		A:2	165
		Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					
3	C004370	Mathematical Modelling of Fuzziness	6	1		A:1	165
		Chris Cornelis -- Department of Mathematics, Computer Science and Statistics					
4	C004011	Advanced Numerical Methods	6	1		A:2	180
		Julian Köllermeier -- Department of Mathematics, Computer Science and Statistics					
5	C000242	Financial Mathematics: Discrete Stochastic Models	6	1		A:1	165
		David Vyncke -- Department of Mathematics, Computer Science and Statistics					
6	C002678	Statistical Inference [en]	6	1		A:2	165
		Oliver Dukes -- Department of Mathematics, Computer Science and Statistics					
7	E011320	Queueing Theory [en]	6	1		A:1	180
		Joris Walraevens -- Department of Telecommunications and Information Processing					
8	C003349	Discrete Algorithms	6	1		A:2	165
		Veerle Fack -- Department of Mathematics, Computer Science and Statistics					
9	C003758	Machine Learning [en]	6	1		A:1	180
		Yvan Saeys -- Department of Mathematics, Computer Science and Statistics					
10	C003785	Automata, Computability and Complexity	6	1		A:2	180
		Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics					

3 Elective Courses — 30 credits

Subscribe to no less than 28 and no more than 32 credit units from the study programmes of UGent including the Ghent University elective courses or, from other universities of the Flemish and French Community or, Erasmus+ partner universities including the ENLIGHT (online) elective courses. Subject to approval by the faculty.
Subscribe to: no less than 18 credit units 'mathematical courses'.

4 Master's Dissertation — 30 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C002308	Master's Dissertation	30		2	A:J	825

Teaching

When a course is not taught (solely) in the programme's language of instruction, the effectively used languages are indicated in square brackets following the cours name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Kroatian/Serbian	zh: Chinese
cs: Czech	el: Greek	fr: French	nl: Dutch	pt: Portuguese	sl: Slovene	
da: Danish	en: English	it: Italian	no: Norwegian	ru: Russian	sv: Swedish	

Semester

Semesters are indicated by their number (1 or 2); semester 3 represents the summer period and J indicates a course spanning semesters 1 and 2.
When a capital letter precedes a semester number, the course has multiple offerings. The letter indicates the offering concerned.
When a semester is shown in brackets, the course in not offered this year in the specific offering.
The offering frequency and first year of offering are indicated by the following codes:

a: bi-annually	c: annually, from 2026-2027	f: annually, from 2027-2028	i: annually, from 2028-2029
b: tri-annually	d: bi-annually, from 2026-2027	g: bi-annually, from 2027-2028	j: bi-annually, from 2028-2029
	e: tri-annually, from 2026-2027	h: tri-annually, from 2027-2028	k: tri-annually, from 2028-2029