

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 9

## 1 General Courses 33 credits

### 1.1 Applied Bioinformatics Module 33 credits

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

## 2 Courses Related to the Main Subject 81 credits

### 2.1 Engineering Module 42 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E001161 <b>Mathematic Models</b> <i>Karel Van Acoleyen -- Department of Electronics and Information Systems</i>	6		1	A:1	180
2	E001470 <b>Discrete Mathematics II [nl]</b> <i>Joris Walraevens -- Department of Telecommunications and Information Processing</i>	6		1	A:2	180
3	C003711 <b>Computational Challenges in Bioinformatics</b> <i>Jan Fostier -- Department of Information Technology</i>	6		1	A:2	180
4	E061330 <b>Machine Learning</b> <i>Joni Dambre -- Department of Electronics and Information Systems</i>	6		2	B:1	180
5	E017930 <b>Parallel and Distributed Software Systems</b> <i>Jan Fostier -- Department of Information Technology</i>	6		2	A:1	180
6	E004120 <b>Optimisation Techniques</b> <i>Ljubomir Jovanov -- Department of Telecommunications and Information Processing</i>	6		2	A:2	180

#### 2.1.1 Elective Course List

[Subscribe to 6 credit units from the following list.](#)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E034140 <b>Parallel Computer Systems</b> <i>Lieven Eeckhout -- Department of Electronics and Information Systems</i>	6			A:1	180
2	E003600 <b>Information Theory</b> <i>Heidi Steendam -- Department of Telecommunications and Information Processing</i>	6			B:2	180
3	E019400 <b>Information Security</b> <i>Eric Laermans -- Department of Information Technology</i>	6			B:2	180

4	E092623	Modelling of Physiological Systems <i>Patrick Segers -- Department of Electronics and Information Systems</i>	5		A:2	150
5	E074011	Quantitative Cell and Tissue Analysis <i>An Hendrix -- Department of Human Structure and Repair</i>	6		A:1	180
6	E003422	Fundamentals of Statistical Sensor Processing <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	6		A:1	180
7	C004545	Bayesian Statistics <i>Koen De Turck -- Department of Telecommunications and Information Processing</i>	5		A:2	150
8	E018240	Big Data Technology <i>Dieter De Witte -- Department of Electronics and Information Systems</i>	4		A:1	120
9	E018250	Big Data Algorithms	3			90
10	F000918	Deep Learning <i>Seppe vanden Broucke -- Department of Business Informatics and Operations Management</i>	6		A:2	180
11	E061341	Natural Language Processing <i>Thomas Demeester -- Department of Information Technology</i>	6		A:2	180
12	E016340	Probabilistic Graphical Models <i>Aleksandra Pizurica -- Department of Telecommunications and Information Processing</i>	4		A:2	120
13	E018700	Data Quality <i>Antoon Bronselaer -- Department of Telecommunications and Information Processing</i>	3		A:1	90
14	E018130	NoSQL Databases <i>Antoon Bronselaer -- Department of Telecommunications and Information Processing</i>	3		A:2	90
15	E018610	Database Design [nl] <i>Guy De Tré -- Department of Telecommunications and Information Processing</i>	4		A:1	120
16	E017310	Cloud Storage and Computing <i>Bruno Volckaert -- Department of Information Technology</i>	4		A:2	120
17	E017950	Secure Software and Systems <i>Bart Coppens -- Department of Electronics and Information Systems</i>	6		A:2	180
18	E018160	Knowledge Graphs <i>Pieter Colpaert -- Department of Electronics and Information Systems</i>	3		A:2	90
19	E061370	Data Visualization for and with AI <i>Jefrey Lijffijt -- Department of Electronics and Information Systems</i>	3		A:1	90
20	E061360	Reinforcement Learning <i>Pieter Simoens -- Department of Information Technology</i>	6		A:1	180
21	E008711	Network Hacking and Protection <i>Bruno Volckaert -- Department of Information Technology</i>	6		A:1	180
22	E016360	Cognitive and Brain-Inspired Artificial Intelligence <i>Tony Belpaeme -- Department of Electronics and Information Systems</i>	3		A:2	90

## 2.2 Biology Module

9 credits

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

6 credits

Subscribe to 6 credit units from no less than 1 and no more than 2 module from the following list. Subject to approval by the faculty.

### 3.1 Elective Course List

Subscribe to no more than 6 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 <i>Geert Jacobs -- Department of Linguistics</i>	3	UKV		A:1, B:2	90

### 3.2 Elective Courses UGent

### 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