

Faculty of Sciences, Faculty of Psychology and Educational Sciences

Master of Science in Teaching in Science and Technology -- Biochemistry and Biotechnology

Language of instruction: Dutch

Programme version 3

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

20 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003525 Structure and Function of Biological Macromolecules [en] Savvas Savvides -- Department of Biochemistry, Physiology and Microbiology	4			A:1	120
2	C003526 Structural Bioinformatics [en] Savvas Savvides -- Department of Biochemistry, Physiology and Microbiology	3			A:1	80
3	C000500 Bioinformatics 2 [en] Kathleen Marchal -- Department of Information Technology	3			A:2	80
4	C003527 Biostatistics [en] Kathleen Marchal -- Department of Information Technology	4			A:1	120
5	C003671 Biotechnology and Society [en] Marie Joossens -- Department of Biochemistry, Physiology and Microbiology	3			A:J	80
6	C002865 Bioethics [en] Farah Focquaert -- Department of Philosophy and Moral Sciences	3			A:1	80

1.2 Majors

21 credits

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

1.2.1 Major Bioinformatics and Systems Biology

21 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C002732 Programming for Bioinformatics [en] Pieter De Bleser -- Department of Molecular Biology	6		1	A:1	160
2	C002700 Comparative Genomics [en] Klaas Vandepoele -- Department of Plant Biotechnology and Bioinformatics	3		1	A:2	80
3	C004456 Linux for Bioinformatics Environment [en] Herman De Beukelaer -- Department of Plant Biotechnology and Bioinformatics	3		1	A:2	80
4	C003083 Bioinformatics Algorithms [en] Veerle Fack -- Department of Applied Mathematics and Computer Science	3		1	A:2	80
5	C003084 Project Bioinformatics and Systems Biology [en] Herman De Beukelaer -- Department of Plant Biotechnology and Bioinformatics	6		1	A:J	170

1.2.2 Major Biochemistry and Structural Biology

21 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003086 Proteomics [en] Bart Devreese -- Department of Biochemistry, Physiology and Microbiology	3		1	A:1	80
2	C003670 Biomolecular Production Methods [en] Nico Callewaert -- Department of Biochemistry, Physiology and Microbiology	4		1	A:1	110
3	C003088 Drug Design [en] Savvas Savvides -- Department of Biochemistry, Physiology and Microbiology	3		1	A:2	80
4	C003615 Experimental Structural Biology [en] Savvas Savvides -- Department of Biochemistry, Physiology and Microbiology	5		1	A:2	135
5	C003089 Project Biochemistry and Structural Biology [en] Elie De Bousser -- Department of Biochemistry, Physiology and Microbiology	6		1	A:J	170

1.2.3 Major Biomedical Biotechnology

21 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C002725 Molecular Pathophysiology and Experimental Therapy [en] Charlotte Scott -- Department of Molecular Biology	6		1	A:1	160
2	C002738 Transgenetics of Animal Model Organisms [en] Kris Vleminckx -- Department of Molecular Biology	6		1	A:2	160
3	C002708 Experimental Molecular Cell Biology [en] Rudi Beyaert -- Department of Molecular Biology	3		1	A:2	80
4	C003090 Project Biomedical Biotechnology [en] Jens Staal -- Department of Molecular Biology	6		1	A:J	170

1.2.4 Major Microbial Biotechnology

21 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C002711 Food Microbiology and Safety [en] Kurt Houf -- Department of Veterinary and Biosciences	3		1	A:1	80
2	C004007 Molecular Bacteria-Host Interactions [en] Petra Van Damme -- Department of Biochemistry, Physiology and Microbiology	3		1	A:2	80
3	C002715 Host-Virus Interactions [en] Xavier Saelens -- Department of Biochemistry, Physiology and Microbiology	3		1	A:1	80
4	C002719 Microbial Genomics [en] Caroline De Tender -- Department of Biochemistry, Physiology and Microbiology	3		1	A:2	80
5	C002724 Molecular Microbial Ecology [en] Marie Joossens -- Department of Biochemistry, Physiology and Microbiology	3		1	A:2	80
6	C003092 Project Microbial Biotechnology [en] Lisa Slachmuylders -- Department of Biochemistry, Physiology and Microbiology	6		1	A:J	170

1.2.5 Major Plant Biotechnology

21 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003095 Plant Environment Interactions [en] Dominique Van Der Straeten -- Department of Biology	3		1	A:1	80
2	C003097 Plant Biotic Interactions [en] Sofie Goormachtig -- Department of Plant Biotechnology and Bioinformatics	3		1	A:2	80
3	C003098 The Plant Cell [en] Lieven De Veylder -- Department of Plant Biotechnology and Bioinformatics	3		1	A:2	80
4	C003099 Plant Growth and Development [en] Tom Beeckman -- Department of Plant Biotechnology and Bioinformatics	3		1	A:2	80
5	C003101 Project Plant Biotechnology [en] Fien Lanssens -- Department of Plant Biotechnology and Bioinformatics	6		1	A:J	170
6	C003825 Functional Plant Genomics [en] Klaas Vandepoele -- Department of Plant Biotechnology and Bioinformatics	3		1	A:1	80

1.3 Elective Courses

13 credits

Subscribe to 13 credit units from no less than 1 and no more than 2 modules from the following list. Subject to approval by the faculty.

1.3.1 Elective Course List

Subscribe to no more than 13 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	C003616 Systems Biology [en] Bert De Rybel -- Department of Plant Biotechnology and Bioinformatics	4			A:2	120
2	C002381 Biotechnology: Biosafety, GMP and Intellectual Property [en] Koen Vanhalst -- Department of Molecular Biology	3			A:1	80
3	C002681 Advanced Programming in Bioinformatics [en] Pieter De Bleser -- Department of Molecular Biology	3			A:1	80
4	C002720 Molecular and Experimental Immunology [en] Martin Guilliams -- Department of Molecular Biology	3			A:1	80
5	C002697 Biotechnological Techniques in Medical Diagnostics [en] Dieter Deforce -- Department of Pharmaceutics	3			B:2	80
6	C003480 Biopharmacy [en] Stefaan De Smedt -- Department of Pharmaceutics	3			A:2	80
7	C002699 Cellular Stress, Cell Death and Senescence [en] Peter Vandenabeele -- Department of Molecular Biology	3			A:1	80

8	C003311	Phylogenetics [en] Olivier De Clerck -- Department of Biology	4	A:1	120
9	C002714	Host-Parasite Interactions [en] Dirk de Graaf -- Department of Biochemistry, Physiology and Microbiology	3	A:1	80
10	C002737	The Eukaryotic Cell Cycle [en] Lieven De Veylder -- Department of Plant Biotechnology and Bioinformatics	3	A:1	80
11	C002706	Epigenetics [en] Wim Vanden Berghe -- Department of Molecular Biology	3	A:1	80
12	C002718	Metabolomics Kris Morreel -- Department of Plant Biotechnology and Bioinformatics	3	A:1	80
13	C002727	Molecular Simulations of Biosystems [en] Toon Verstraeten -- Department of Physics and Astronomy	3	A:1	80
14	C004455	Advanced Biomolecular 3D-structure Determination by X-ray Crystallography and Cryo-Electron Microscopy [en] Kenneth Verstraete -- Department of Biochemistry, Physiology and Microbiology	3	A:1	80
15	C003695	Applied High-throughput Analysis [en] Tim De Meyer -- Department of Data Analysis and Mathematical Modelling	6	A:1	180
16	C004008	Laboratory Animal Science [en] Kathleen Hermans -- Department of Pathobiology, Pharmacology and Zoological Medicine	6	A:1	180
17	C004009	History and Philosophy of Sciences Maarten Van Dyck -- Department of Philosophy and Moral Sciences	3	A:1	90
18	C004097	Analytical Biochemistry [en, nl] Bart Devreese -- Department of Biochemistry, Physiology and Microbiology	3	A:1	90
19	C003377	Plant Molecular Biology [en, nl] Lieven De Veylder -- Department of Plant Biotechnology and Bioinformatics	4	A:2	109
20	C003762	Developmental Biology Tom Beeckman -- Department of Plant Biotechnology and Bioinformatics	4	A:2	109

1.3.2 Elective Courses Flemish Community

Subscribe to no more than 13 credit units from the study programmes of UGent including courses from the other majors or the [Ghent University elective courses](#), or courses from other universities of the Flemish Community.

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

Subscribe to 6 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	H002219 Teaching Methodology: Chemistry Katrien Strubbe -- Department of Chemistry	6			A:J	180
2	H002220 Teaching Methodology: Biology Dominique Adriaens -- Department of Biology	6			A:J	180

2.3 Programme Pathway Internship 12 credits

Subscribe to 12 credit units from the following list, with

- 4 credit units "Internship B" with reference a or b, depending on the Teaching Methodology Course taken in the Programme Pathway Teaching Methodology
- 4 credit units "Internship C" with the same reference as "Internship B" 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, "Internship C" should match with that 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	H002315	Internship B: Biology Dominique Adriaens -- Department of Biology	4	a	A:J	100
3	H002312	Internship B: Chemistry Katrien Strubbe -- Department of Chemistry	4	b	A:J	100
4	H002331	Internship C: Biology Dominique Adriaens -- Department of Biology	4	a	A:J	100
5	H002330	Internship C: Chemistry Katrien Strubbe -- Department of Chemistry	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

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. 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 Methodology: Biology Dominique Adriaens -- Department of Biology	6			A:J	180
2	H002219 Teaching Methodology: Chemistry Katrien Strubbe -- Department of Chemistry	6			A: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 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
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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