GHENT UNIVERSITY

Study Programme

Academic year 2026-2027

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

Bridging Programme Master of Science in Bioinformatics -- Engineering

Language of instruction: English

Programme version 10

1 General Courses 33 credits

1.1 Applied Bioinformatics Module 33 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003694	Statistical Genomics *Lieven Clement -- 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 *Tim De Meyer -- Department of Data Analysis and Mathematical Modelling*	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

Subscribe to no less than 78 and no more than 84 credit units from the modules 2.1-2.4 from the following list. Subject to approval by the faculty.

- Students with less than 12 credits in module 2.2 must add courses from modules 2.1.1–2.1.5 until a total of 12 credits is reached. In addition, they must take 9 credits from elective courses modules 3.1 and 3.2.
- Students with 12 to 18 credits in module 2.2 must take 3 to 9 credits from elective courses modules 3.1 and 3.2.

2.1 Engineering Module

Subscribe to at most 9 credit units from no less than 1 and no more than 3 domain-specific or related modules from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003711	Computational Challenges in Bioinformatics *Jan Fostier -- Department of Information Technology*	6		1	A:2	180
2	E061335	Advanced Machine Learning *Tom Dhaene -- Department of Information Technology*	6		1	A:2	180
3	E019400	Information Security *Eric Laermans -- Department of Information Technology*	6		2	B:2	180
4	E004122	Advanced Discrete Algorithms *Mario Pickavet -- Department of Information Technology*	6		2		180
5	E032323	Advanced Deep Learning with Applications in Bioinformatics *Thomas Demeester -- Department of Information Technology*	3		2	A:1	90

2.1.1 Computer Science

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E736040	Cloud Computing *Bruno Volckaert -- Department of Information Technology*	6			A:2	180
2	E008711	Network Hacking and Protection *Bruno Volckaert -- Department of Information Technology*	6			A:1	180

3	E017930	Parallel and Distributed Software Systems *Filip De Turck -- Department of Information Technology*	6		A:1	180
4	E017950	Secure Software and Systems *Bart Coppens -- Department of Electronics and Information Systems*	6		A:1	180

2.1.2 Data

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E092841	Advanced Image and Signal Processing *Stefaan Vandenberghe -- Department of Electronics and Information Systems*	3			A:1	90
2	E018241	Big Data Technology *Pieter Colpaert -- Department of Electronics and Information Systems*	3			A:1	90
3	E018125	Database Management [nl] *Guy De Tré -- Department of Telecommunications and Information Processing*	6			A:1	180
4	E018700	Data Quality *Antoon Bronselaer -- Department of Telecommunications and Information Processing*	3			A:1	90
5	E018160	Knowledge Graphs *Pieter Colpaert -- Department of Electronics and Information Systems*	3			A:2	90
6	E018130	NoSQL Databases *Antoon Bronselaer -- Department of Telecommunications and Information Processing*	3			A:2	90

2.1.3 Machine Learning and Statistics

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C004545	Bayesian Statistics *Koen De Turck -- Department of Telecommunications and Information Processing*	5			A:2	150
2	C004413	Causal Machine Learning *Stijn Vansteelandt -- Department of Mathematics, Computer Science and Statistics*	5			A:2	150
3	E016360	Cognitive and Brain-Inspired Artificial Intelligence *Tony Belpaeme -- Department of Electronics and Information Systems*	3			A:2	90
4	E003422	Fundamentals of Statistical Sensor Processing *Hiep Luong -- Department of Telecommunications and Information Processing*	6			A:1	180
5	E003600	Information Theory *Heidi Steendam -- Department of Telecommunications and Information Processing*	6			B:2	180
6	E061341	Natural Language Processing *Chris Develder -- Department of Information Technology*	6			A:2	180
7	E016341	Probabilistic Graphical Models *Aleksandra Pizurica -- Department of Telecommunications and Information Processing*	3			A:2	90
8	E061360	Reinforcement Learning *Pieter Simoens -- Department of Information Technology*	6			A:2	180

2.1.4 Entrepreneurship and Regulation

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E027880	Introduction to Medical Device Legislation *Patrick Segers -- Department of Electronics and Information Systems*	3			A:2	90

2.1.5 Computational Biology

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E074500	Molecular Scale Modelling in Bio(medical) Engineering *Ahmadreza Mehdipour -- Department of Applied Physics*	6			A:1	180
2	E092623	Modelling of Physiological Systems *Patrick Segers -- Department of Electronics and Information Systems*	5			A:2	150
3	E074011	Quantitative Cell and Tissue Analysis *Andre Skirtach -- Department of Biotechnology*	6			A:1	180
4	C003525	Structure and Function of Biological Macromolecules *Savvas Savvides -- Department of Biochemistry, Physiology and Microbiology*	4			A:1	120

2.2 Broadening Elective Courses

Subscribe to no less than 3 and no more than 18 credit units from the following list. Subject to approval by the faculty.
Students take the course preferably in the first master's year, and depending on their previous degree.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E061331	Machine Learning: Learning from Data *Joni Dambre -- Department of Electronics and Information Systems*	6			A:1	180

2	E017615	Software Design and Development [nl] *Filip De Turck -- Department of Information Technology*	6		B:2	180
3	E018310	Algorithms and Data Structures [nl] *Tom Dhaene -- Department of Information Technology*	6		A:2	180
4	E021525	Statistical Physics [nl] *Louis Vanduyfhuys -- Department of Applied Physics*	3		A:2	90
5	E003110	Applied Probability [nl] *Sabine Wittevrongel -- Department of Telecommunications and Information Processing*	3		A:2	90

2.3 Biology Module 9 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C003712	Cellular and Molecular Biology *Moritz Nowack -- 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

2.4 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

Subscribe to no less than 3 and no more than 9 credit units from no less than 1 and no more than 2 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 9 credit units from the courses of Ghent University including the Ghent University elective course list and courses from 2.1.1-2.1.5. 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 2027-2028	f: annually, from 2028-2029	i: annually, from 2029-2030
b: tri-annually	d: bi-annually, from 2027-2028	g: bi-annually, from 2028-2029	j: bi-annually, from 2029-2030
	e: tri-annually, from 2027-2028	h: tri-annually, from 2028-2029	k: tri-annually, from 2029-2030