GHENT UNIVERSITY

Study Programme

Academic year 2024-2025

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 5

1 Domain Component 54 credits

Subscribe to 54 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 54 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004165	Professional Skills of the Sustainable Chemist [en] Catherine Cazin -- Department of Chemistry	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] Annemieke Madder -- Department of Organic Chemistry	6		1	A:1	180
2	C004126	Advanced Macromolecular Chemistry [en] Filip Du Prez -- Department of Organic Chemistry	6		1	A:1	180
3	C004127	Molecular Structure Analysis [en] N. N.	6		1	A:1	150
4	C004128	Molecular Physical Chemistry [en] Zeger Hens -- Department of Chemistry	6		1	A:1	180
5	C004129	Integrated Problems in Organic and Polymer Chemistry [en] Johan Winne -- Department of Organic Chemistry	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] Frederic Lynen -- Department of Organic Chemistry	4		1	A:2	120
2	C004132	Natural Product Chemistry [en] Vrije Universiteit Brussel, Ulrich Hennecke	4		1	A:2	120
3	C004133	Medicinal Chemistry [en] Vrije Universiteit Brussel, Steven Ballet	4		1	A:2	120
4	C004134	Asymmetric Synthesis [en] Vrije Universiteit Brussel, Ulrich Hennecke	4		1	A:2	105
5	C004135	Chemical Biology [en] Annemieke Madder -- Department of Organic Chemistry	4		1	A:2	120
6	C004458	Enzyme-Catalyzed Organic Synthesis: Principles and Applications [en] Johan Van der Eycken -- Ghent University	4		1	A:2	120
7	C004137	Synthetic Methods and Strategies [en] Johan Winne -- Department of Organic Chemistry	4		1	A:2	105
8	C004138	Homogeneous Catalysis [en] Catherine Cazin -- Department of Chemistry	4		1	A:2	100
9	C004139	Polymer Materials: Biomedical and Sustainable Aspects [en] Peter Dubruel -- Department of Organic Chemistry	4		1	A:2	100

1.2 Focus Analytical and Environmental Chemistry 54 credits

Nr	Course		CRDT	Ref	MT1	Session	Study

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004165	Professional Skills of the Sustainable Chemist [en] Catherine Cazin -- Department of Chemistry	6		1	A:J	150

1.2.1 General Courses — 30 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004153	Chemometrics [en] Laszlo Vincze -- Department of Chemistry	3		1	A:1	85
2	C004155	Analytical Methods for Material Characterization [en] Mieke Adriaens -- Department of Chemistry	9		1	A:1	270
3	C004156	Environmental Analysis [en] Vrije Universiteit Brussel, Yue Gao	6		1	A:1	180
4	C004127	Molecular Structure Analysis [en] N. N.	6		1	A:1	150
5	C004154	Applications in Analytical and Environmental Sciences [en] Anna Kaczmarek -- Department of Chemistry	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] Pascal Boeckx -- Department of Green Chemistry and Technology	3		1	A:2	90
2	C004158	Archaeometry Mieke Adriaens -- Department of Chemistry	3		1	A:2	75
3	C004159	Advanced X-ray Spectroscopy [en] Laszlo Vincze -- Department of Chemistry	3		1	A:2	90
4	C004160	Analytical Raman Spectroscopy [en] Peter Vandenabeele -- Department of Chemistry	3		1	A:2	75
5	C004161	Field Sampling and Analysis [en] Vrije Universiteit Brussel, Martine Leermakers	3		1	A:2	90
6	C004162	Cosmochemistry [en] Vrije Universiteit Brussel, Steven Goderis -- Department of Chemistry	3		1	A:2	90
7	C004163	Metal Biogeochemical Cycle [en] Vrije Universiteit Brussel, Yue Gao	3		1	A:2[a]	90
8	C004164	Chemical Risk Assessment [en] Vrije Universiteit Brussel, Marc Elskens	3		1	A:2	90
9	C004131	Organic Separation Techniques and Mass Spectrometry [en] Frederic Lynen -- Department of Organic Chemistry	4		1	A:2	120
10	C004149	Light and Matter [en] Pieter Geiregat -- Department of Chemistry	4		1	A:2	120
11	C004152	Structure Analysis by X-ray Diffraction [en] Klaartje De Buysser -- Department of Chemistry	4		1	A:2	120
12	C004457	Atmospheric Chemistry and Global Change [en] Crist Amelynck -- Department of Chemistry	3		1	(A:2)[d]	90

1.3 Focus Materials and Nano Chemistry — 54 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004165	Professional Skills of the Sustainable Chemist [en] Catherine Cazin -- Department of Chemistry	6		1	A:J	150

1.3.1 General Courses — 30 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004140	Nanomaterials Chemistry [en] Pascal Van Der Voort -- Department of Chemistry	6		1	A:1	180
2	C004141	Materials Physics [en] Zeger Hens -- Department of Chemistry	6		1	A:1	180
3	C004142	Surface Topology, Internal Structure and Composition [en] Mieke Adriaens -- Department of Chemistry	6		1	A:1	180
4	C004128	Molecular Physical Chemistry [en] Zeger Hens -- Department of Chemistry	6		1	A:1	180
5	C004143	Integrated Problems in Materials and Nanochemistry [en] Iwan Moreels -- Department of Chemistry	6		1	A:1	180

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] Pieter Geiregat -- Department of Chemistry	4		1	A:2	120
2	C004145	Functional Ceramics [en] Klaartje De Buysser -- Department of Chemistry	4		1	A:2	110
3	C004146	The f-Elements Rik Van Deun -- Department of Chemistry	4		1		100
4	C004139	Polymer Materials: Biomedical and Sustainable Aspects [en] Peter Dubruel -- Department of Organic Chemistry	4		1	A:2	100
5	C004147	Advanced Quantum Chemistry [en] Patrick Bultinck -- Department of Chemistry	4		1	A:2	115
6	C004148	Computational Quantum Chemistry [en] Patrick Bultinck -- Department of Chemistry	8		1	A:2	210
7	C004149	Light and Matter [en] Pieter Geiregat -- Department of Chemistry	4		1	A:2	120
8	C004150	Bioinorganic Chemistry [en] Kristof Van Hecke -- Department of Chemistry	4		1	A:2	120
9	C004151	Heterogeneous Catalysis [en] Pascal Van Der Voort -- Department of Chemistry	4		1	A:2	120
10	C004152	Structure Analysis by X-ray Diffraction [en] Klaartje De Buysser -- Department of Chemistry	4		1	A:2	120

1.4 Elective Courses — 6 credits

Subscribe to 6 credit units from no less than 1 and no more than 2 modules from the following list. Subject to approval by the faculty.

1.4.1 In-depth Chemistry

Subscribe to no more than 6 credit units from the specialization courses of the different main subject of the Master in Chemistry.

1.4.2 Industry and Management

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

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E076460	Dare to Venture [en] Johan Verrue -- Department of Marketing, Innovation and Organisation	4		1	A:2	120
2	E076471	Dare to Start [en] Frank Gielen -- Department of Information Technology	3		1	A:2	90
3	F000845	Business Administration Mirjam Knockaert -- Department of Marketing, Innovation and Organisation	4		1	A:2	120
4	F000551	Business Skills [en] Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4		1	C:2	120
5	C000833	Project Management Mario Vanhoucke -- Department of Business Informatics and Operations Management	4		1	A:2	120
6	F000855	Organization Theory [en] Gosia Kozusznik -- Department of Marketing, Innovation and Organisation	4		1	A:2	120
7	F001010	Financial Markets and Institutions Rudi Vander Vennet -- Department of Economics	5		1	A:2	150
8	F000752	Environmental Economics and Policy Brent Bleys -- Department of Economics	4		1	B:2	120
9	F000859	Corporate Social Responsibility Saskia Crucke -- Department of Marketing, Innovation and Organisation	3		1	A:2	90
10	F000892	Innovation Management [en] Katrien Verleye -- Department of Marketing, Innovation and Organisation	3		1	A:2	90
11	E039060	Sustainable Energy and Rational Use of Energy [en] Jeroen Beeckman -- Department of Electronics and Information Systems	4		1	A:2	120
12	F000758	Economics Bruno Merlevede -- Department of Economics	5		2	A:1	150
13	E076431	Introduction to Entrepreneurship [en] Petra Andries -- Department of Marketing, Innovation and Organisation	3		2	A:1	90
14	F000768	Marketing Management Maggie Geuens -- Department of Marketing, Innovation and Organisation	6		2	A:1	180

15	F001009	Business Cycles and Growth Freddy Heylen -- Department of Economics	5		2	A:1	150
16	F001008	Markets and Prices Dirk Van de gaer -- Department of Economics	5		2	A:1	150
17	E065460	Rational Use of Materials [en] Tom Depover -- Department of Materials, Textiles and Chemical Engineering	5		2	A:1	150
18	C002275	Environmental Law Hendrik Schoukens -- Department of European, Public and International Law	5		2	A:1	125
19	I001571	Environmental Legislation [en] Hendrik Schoukens -- Department of European, Public and International Law	3		2	A:1	75

1.4.3 Scientific broadening

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

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004169	Advanced Topics in Chemistry [en] Klaartje De Buysser -- Department of Chemistry	3		2	A:1	90
2	C004192	Green Chemistry	3		2		75
3	C004193	History of Chemistry Mieke Adriaens -- Department of Chemistry	3		2	(A:2)[d]	75
4	C004009	History and Philosophy of Sciences Maarten Van Dyck -- Department of Philosophy and Moral Sciences	3		2	A:1	90
5	C004194	Chemical Laboratory Skills Katrien Strubbe -- Department of Chemistry	4		2	A:J	115
6	C004089	International Course [en]	3		2	A:J	90

1.4.4 Elective Courses UGent and other Universities

Subscribe to no more than 6 credit units from the study programmes of UGent including the Ghent University elective courses or from other universities of the Flemish Community, or (online) courses from Erasmus+ partner universities.

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	H002219	Teaching Methodology: Chemistry Katrien Strubbe -- Department of Chemistry	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
- 4 credit units from the courses with reference b, if an additional Teaching Methodology Course is taken in Module 2 of the Elective Courses.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	H002299	Internship A: STEM Katrien Strubbe -- Department of Chemistry	4			A:J	100
2	H002312	Internship B: Chemistry Katrien Strubbe -- Department of Chemistry	4			A:J	100
3	H002330	Internship C: Chemistry Katrien Strubbe -- Department of Chemistry	4	a		A:J	100
4	H002331	Internship C: Biology Dominique Adriaens -- Department of Biology	4	b		A:J	100

5	H002335	Internship C: Physics Philippe Smet -- Department of Solid State Sciences	4	b			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

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. 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	H002220	Teaching Metholodogy: Biology Dominique Adriaens -- Department of Biology	6			A:J	180
2	H002224	Teaching Methodology Physics Stefaan Cottenier -- Department of Electromechanical, Systems and Metal Engineering	6			C:J	180

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 Additonal 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	C004187	Master Thesis, Research Plan Katrien Strubbe -- Department of Chemistry	9		1	A:2	270
2	C004188	Master Thesis, Research Project Katrien Strubbe -- Department of Chemistry	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 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 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