

Faculty of Sciences, Faculty of Engineering and Architecture, Faculty of Bioscience Engineering

Master of Science in Bioinformatics -- Engineering

Language of instruction: English

Programme version 8

1 General Courses 33 credits

1.1 Applied Bioinformatics Module 33 credits

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|---------|-------|
| 1 | C003694 Statistical Genomics <i>Lieven Clement -- Department of Mathematics, Computer Science and Statistics</i> Indicative price: € 0 | 6 | | | A:1 | 180 |
| 2 | C003695 Applied High-throughput Analysis <i>Tim De Meyer -- Department of Data Analysis and Mathematical Modelling</i> Indicative price: € 0 | 6 | | 1 | A:1 | 180 |
| 3 | C003696 Genome Biology <i>Klaas Vandepoele -- Department of Plant Biotechnology and Bioinformatics</i> Indicative price: € 0 | 6 | | 1 | A:2 | 180 |
| 4 | C004000 Integrative Biology <i>Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics</i> Indicative price: € 0 | 3 | | 1 | A:2 | 80 |
| 5 | C003698 Design Project <i>Jan Fostier -- Department of Information Technology</i> Indicative price: € 0 | 9 | | 1 | A:J | 270 |
| 6 | C004122 Capita Selecta in Bioinformatics <i>Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics</i> Indicative price: € 0 | 3 | | | A:1 | 75 |

2 Courses Related to the Main Subject

2.1 Engineering Module 36 credits

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|---|------|-----|-----|---------|-------|
| 1 | E017930 Parallel and Distributed Software Systems <i>Filip De Turck -- Department of Information Technology</i> Indicative price: unknown | 6 | | 1 | A:1 | 180 |
| 2 | C003711 Computational Challenges in Bioinformatics <i>Peter Dawyndt -- Department of Mathematics, Computer Science and Statistics</i> Indicative price: € 0 | 6 | | 1 | A:2 | 180 |
| 3 | E061330 Machine Learning <i>Joni Dambre -- Department of Electronics and Information Systems</i> Indicative price: € 0 | 6 | | 2 | B:1 | 180 |
| 4 | E004120 Optimisation Techniques <i>Ljubomir Jovanov -- Department of Telecommunications and Information Processing</i> Indicative price: € 0 | 6 | | 2 | A:2 | 180 |

2.1.1 Elective Course List 12 credits

[Subscribe to 12 credit units from the following list.](#)

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|---------|-------|
| 1 | E034140 Parallel Computer Systems <i>Lieven Eeckhout -- Department of Electronics and Information Systems</i> | 6 | | | A:1 | 180 |

| | | | | | |
|----|---------|--|---|-----|-----|
| | | Indicative price: € 0 | | | |
| 2 | E003600 | Information Theory <i>Heidi Steendam -- Department of Telecommunications and Information Processing</i> Indicative price: € 13 | 6 | B:2 | 180 |
| 3 | E019400 | Information Security <i>Eric Laermans -- Department of Information Technology</i> Indicative price: € 80 | 6 | B:2 | 180 |
| 4 | E092623 | Modelling of Physiological Systems <i>Patrick Segers -- Department of Electronics and Information Systems</i> Indicative price: € 80 | 5 | A:2 | 150 |
| 5 | E074011 | Quantitative Cell and Tissue Analysis <i>Andre Skirtach -- Department of Biotechnology</i> Indicative price: unknown | 6 | A:1 | 180 |
| 6 | E003422 | Fundamentals of Statistical Sensor Processing <i>Hiep Luong -- Department of Telecommunications and Information Processing</i> Indicative price: € 0 | 6 | A:1 | 180 |
| 7 | C004545 | Bayesian Statistics <i>Koen De Turck -- Department of Telecommunications and Information Processing</i> Indicative price: € 0 | 5 | A:2 | 150 |
| 8 | E018240 | Big Data Technology <i>Dieter De Witte -- Department of Electronics and Information Systems</i> Indicative price: € 0 | 4 | A:1 | 120 |
| 9 | E018250 | Big Data Algorithms <i>Dieter De Witte -- Department of Electronics and Information Systems</i> Indicative price: € 0 | 3 | A:2 | 90 |
| 10 | F000918 | Deep Learning <i>Seppe vanden Broucke -- Department of Business Informatics and Operations Management</i> Indicative price: € 0 | 6 | A:2 | 180 |
| 11 | E061341 | Natural Language Processing <i>Chris Develder -- Department of Information Technology</i> Indicative price: € 0 | 6 | A:2 | 180 |
| 12 | E016340 | Probabilistic Graphical Models <i>Aleksandra Pizurica -- Department of Telecommunications and Information Processing</i> Indicative price: € 0 | 4 | A:2 | 120 |
| 13 | E018700 | Data Quality <i>Antoon Bronselaer -- Department of Telecommunications and Information Processing</i> Indicative price: € 25 | 3 | A:1 | 90 |
| 14 | E018130 | NoSQL Databases <i>Antoon Bronselaer -- Department of Telecommunications and Information Processing</i> Indicative price: € 30 | 3 | A:2 | 90 |
| 15 | E018610 | Database Design [nl] <i>Guy De Tré -- Department of Telecommunications and Information Processing</i> Indicative price: € 52 | 4 | A:1 | 120 |
| 16 | E017310 | Cloud Storage and Computing <i>Bruno Volckaert -- Department of Information Technology</i> Indicative price: € 0 | 4 | A:2 | 120 |
| 17 | E017950 | Secure Software and Systems <i>Bart Coppens -- Department of Electronics and Information Systems</i> Indicative price: € 0 | 6 | A:2 | 180 |
| 18 | E018160 | Knowledge Graphs <i>Pieter Colpaert -- Department of Electronics and Information Systems</i> Indicative price: unknown | 3 | A:2 | 90 |
| 19 | E061370 | Data Visualization for and with AI <i>Jefrey Lijffijt -- Department of Electronics and Information Systems</i> Indicative price: € 0 | 3 | A:1 | 90 |
| 20 | E061360 | Reinforcement Learning <i>Pieter Simoens -- Department of Information Technology</i> Indicative price: € 0 | 6 | A:1 | 180 |
| 21 | E008710 | Network Security <i>Bruno Volckaert -- Department of Information Technology</i> | 6 | A:1 | 180 |

[Indicative price: € 0](#)

22 E016360 Cognitive and Brain-Inspired Artificial Intelligence 3 A:2 90

Tony Belpaeme -- Department of Electronics and Information Systems

[Indicative price: € 0](#)

2.2 Biology Module

9 credits

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|---------|-------|
| 1 | C003712 Cellular and Molecular Biology <i>Moritz Nowack -- Department of Plant Biotechnology and Bioinformatics</i> Indicative price: € 75 | 6 | | 1 | A:1 | 180 |
| 2 | C003713 Introduction to Bioinformatics <i>Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics</i> Indicative price: € 0 | 3 | | 1 | A:2 | 90 |

2.3 Master's Dissertation

30 credits

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|---------|-------|
| 1 | C003720 Master's Dissertation <i>N. N.</i> Indicative price: unknown | 30 | | 2 | A:J | 900 |

3 Elective Courses

12 credits

Subscribe to 12 credit units from no less than 1 and no more than 3 modules from the following list. Subject to approval by the faculty.

3.1 Elective Course List

[Subscribe to no more than 9 credit units from the following list.](#)

| Nr | Course | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|----------|-------|
| 1 | C004001 Internship <i>N. N.</i> Indicative price: unknown | 6 | | | A:1 | 150 |
| 2 | A003107 Advanced Academic English <i>Geert Jacobs -- Department of Linguistics</i> Indicative price: € 0 | 3 | UKV | | A:1, B:2 | 90 |

3.2 Elective Courses UGent

[Subscribe to no more than 12 credit units from the courses of Ghent University including the \[Ghent University elective course list\]\(#\).](#)
Subject to approval by the curriculum committee.

Programme related study costs

Type: Laptop

Name: laptop

Indicative price: € 1,000

Optional: No

Fulltime standard learning track year: 1

Available through Student Association : No

Usability and Lifetime within the Course Unit : intensive

Usability and Lifetime within the Study Programme : intensive

Usability and Lifetime after the Study Programme : regularly

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 |

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.