

Faculty of Sciences, Faculty of Psychology and Educational Sciences

Master of Science in Teaching in Science and Technology -- Mathematics

Language of instruction: Dutch

Programme version 6

## 1 Domain Component 54 credits

For courses without indication of the standard learning path, the student can choose whether to take the course in the first or second year, depending on the rest of his/her curriculum.

### 1.1 General Courses 18 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004546 Mathematics and Society Hans Vernaeye -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		1	A:J	180
2	C003758 Machine Learning [en] Yvan Saeys -- Department of Applied Mathematics and Computer Science	6		1	A:1	180
3	C000217 Coding Theory Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		1	A:2	165

### 1.2 Majors 24 credits

Subscribe to 1 major from the following list.

#### 1.2.1 Major Pure Mathematics 24 credits

Subscribe to 24 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003009 Galois Geometry Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		1	A:1	165
2	C004547 Logic II [en] Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		1	A:2	165
3	C003012 Banach Spaces and Banach Algebras Hans Vernaeye -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		1	A:1	165
4	C003824 Analytic Number Theory [en, nl] Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		1	A:2	165
5	C003013 Linear Algebraic Groups [en] Tom De Medts -- Department of Mathematics: Algebra and Geometry	6		1	A:2	165

#### 1.2.2 Major Applied Mathematics 24 credits

Subscribe to 24 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004370 Mathematical Modelling of Fuzziness Chris Cornelis -- Department of Applied Mathematics and Computer Science	6		1	A:1	165
2	C004011 Advanced Numerical Methods Marnix Van Daele -- Department of Applied Mathematics and Computer Science	6		1	A:2	180
3	C000242 Financial Mathematics: Discrete Stochastic Models David Vyncke -- Department of Applied Mathematics and Computer Science	6		1	A:1	165
4	C002678 Statistical Inference [en] Oliver Dukes -- Department of Applied Mathematics and Computer Science	6		1	A:2	165
5	C003349 Discrete Algorithms Veerle Fack -- Department of Applied Mathematics and Computer Science	6		1	A:2	165

### 1.3 Elective Courses 12 credits

Subscribe to 12 credit units from no less than 1 and no more than 3 modules from the following list. Subject to approval by the faculty.

#### 1.3.1 Mathematical depth

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

Nr	Course	CRDT	Ref	MT1	Session	Study
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1	C000145	Algorithmic Graph Theory Gunnar Brinkmann -- Department of Applied Mathematics and Computer Science	6		A:2	165
2	C001026	Computer Algebra Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		A:2	165
3	C000802	Partial Differential Equations [en] Michael Ruzhansky -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		A:1	165
4	C004109	Functional Analysis [en] Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		A:1 <sup>a</sup>	180
5	C002677	Proof Theory Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		A:1 <sup>a</sup>	165
6	C002337	Finite Geometry [en] Bart De Bruyn -- Department of Mathematics: Algebra and Geometry	6		(A:2) <sup>d</sup>	165
7	C004548	Incidence Geometry Koen Thas -- Department of Mathematics: Algebra and Geometry	6		(A:1) <sup>d</sup>	180
8	C004549	Advanced Topics in Group Theory [en] Tom De Medts -- Department of Mathematics: Algebra and Geometry	6		(A:2) <sup>d</sup>	165
9	C004550	Measure Theory [en, nl] Andreas Weiermann -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		(A:1) <sup>d</sup>	165
10	C004084	History and Philosophy of Sciences: Mathematics Maarten Van Dyck -- Department of Philosophy and Moral Sciences	6		A:1 <sup>a</sup>	165
11	E011320	Queueing Theory [en] Joris Walraevens -- Department of Telecommunications and Information Processing	6		A:1	180
12	C004551	Academic Internship [nl, en] Jasson Vindas Diaz -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6		A:J	165

#### 1.3.1.1 Electives major

[Subscribe to no more than 12 credit units from other major courses.](#)

#### 1.3.2 Computer Science

[Subscribe to no more than 12 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003775 Functional Programming Christophe Scholliers -- Department of Applied Mathematics and Computer Science	6			A:1	180
2	C003782 Algorithms and Datastructures 3 Gunnar Brinkmann -- Department of Applied Mathematics and Computer Science	6			A:1	180
3	C003785 Automata, Computability and Complexity Leo Storme -- Department of Mathematics: Analysis, Logic and Discrete Mathematics	6			A:2	180
4	C003241 Fundaments of Programming Languages Christophe Scholliers -- Department of Applied Mathematics and Computer Science	6			A:1	165

#### 1.3.3 Data Science

[Subscribe to no more than 12 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003549 Analysis of High Dimensional Data [en] Lieven Clement -- Department of Applied Mathematics and Computer Science	5			A:1	150
2	C004413 Causal Machine Learning [en] Stijn Vansteelandt -- Department of Applied Mathematics and Computer Science	5			A:2	150
3	C004552 Soft Computing Chris Cornelis -- Department of Applied Mathematics and Computer Science	6			A:2 <sup>a</sup>	165
4	C004041 Data Visualization Bart Mesuere -- Department of Applied Mathematics and Computer Science	3			A:2	90
5	C002950 Survival Analysis [en] Els Goetghebeur -- Department of Applied Mathematics and Computer Science	5			A:2	150

#### 1.3.4 Physics

[Subscribe to no more than 12 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004220 Statistical Physics Jan Ryckebusch -- Department of Physics and Astronomy	6			A:1	180
2	C004451 General Relativity [en] Archisman Ghosh -- Department of Physics and Astronomy	6			A:1	180

3	C001427	Introduction to the Dynamics of Atmospheres Piet Termonia -- Department of Physics and Astronomy	6		A:1	180
4	C004506	Quantum Field Theory [en] Thomas Mertens -- Department of Physics and Astronomy	6		A:1	180
5	C003668	Quantum Computing [en] Frank Verstraete -- Department of Physics and Astronomy	6		A:2	180
6	C004222	Atomic and Molecular Physics Jonas Joos -- Department of Solid State Sciences	5		A:2	150

### 1.3.5 Financial Mathematics and Economics

[Subscribe to no more than 12 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C001814	Financial Mathematics: Continuous Stochastic Models Michèle Vanmaele -- Department of Applied Mathematics and Computer Science	6			165
2	F000683	Investment Analysis [en] Michael Frömmel -- Department of Economics	6		A:1	180
3	F000944	Data Science for Finance and Insurance [en] Kris Boudt -- Department of Economics	4		A:1	120
4	F000723	Financial Econometrics [en] Gerdie Everaert -- Department of Economics	4		A:1	120
5	F000628	Microeconomics: Decision Theory Dirk Van de gaer -- Department of Economics	6		A:1	180

### 1.3.6 Biosciences

[Subscribe to no more than 12 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003711	Computational Challenges in Bioinformatics [en] Peter Dawyndt -- Department of Applied Mathematics and Computer Science	6		A:2	180
2	C003401	Statistical Genomics [en] Lieven Clement -- Department of Applied Mathematics and Computer Science	5		A:1	150
3	I002445	Modelling and Simulation of Biosystems Michiel Stock -- Department of Data Analysis and Mathematical Modelling	4		A:2	120

### 1.3.7 Entrepreneurship

[Subscribe to no more than 12 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E076431	Introduction to Entrepreneurship [en] Petra Andries -- Department of Marketing, Innovation and Organisation	3		A:1	90
2	E076460	Dare to Venture [en] Johan Verrue -- Department of Marketing, Innovation and Organisation	4		A:2	120
3	F000551	Business Skills [en] Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4		C:2	120
4	A005646	Introduction to Corporate Law Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law	3		A:1	90

## 2 Teaching Component 36 credits

For courses without indication of the standard learning path, the student can choose whether to take the course in the first or second year, depending on the rest of his/her curriculum. Students must complete the corresponding teaching methodology course before entering into an internship, or at least take the teaching methodology course simultaneously.

### 2.1 Programme Pathway Theoretical Education 12 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002197	The Teacher within School and Society Melissa Tuytens -- Department of Educational Studies	4		A:1	120
2	H002196	Classroom Management and Reflection Melissa Tuytens -- Department of Educational Studies	4		A:2	120
3	H002198	Psychology of Adolescence Wim Beyers -- Department of Developmental, Personality and Social Psychology	4		A:1	120

### 2.2 Programme Pathway Teaching Methodology 6 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002226	Teaching Methodology: Mathematics I Hendrik Van Maldeghem -- Department of Mathematics: Algebra and Geometry	6		A:J	180

## 2.3 Programme Pathway Internship

12 credits

Subscribe to 12 credit units from the following list, with

- 4 credit units from the courses with reference a, if no additional Teaching Methodology Course is taken in Module 2 of the Elective Courses.
- if an additional Teaching Methodology Course is taken in Module 2 of the Elective Courses: 4 credit units with the same reference as the chosen additional Teaching Methodology Course

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002299 Internship A: STEM Katrien Strubbe -- Department of Chemistry	4			A:J	100
2	H002319 Internship B: Mathematics Hendrik Van Maldeghem -- Department of Mathematics: Algebra and Geometry	4			A:J	100
3	H002336 Internship C: Mathematics Hendrik Van Maldeghem -- Department of Mathematics: Algebra and Geometry	4	a		A:J	100
4	H002340 Internship C: Computer Science Kris Coolsaet -- Department of Applied Mathematics and Computer Science	4	b		A:J	100
5	H002335 Internship C: Physics Philippe Smet -- Department of Solid State Sciences	4	c		A:J	100

## 2.4 Elective Courses

6 credits

Subscribe to 6 credit units from one or different modules from the following list. Subject to approval by the faculty.

### 2.4.1 Module 1: List of Elective Courses

The courses with reference b can only be chosen if the course with reference a has been passed.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H001608 Movement and Sports: Now and Later Veerle Segers -- Department of Movement and Sports Sciences	4	UKV		A:2	120
2	H001838 Culture, Media and Education Kris Rutten -- Department of Educational Studies	4			A:2	120
3	H002128 Methods to Facilitate Socratic Group Discussions in the Educational Context Veerle Provoost -- Department of Philosophy and Moral Sciences	4			A:2	120
4	H002213 Motivational Psychology Maarten Vansteenkiste -- Department of Developmental, Personality and Social Psychology	5			A:1	150
5	H002344 Linguistic Proficiency in Content and Language Integrated Learning: Dutch Bart Deygers -- Department of Translation, Interpreting and Communication	3	b	2	A:2	90
6	H002247 Linguistic Proficiency in Content and Language Integrated Learning: English [en] June Eyckmans -- Department of Translation, Interpreting and Communication	3	b	2	A:2	90
7	H002248 Linguistic Proficiency in Content and Language Integrated Learning: French [fr] Pascale Hadermann -- Department of Linguistics	3	b	2	A:2	90
8	H002249 Linguistic Proficiency in Content and Language Integrated Learning: German [de] Gunther Martens -- Department of Literary Studies	3	b	2	A:2	90
9	H002246 Theory and Practice of Content and Language Integrated Learning Ulrike Vogl -- Department of Linguistics	3	a	1	A:1	90
10	H002283 Teaching Methodology: General Subjects for Technical and Vocational Education, including Internship Katrien Strubbe -- Department of Chemistry	6			A:2	160

### 2.4.2 Module 2: Additional Course Teaching Methodology

- Taking an additional Teaching Methodology Course implies taking the corresponding Internship in the Programme Pathway Internship.
- Courses with reference b can only be chosen by Bachelors of Science in Mathematics, Minor Informatics
- Courses with reference c can only be chosen by Bachelors of Science in Mathematics, Minor Physics
- Students who are able to demonstrate that they have acquired at least 30 academic credits in another specific domain (60 credits if it concerns a language), can submit a request to the Curriculum Manager for the Master of Education to take the corresponding teaching methodology course. If the Curriculum Manager agrees, the Programme Pathway Internship needs to be revised allowing a student to follow an "Internship C" in this additional teaching methodology.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002227 Teaching Methodology: Mathematics II Hendrik Van Maldeghem -- Department of Mathematics: Algebra and Geometry	6			J:J	168
2	H002225 Teaching Methodology: Computer Science Kris Coolsaet -- Department of Applied Mathematics and Computer Science	6	b		A:J	180

3	H002224	Teaching Methodology Physics	6	c	C:J	180
Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering						

### 2.4.3 Module 3: Additional Internship

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002332 Short Additional Internship Katrien Strubbe -- Department of Chemistry	3			A:J	80
2	H002333 Extended Additional Internship Katrien Strubbe -- Department of Chemistry	6			A:J	160

### 2.4.4 Module 4: an Elective Course related to Education

Subscribe to a course of no less than 6 credit units, related to education, and lectured at a university belonging to the Flemish Community (see also: [Enlight Elective Courses](#)), subject to approval by the faculty.

## 3 Master's Dissertation 30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004111 Master's Dissertation N. N.	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 course name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Croatian/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 is 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 2025-2026	f: annually, from 2026-2027	i: annually, from 2027-2028
b: tri-annually	d: bi-annually, from 2025-2026	g: bi-annually, from 2026-2027	j: bi-annually, from 2027-2028
	e: tri-annually, from 2025-2026	h: tri-annually, from 2026-2027	k: tri-annually, from 2027-2028