

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 Crielinge -- 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 Liedekerke -- 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 Buyse -- 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> Indicative price: € 0 | 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.