

Faculty of Sciences, Faculty of Psychology and Educational Sciences

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

Language of instruction: Dutch

Programme version 6

1 Domain Component

51 credits

Subscribe to 51 credit units from 2 modules (1 focus + Elective courses) from the following list.
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 Focus (Bio)Organic and Polymer Chemistry

48 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004165 Professional Skills of the Sustainable Chemist [en] <i>Sandra Van Vlierberghe -- Department of Organic Chemistry</i>	6		1	A:J	150

1.1.1 General Courses

30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004125 Advanced Organic Chemistry [en] <i>Annemieke Madder -- Department of Organic Chemistry</i>	6		1	A:1	180
2	C004126 Advanced Macromolecular Chemistry [en] <i>Filip Du Prez -- Department of Organic Chemistry</i>	6		1	A:1	180
3	C004127 Molecular Structure Analysis [en] <i>Kristof Van Hecke -- Department of Chemistry</i>	6		1	A:1	150
4	C004128 Molecular Physical Chemistry [en] <i>Zeger Hens -- Department of Chemistry</i>	6		1	A:1	180
5	C004129 Integrated Problems in Organic and Polymer Chemistry [en] <i>Johan Winne -- Department of Organic Chemistry</i>	6		1	A:1	180

1.1.2 Specialization Courses

12 credits

Subscribe to 12 credit units from the following list, distributed over the first standard learning path as follows: 12 credit units in year 1.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004131 Organic Separation Techniques and Mass Spectrometry [en] <i>Frederic Lynen -- Department of Organic Chemistry</i>	4		1	A:2	120
2	C004132 Natural Product Chemistry [en] <i>Ulrich Hennecke -- Vrije Universiteit Brussel</i>	4		1	A:2	120
3	C004133 Medicinal Chemistry [en] <i>Steven Ballet -- Vrije Universiteit Brussel</i>	4		1	A:2	120
4	C004134 Asymmetric Synthesis [en] <i>Ulrich Hennecke -- Vrije Universiteit Brussel</i>	4		1	A:2	105
5	C004135 Chemical Biology [en] <i>Simon Devos -- Department of Biomolecular Medicine</i>	4		1	A:2	120
6	C004458 Enzyme-Catalyzed Organic Synthesis: Principles and Applications [en]	4		1	A:2	120
7	C004137 Synthetic Methods and Strategies [en] <i>Johan Winne -- Department of Organic Chemistry</i>	4		1	A:2	105
8	C004138 Homogeneous Catalysis [en] <i>Catherine Cazin -- Department of Chemistry</i>	4		1	A:2	100
9	C004139 Polymer Materials: Biomedical and Sustainable Aspects [en] <i>Peter Dubruel -- Department of Organic Chemistry</i>	4		1	A:2	100

1.2 Focus Analytical and Environmental Chemistry

48 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
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1	C004165	Professional Skills of the Sustainable Chemist [en] <i>Sandra Van Vlierberghe -- Department of Organic Chemistry</i>	6	1	A:J	150
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1.2.1 General Courses 30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004153 Chemometrics [en] <i>Laszlo Vincze -- Department of Chemistry</i>	3		1	A:1	85
2	C004155 Analytical Methods for Material Characterization [en] <i>Mieke Adriaens -- Department of Chemistry</i>	9		1	A:1	270
3	C004156 Environmental Analysis [en] <i>Yue Gao -- Vrije Universiteit Brussel</i>	6		1	A:1	180
4	C004127 Molecular Structure Analysis [en] <i>Kristof Van Hecke -- Department of Chemistry</i>	6		1	A:1	150
5	C004154 Applications in Analytical and Environmental Sciences [en] <i>Anna Kaczmarek -- Department of Chemistry</i>	6		1	A:1	170

1.2.2 Specialization Courses 12 credits

Subscribe to 12 credit units from the following list, distributed over the first standard learning path as follows: 12 credit units in year 1.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004157 Principle and Applications of Stable Isotope Analysis [en] <i>Frank Vanhaecke -- Department of Chemistry</i>	3		1	A:2	90
2	C004158 Archaeometry <i>Mieke Adriaens -- Department of Chemistry</i>	3		1	A:2	75
3	C004159 Advanced X-ray Spectroscopy [en] <i>Laszlo Vincze -- Department of Chemistry</i>	3		1	A:2	90
4	C004160 Analytical Raman Spectroscopy [en] <i>Peter Vandenabeele -- Department of Chemistry</i>	3		1	A:2	75
5	C004161 Field Sampling and Analysis [en] <i>Martine Leermakers -- Vrije Universiteit Brussel</i>	3		1	A:2	90
6	C004162 Cosmochemistry [en] <i>Steven Goderis -- Department of Chemistry</i>	3		1	A:2	90
7	C004163 Metal Biogeochemical Cycle [en] <i>Yue Gao -- Vrije Universiteit Brussel</i>	3		1	(A:2) ^d	90
8	C004164 Chemical Risk Assessment [en] <i>Marc Elskens -- Vrije Universiteit Brussel</i>	3		1	A:2	90
9	C004131 Organic Separation Techniques and Mass Spectrometry [en] <i>Frederic Lynen -- Department of Organic Chemistry</i>	4		1	A:2	120
10	C004149 Light and Matter [en] <i>Pieter Geiregat -- Department of Chemistry</i>	4		1	A:2	120
11	C004152 Structure Analysis by X-ray Diffraction [en] <i>Jolien Dendooven -- Department of Solid State Sciences</i>	4		1	A:2	120
12	C004457 Atmospheric Chemistry and Global Change [en] <i>Crist Amelynck -- Department of Chemistry</i>	3		1	A:2 ^a	90

1.3 Focus Materials and Nano Chemistry 48 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004165 Professional Skills of the Sustainable Chemist [en] <i>Sandra Van Vlierberghe -- Department of Organic Chemistry</i>	6		1	A:J	150

1.3.1 General Courses 30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004140 Nanomaterials Chemistry [en] <i>Klaartje De Buysser -- Department of Chemistry</i>	6		1	A:1	180
2	C004141 Materials Physics [en] <i>Zeger Hens -- Department of Chemistry</i>	6		1	A:1	180
3	C004142 Surface Topology, Internal Structure and Composition [en] <i>Mieke Adriaens -- Department of Chemistry</i>	6		1	A:1	180
4	C004128 Molecular Physical Chemistry [en] <i>Zeger Hens -- Department of Chemistry</i>	6		1	A:1	180

5	C004143	Integrated Problems in Materials and Nanochemistry [en] <i>Klaartje De Buysser -- Department of Chemistry</i>	6	1	A:1	180
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1.3.2 Specialization Courses

12 credits

Subscribe to 12 credit units from the following list, distributed over the first standard learning path as follows: 12 credit units in year 1.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004144 Topics in Nanoscience [en] <i>Pieter Geiregat -- Department of Chemistry</i>	4		1	A:2	120
2	C004145 Functional Ceramics [en] <i>Klaartje De Buysser -- Department of Chemistry</i>	4		1	A:2	110
3	C004146 The f-Elements	4		1		100
4	C004139 Polymer Materials: Biomedical and Sustainable Aspects [en] <i>Peter Dubrue -- Department of Organic Chemistry</i>	4		1	A:2	100
5	C004147 Advanced Quantum Chemistry [en] <i>Patrick Bultinck -- Department of Chemistry</i>	4		1	A:2	115
6	C004148 Computational Quantum Chemistry [en] <i>Patrick Bultinck -- Department of Chemistry</i>	8		1	A:2	210
7	C004149 Light and Matter [en] <i>Pieter Geiregat -- Department of Chemistry</i>	4		1	A:2	120
8	C004150 Bioinorganic Chemistry [en] <i>Kristof Van Hecke -- Department of Chemistry</i>	4		1	A:2	120
9	C004151 Heterogeneous Catalysis [en] <i>Pascal Van Der Voort -- Department of Chemistry</i>	4		1	A:2	120
10	C004152 Structure Analysis by X-ray Diffraction [en] <i>Jolien Dendooven -- Department of Solid State Sciences</i>	4		1	A:2	120

1.4 Elective Courses

3 credits

Subscribe to 3 credit units from the elective course lists 2.1 through 2.4 from the MSc in Chemistry.

2 Teaching Component

39 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	H002478 The Student: Development and Motivation <i>Wim Beyers -- Department of Developmental, Personality and Social Psychology</i>	6			A:1	180
2	H002477 The Teacher within Class, School and Society <i>Melissa Tuytens -- Department of Educational Studies</i>	6			A:2	180

2.2 Programme Pathway Teaching Methodology

9 credits

Subscribe to 9 credit units from the following list.

- Did you follow Teaching Methodology: Chemistry in your bachelor programme or preparatory course? Choose a different Teaching Methodology Course in the master in teaching.
- Have you not yet followed Teaching Methodology: Chemistry in your bachelor programme or preparatory course? You must follow Teaching Methodology: Chemistry in the master in teaching.

If you are able to demonstrate that you have acquired at least 30 academic credits in another specific domain (60 credits if it concerns a language), you can submit a request to educatievemaester@ugent.be to take the corresponding teaching methodology course. When you are allowed to do so, then you must take the corresponding internship in the Programme Pathway Internship.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002573 Teaching Methodology: Chemistry <i>Katrien Strubbe -- Department of Chemistry</i>	9			J:J	270
2	H002607 Teaching Methodology: STEM Focus Biology <i>Dominique Adriaens -- Department of Biology</i>	9			J:J	270
3	H002603 Teaching Methodology: STEM Focus Physics <i>Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering</i>	9			J:J	270
4	H002608 Teaching Methodology: STEM Focus STEM <i>Katrien Strubbe -- Department of Chemistry</i>	9			J:J	270

2.3 Programme Pathway Internship

18 credits

You must take 2 Internship courses, corresponding to the 2 Teaching Methodology Courses (chosen in the bachelor/ preparatory course and in the master in teaching).

Have you received permission to take a different teaching methodology course in the Programme Pathway Teaching Methodology, please contact educatievemaester@ugent.be to have the corresponding internship added to your curriculum.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002576 Internship Chemistry <i>Katrien Strubbe -- Department of Chemistry</i>	9			J:J	270
2	H002613 Internship STEM Focus Biology <i>Dominique Adriaens -- Department of Biology</i>	9			J:J	270
3	H002611 Internship STEM Focus Physics <i>Philippe Smet -- Department of Solid State Sciences</i>	9			J:J	270
4	H002609 Internship STEM Focus STEM <i>Katrien Strubbe -- Department of Chemistry</i>	9			J:J	270

3 Master's Dissertation 30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C004187 Master Thesis, Research Plan <i>Katrien Strubbe -- Department of Chemistry</i>	9		1	A:2	270
2	C004188 Master Thesis, Research Project <i>Katrien Strubbe -- Department of Chemistry</i>	21		2	A:J	630

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 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