



Faculty of Bioscience Engineering

Master of Science in Bioscience Engineering: Cell and Gene Biotechnology

Language of instruction: English

Programme version 4

1 General Courses

55 credits

1.1 Molecular Biology

7 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002615	Protein Chemistry <i>Els Van Damme -- Department of Biotechnology</i> Indicative price: € 0	4		1	A:1	120
2	I002621	Gene Regulation and Epigenetics <i>Tina Kyndt -- Department of Biotechnology</i> Indicative price: € 0	3		1	A:2	90

1.2 Biotechnology

15 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002611	Plant Biotechnology <i>Laurens Pauwels -- Department of Biotechnology</i> Indicative price: € 3	5		1	A:2	150
2	I002612	Industrial Biotechnology <i>Wim Soetaert -- Department of Biotechnology</i> Indicative price: € 15	5		1	A:1	150
3	I002613	Human and Animal Biotechnology <i>Daisy Vanrompay -- Department of Animal Sciences and Aquatic Ecology</i> Indicative price: € 20	5		1	A:2	150

1.3 Biological Data Sciences

11 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002610	Bioinformatics <i>Wim Van Criekinge -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: unknown	5		1	A:1	150
2	I003075	Omics <i>Tim De Meyer -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 0	6		1	A:2	180

1.4 Engineering and Technology

12 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I003071	Process Engineering 2 <i>Paul Van der Meeren -- Department of Green Chemistry and Technology</i> Indicative price: € 10	5		1	A:1	150
2	I001280	Experimental Design <i>Stijn Luca -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 15	3		1	A:2	75
3	I002617	Bio-imaging and Image Informatics <i>Andre Skirtach -- Department of Biotechnology</i> Indicative price: unknown	4		1	A:1	120

1.5 Society and Scientific Communication and Integrity

10 credits

Nr	Course		CRDT	Ref	MT1	Session	Study

1	I003076	Fit-for-Purpose Methods in Microbial Research <i>Nico Boon -- Department of Biotechnology</i> Indicative price: unknown	4	1	A:1	120
2	I003077	Biotechnology in a Professional and Societal Context <i>Tom Van de Wiele -- Department of Biotechnology</i> Indicative price: unknown	6	2	A:J	180

2 Majors

Subscribe to 1 major from the following list.

2.1 Major Red Biotechnology: Biomedical

20 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I003078	Human Health Interactions with the Nutrition and Microbiome Interphase <i>Tom Van de Wiele -- Department of Biotechnology</i> Indicative price: € 0	6			A:1	180
2	D012490	Cancer Genetics <i>Kaat Durinck -- Department of Biomolecular Medicine</i> Indicative price: € 0	5			A:2	150
3	I002622	Immunology <i>Daisy Vanrompay -- Department of Animal Sciences and Aquatic Ecology</i> Indicative price: € 20	5			A:2	150
4	D012549	Stem Cell Biology and Reprogramming <i>BJORN HEINDRYCKX -- Department of Human Structure and Repair</i> Indicative price: unknown	4			A:2	120

2.2 Major Green Biotechnology: Plant

17 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002626	Plants, Pathogens and Pests <i>Monica Höfte -- Department of Plants and Crops</i> Indicative price: € 0	5			A:2	150
2	I002628	Molecular Plant Breeding <i>Steven Maenhout -- Department of Plants and Crops</i> Indicative price: € 20	5			A:1	150
3	I002629	Plant Phenotyping Technologies <i>Kris Audenaert -- Department of Plants and Crops</i> Indicative price: € 0	3			A:2	90
4	I002630	Functional Plant Biology <i>Danny Geelen -- Department of Plants and Crops</i> Indicative price: unknown	4			A:2	120

2.3 Major White Biotechnology: Industrial

20 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002631	Industrial Fermentation Processes and Downstream Processing <i>Wim Soetaert -- Department of Biotechnology</i> Indicative price: € 15	5			A:2	150
2	I002632	Metabolic Engineering and Modelling of Micro-organisms <i>Marjan De Mey -- Department of Biotechnology</i> Indicative price: € 5	4			A:2	120
3	I002633	Functional (Meta)genomics <i>Inge Van Bogaert -- Department of Biotechnology</i> Indicative price: € 0	4			A:2	120
4	I002634	Synthetic Biology <i>Marjan De Mey -- Department of Biotechnology</i> Indicative price: € 0	4			A:2	120
5	I002635	Enzyme Engineering and Modelling <i>Tom Desmet -- Department of Biotechnology</i> Indicative price: € 0	3			A:1	90

3 Elective Courses

Students from the Major Red Biotechnology or the Major White Biotechnology subscribe to 15 credit units from 1 to 2 module(s) from the following list. Students from the Major Green Biotechnology subscribe to 18 credit units from 1 to 2 module(s) from the following list.

A minimum of 5 credit units is required from module 3.1.1 "Cross-Disciplinary Elective Set for Bioscience Engineers". Courses for which the final competencies are already (largely) achieved by another course in the curriculum cannot be included as part of the elective set. Subject to approval by the faculty.

3.1 Cross-Disciplinary Elective Courses

15 credits

3.1.1 Cross-Disciplinary Elective Set for Bioscience Engineers

Subscribe to course units from the following list, with no more than 10 credit units with reference A.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I003053	Machine Learning for Life Sciences <i>Willem Waegeman -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 0	4			A:1	120
2	I003054	Computer Vision for Life Sciences <i>Jan Verwaeren -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 0	5			A:2	150
3	I003021	Advanced Biosystems Modelling <i>Paul Van Lieckere -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 0	5			A:2	150
4	I001280	Experimental Design <i>Stijn Luca -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 15	3			A:2	75
5	I003068	Management for Engineers <i>Jeroen Buysse -- Department of Agricultural Economics</i> Indicative price: € 0	4			A:1	120
6	I002718	Economics and Management of Natural Resources <i>Stijn Speelman -- Department of Agricultural Economics</i> Indicative price: € 68	4			A:2	120
7	I002750	Isotopes in Biosciences <i>Pascal Boeckx -- Department of Green Chemistry and Technology</i> Indicative price: € 10	5			A:1	150
8	I003055	Biodiversity and Nature Conservation [nl] <i>Lander Baeten -- Department of Environment</i> Indicative price: € 0	4			A:1	120
9	I002586	Multidisciplinary Analysis of Climate Change <i>Pascal Boeckx -- Department of Green Chemistry and Technology</i> Indicative price: € 0	3			A:2	90
10	I003056	Human Nutrition and Health <i>John Van Camp -- Department of Food Technology, Safety and Health</i> Indicative price: € 7	5			A:1	150
11	I002758	Food Marketing and Consumer Behaviour <i>Wim Verbeke -- Department of Agricultural Economics</i> Indicative price: € 0	5			A:1	150
12	I003067	Bioethics <i>Michiel De Proost -- Department of Philosophy and Moral Sciences</i> Indicative price: € 5	3			A:1	75
13	I002637	Internship [en, nl] <i>Peter Ragaert -- Department of Food Technology, Safety and Health</i> Indicative price: € 0	5	A		A:J	150
14	I002638	International Internship [en, nl] <i>Peter Ragaert -- Department of Food Technology, Safety and Health</i> Indicative price: € 0	5	A		A:J	150
15	I002639	Extended Internship [en, nl] <i>Peter Ragaert -- Department of Food Technology, Safety and Health</i> Indicative price: € 0	10	A		A:J	300
16	I002640	Extended International Internship [en, nl] <i>Peter Ragaert -- Department of Food Technology, Safety and Health</i> Indicative price: € 0	10	A		A:J	300

3.2 Open Choice

Subscribe to course units from courses offered at Ghent University, including the Ghent University Elective Courses and courses from the majors.

4 Master's Dissertation

30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I001484 Master's Dissertation <i>Marjan De Mey -- Department of Biotechnology</i> <u>Indicative price: € 0</u>	30	2	A:J	900	

Programme related study costs

Type: Laptop

Name: Laptop
Indicative price: € 1,000
Optional: No

Type: Lab Material

Name: Lab coat
Indicative price: € 30
Optional: No

Type: Lab Material

Name: Safety glasses
Indicative price: € 15
Optional: No

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

Learning materials

The prices stated are indicative and subject to fluctuations.
The list of learning materials per course unit can be found in the course sheets.