GHENT UNIVERSITY

Study Programme

Academic year 2025-2026

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

Master of Science in Bioinformatics -- Engineering

Language of instruction: English

Programme version 9

1 General Courses — 33 credits

1.1 Applied Bioinformatics Module — 33 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003694	Statistical Genomics *Christophe Vanderaa -- Department of Mathematics, Computer Science and Statistics*	6			A:1	180
2	C003695	Applied High-throughput Analysis *Tim De Meyer -- Department of Data Analysis and Mathematical Modelling*	6		1	A:1	180
3	C003696	Genome Biology *Klaas Vandepoele -- Department of Plant Biotechnology and Bioinformatics*	6		1	A:2	180
4	C004000	Integrative Biology *Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics*	3		1	A:2	80
5	C003698	Design Project *Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics*	9		1	A:J	270
6	C004122	Capita Selecta in Bioinformatics *Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics*	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 *Jan Fostier -- Department of Information Technology*	6		1	A:1	180
2	C003711	Computational Challenges in Bioinformatics *Jan Fostier -- Department of Information Technology*	6		1	A:2	180
3	E061330	Machine Learning *Joni Dambre -- Department of Electronics and Information Systems*	6		2	B:1	180
4	E004120	Optimisation Techniques *Ljubomir Jovanov -- Department of Telecommunications and Information Processing*	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 *Lieven Eeckhout -- Department of Electronics and Information Systems*	6			A:1	180
2	E003600	Information Theory *Heidi Steendam -- Department of Telecommunications and Information Processing*	6			B:2	180
3	E019400	Information Security *Eric Laermans -- Department of Information Technology*	6			B:2	180
4	E092623	Modelling of Physiological Systems *Patrick Segers -- Department of Electronics and Information Systems*	5			A:2	150
5	E074011	Quantitative Cell and Tissue Analysis *An Hendrix -- Department of Human Structure and Repair*	6			A:1	180

6	E003422	Fundamentals of Statistical Sensor Processing *Hiep Luong -- Department of Telecommunications and Information Processing*	6		A:1	180
7	C004545	Bayesian Statistics *Koen De Turck -- Department of Telecommunications and Information Processing*	5		A:2	150
8	E018240	Big Data Technology *Dieter De Witte -- Department of Electronics and Information Systems*	4		A:1	120
9	E018250	Big Data Algorithms *Dieter De Witte -- Department of Electronics and Information Systems*	3		A:2	90
10	F000918	Deep Learning *Seppe vanden Broucke -- Department of Business Informatics and Operations Management*	6		A:2	180
11	E061341	Natural Language Processing *Thomas Demeester -- Department of Information Technology*	6		A:2	180
12	E016340	Probabilistic Graphical Models *Aleksandra Pizurica -- Department of Telecommunications and Information Processing*	4		A:2	120
13	E018700	Data Quality *Antoon Bronselaer -- Department of Telecommunications and Information Processing*	3		A:1	90
14	E018130	NoSQL Databases *Antoon Bronselaer -- Department of Telecommunications and Information Processing*	3		A:2	90
15	E018610	Database Design [nl] *Guy De Tré -- Department of Telecommunications and Information Processing*	4		A:1	120
16	E017310	Cloud Storage and Computing *Bruno Volckaert -- Department of Information Technology*	4		A:2	120
17	E017950	Secure Software and Systems *Bart Coppens -- Department of Electronics and Information Systems*	6		A:2	180
18	E018160	Knowledge Graphs *Pieter Colpaert -- Department of Electronics and Information Systems*	3		A:2	90
19	E061370	Data Visualization for and with AI *Jefrey Lijffijt -- Department of Electronics and Information Systems*	3		A:1	90
20	E061360	Reinforcement Learning *Pieter Simoens -- Department of Information Technology*	6		A:1	180
21	E008711	Network Hacking and Protection *Bruno Volckaert -- Department of Information Technology*	6		A:1	180
22	E016360	Cognitive and Brain-Inspired Artificial Intelligence *Tony Belpaeme -- Department of Electronics and Information Systems*	3		A:2	90

2.2 Biology Module 9 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003712	Cellular and Molecular Biology *Sofie Goormachtig -- Department of Plant Biotechnology and Bioinformatics*	6		1	A:1	180
2	C003713	Introduction to Bioinformatics *Kathleen Marchal -- Department of Plant Biotechnology and Bioinformatics*	3		1	A:2	90

2.3 Master's Dissertation 30 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003720	Master's Dissertation	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	6			A:1	150
2	A003107	Advanced Academic English *Geert Jacobs -- Department of Linguistics*	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.

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 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