

Study Programme

Academic year 2025-2026

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

Master of Science in Bioinformatics -- Systems Biology

Language of instruction: English

Programme version 10

1 Ge	eneral	Courses			33	credits
1.1 A	pplied	Bioinformatics Module			33	credits
Nr Cou	urse		CRDT Re	ef MT1	Session	Study
1 C00	03694	Statistical Genomics Christophe Vanderaa Department of Mathematics, Computer Science and Statistics Indicative price: $\in 0$	6		A:1	180
2 C00	03695	Applied High-throughput Analysis <i>Tim De Meyer Department of Data Analysis and Mathematical Modelling</i> <u>Indicative price: € 0</u>	6	1	A:1	180
3 C00	03696	Genome Biology Klaas Vandepoele Department of Plant Biotechnology and Bioinformatics Indicative price: € 0	6	1	A:2	180
4 C00	04000	Integrative Biology Kathleen Marchal Department of Plant Biotechnology and Bioinformatics Indicative price: € 0	3	1	A:2	80
5 C00	03698	Design Project Kathleen Marchal Department of Plant Biotechnology and Bioinformatics Indicative price: € 0	9	1	A:J	270
6 C00	04122	Capita Selecta in Bioinformatics Kathleen Marchal Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3		A:1	75
2 Co	urses	Related to the Main Subject			78	credits
2.1 S	system	ns Biology Module			29	credits
Subscrib the statis Subject	be to 17 stics or to appro	credit units from no less than 1 and no more than 4 modules from the the informatics module. by a by the curriculum committee.	following list. At least	one course shou	uld be from	
Nr Cou	urse		CRDT Re	ef MT1	Session	Study
1 C00	03709	Evolutionary Biology Quinten Bafort Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3	1	A:2	80
2 C00	03527	Biostatistics Caroline De Tender Department of Biochemistry, Physiology and Microbiology Indicative price: € 0	3	1	B:1	80
3 C00	03617	Modelling of Biological Systems Steven Maere Department of Plant Biotechnology and Bioinformatics Indicative price: € 0	3	2	A:1	80
4 C00	03086	Proteomics Bart Devreese Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 0$	3	2	A:1	80
2.1.1	Microb	bial Module				

Subscribe to no more than 12 credit units from the following list.

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1	C002724	Molecular Microbial Ecology <i>Marie Joossens Department of Biochemistry, Physiology and Microbiology</i> <u>Indicative price: \in 10</u>	3	A:2	80
2	C002714	Host-Parasite Interactions Dirk de Graaf Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 0$	3	A:1	80
3	C002719	Microbial Genomics Caroline De Tender Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 0$	3	A:2	80
4	C004394	Microbes in Biotechnology Marie Joossens Department of Biochemistry, Physiology and Microbiology Indicative price: ≤ 15	6	A:1	150
2.	1.2 Bioche	emistry and Structural Biology Module			
Su	bscribe to no	more than 12 credit units from the following list.		0	Otrada
1	C003525	Structure and Function of Biological Macromolecules Savvas Savvides Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 0$	4	A:1	120
2	C003526	Structural Bioinformatics Savvas Savvides Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 0$	3	A:1	80
3	C003088	Drug Design Savvas Savvides Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 10$	3	A:2	80
4	C003615	Experimental Structural Biology Savvas Savvides Department of Biochemistry, Physiology and Microbiology Indicative price: $\in 0$	5	A:2	135
2.	1.3 Biome	dical Oriented Module			
_	beeribe to pe	more than 12 credit units from the following list			
Su Nr	Course		CRDT Ref MT1	Session	Study
Su Nr 1	Course C002716	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: € 0	CRDT Ref MT1 3	Session A:1	Study 80
Su Nr 1	Course C002716 C002722	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: € 0 Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: € 0	CRDT Ref MT1 3 3	Session A:1 A:1	Study 80 80
Su Nr 1 2 3	Course C002716 C002722 C002708	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: € 0 Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: € 0 Experimental Molecular Cell Biology Rudi Beyaert Department of Molecular Biology Indicative price: € 0	CRDT Ref MT1 3 3 3	Session A:1 A:1 A:2	Study 80 80 80 80
Su Nr 1 2 3 4	Course C002716 C002722 C002708 C002720	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: € 0 Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: € 0 Experimental Molecular Cell Biology Rudi Beyaert Department of Molecular Biology Indicative price: € 0 Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: € 0	CRDTRefMT1333333	Session A:1 A:1 A:2 A:1	Study 80 80 80 80 80 80
Su 1 2 3 4 5	Course C002716 C002722 C002708 C002720 C002738	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: $\in 0$ Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: $\in 0$ Experimental Molecular Cell Biology Rudi Beyaert Department of Molecular Biology Indicative price: $\in 0$ Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: $\in 0$ Transgenetics of Animal Model Organisms Kris Vleminckx Department of Molecular Biology Indicative price: $\in 170$	CRDTRefMT1333336	Session A:1 A:1 A:2 A:1 A:2 A:2	Study 80 80 80 80 160
Su Nr 1 2 3 4 5 6	Course C002716 C002722 C002708 C002720 C002720 C002738 D012490	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: $\in 0$ Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: $\in 0$ Experimental Molecular Cell Biology Rudi Beyaert Department of Molecular Biology Indicative price: $\in 0$ Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: $\in 0$ Transgenetics of Animal Model Organisms Kris Vleminckx Department of Molecular Biology Indicative price: $\in 170$ Cancer Genetics Kaat Durinck Department of Biomolecular Medicine Indicative price: $\in 0$	CRDT Ref MT1 3 3 3 3 3 4 3 3 4 5 5 5	Session A:1 A:1 A:2 A:2 A:2 A:2 A:2	Study 80 80 80 80 160 150
Su Nr 1 2 3 4 5 6 7	Course C002716 C002722 C002708 C002708 C002720 C002738 D012490 D012701	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: € 0 Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: € 0 Experimental Molecular Cell Biology Rudi Beyaert Department of Molecular Biology Indicative price: € 0 Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: € 0 Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: € 0 Transgenetics of Animal Model Organisms Kris Vleminckx Department of Molecular Biology Indicative price: € 170 Cancer Genetics Kaat Durinck Department of Biomolecular Medicine Indicative price: € 0 Advanced Human Genetics Sofie Symoens Department of Biomolecular Medicine Indicative price: unknown	CRDT Ref MT1 3 3 3 3 3 4 3 3 4 5 6 5 6 5 6	Session A:1 A:1 A:2 A:2 A:2 A:2 A:2 A:2 A:2	Study 80 80 80 80 160 150 180
Su Nr 1 2 3 4 5 6 7 8	Course C002716 C002712 C002722 C002708 C002720 C002738 D012490 D012701 D000652	Human Genetics and Genetic Diseases Bruce Poppe Department of Biomolecular Medicine Indicative price: € 0 Molecular Cancer Biology Geert Berx Department of Molecular Biology Indicative price: € 0 Experimental Molecular Cell Biology Rudi Beyaert Department of Molecular Biology Indicative price: € 0 Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: € 0 Molecular and Experimental Immunology Martin Guilliams Department of Molecular Biology Indicative price: € 0 Transgenetics of Animal Model Organisms Kris Vleminck Department of Molecular Biology Indicative price: € 170 Cancer Genetics Kaat Durinck Department of Biomolecular Medicine Indicative price: € 0 Advanced Human Genetics Sofie Symoens Department of Biomolecular Medicine Indicative price: unknown Developmental Genetics and Gene Regulation Etride De Baere Department of Biomolecular Medicine Indicative price: unknown	CRDT Ref MT1 3 3 3 3 3 4 3 3 4 5 6 6 6 6 6 6 6 6	Session A:1 A:1 A:2 A:2 A:2 A:2 A:2 A:1	Study 80 80 80 80 160 150 180

10 C003379 Immunology [nl]

Martin Guilliams -- Department of Molecular Biology Indicative price: $\in 0$

2.1.4 Plant Biotechnology Module

Subscribe to no more than 17 credit units from the following list.

Nr	Course		CRDT Ref MT1	Session	Study
1	C003104	Plant Research Technologies Hilde Nelissen Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3	A:1	75
2	C003825	Functional Plant Genomics Lieven De Veylder Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3	A:1	80
3	C003098	The Plant Cell Daniël Van Damme Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3	A:2	80
4	C003099	Plant Growth and Development Moritz Nowack Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3	A:2	80
5	C003329	Physiological Regulation in Plants Dominique Van Der Straeten Department of Biology Indicative price: € 1	5	A:1	150
6	C003100	Molecular Plant Breeding Tom Ruttink Department of Plant Biotechnology and Bioinformatics Indicative price: € 97	3	A:1	80

2.1.5 Population Genetics Module

Subscribe to no more than 15 credit units from the following list.

INT	Course			TI Session	Study
1	C003372	Genetics II [n] Wout Boerjan Department of Plant Biotechnology and Bioinformatics Indicative price: € 84	4	A:1	120
2	C003326	Conservation Genetics Philippe Helsen Department of Biology Indicative price: € 100	5	A:2ª	150
3	C002241	Population Ecology [n] Luc Lens Department of Biology Indicative price: € 0	4	A:1	110
4	C004528	Ecological Modelling Dries Bonte Department of Biology Indicative price: unknown	4	A:1	120
5	C003625	Population Processes [nl] Luc Lens Department of Biology Indicative price: € 0	6	A:1	180

2.1.6 Statistics Module

Subscribe to no more than 16 credit units from the following list.

IN			CRDT	Ref	MT1	Session	Study
1	C004079	Categorical Data Analysis Beatrijs Moerkerke Department of Data-analysis Indicative price: € 15	6			A:1	180
2	C003398	Analysis of Clustered and Longitudinal Data Johan Steen Department of Mathematics, Computer Science and Statistics Indicative price: € 130	5			A:2	150
3	1001280	Experimental Design Stijn Luca Department of Data Analysis and Mathematical Modelling Indicative price: ≤ 15	3			A:2	75
4	C002884	Epidemiology and Clinical Trials Brecht Devleesschauwer Department of Translational Physiology, Infectiology and Public Health Indicative price: $\in 65$	5			A:1	150
5	C004413	Causal Machine Learning Stijn Vansteelandt Department of Mathematics, Computer Science and Statistics	5			A:2	150

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2.1.7 Informatics Module

Su	bscribe to no	more than 15 credit units from the following list.			
Nr			CRDT Ref	Session	Study
1	C003776	System Programming [nl] Filip De Turck Department of Information Technology Indicative price: $\in 0$	6	A:1	180
2	C003772	Object Oriented Programming [nl] Kris Coolsaet Department of Mathematics, Computer Science and Statistics Indicative price: $\in 0$	6	A:2	180
3	C003771	Databases [nl] <i>Guy De Tré Department of Telecommunications and Information Processing</i> <u>Indicative price: \in 52</u>	6	A:1	180
4	1003054	Computer Vision for Life Sciences Jan Verwaeren Department of Data Analysis and Mathematical Modelling Indicative price: $\in 0$	5	A:2	150
5	C004456	Linux for Bioinformatics Environment Herman De Beukelaer Department of Plant Biotechnology and Bioinformatics Indicative price: $\in 0$	3	A:2	80

2.1.8 Individual Track

Subscribe to no more than 17 credit units from domain-specific or related courses, including courses from other specialisation tracks of the Master of Science in Bioinformatics (if the initial competences are met). Subject to approval by the curriculum committee.

2.2 Applied Mathematics and Informatics Module

19 credits

INT	Course		CRDT	Ref	MT1	Session	Study
1	C004611	Biological Databases Wim Van Criekinge Department of Data Analysis and Mathematical Modelling Indicative price: unknown	3		1	A:2	90
2	C003701	Selected Topics in Mathematical Optimization Paul Van Liedekerke Department of Data Analysis and Mathematical Modelling Indicative price: $\in 0$	3			A:1	75
3	C003083	Bioinformatics Algorithms Veerle Fack Department of Mathematics, Computer Science and Statistics Indicative price: ≤ 30	3		1	A:2	80
4	1003053	Machine Learning for Life Sciences Willem Waegeman Department of Data Analysis and Mathematical Modelling Indicative price: $\in 0$	4			A:1	120
5	C004612	Advanced AI for Bioinformatics Willem Waegeman Department of Data Analysis and Mathematical Modelling Indicative price: $\in 0$	6			A:1	180
2.	3 Master	's Dissertation				30	credits
Nr	Course		CRDT	Ref	MT1	Session	Study
Nr 1	Course C003721	Master's Dissertation Indicative price: unknown	CRDT 30	Ref	MT1 2	Session A:J	Study 900
Nr 1 3	Course C003721 Elective	Master's Dissertation Indicative price: unknown	CRDT 30	Ref	MT1 2	Session A:J 9 c	Study 900
Nr 1 3 Su Su	Course C003721 Elective	Master's Dissertation Indicative price: unknown Courses eless than 1 and no more than 2 modules from the following list. oval by the curriculum committee.	CRDT 30	Ref	MT1 2	Session A:J 9 c	Study 900
Nr 1 3 Su Su 3.	Course C003721 Elective bscribe to no bject to appru 1 Elective	Master's Dissertation Indicative price: unknown Courses eless than 1 and no more than 2 modules from the following list. oval by the curriculum committee. e Course List	CRDT 30	Ref	MT1 2	Session A:J 9 c	Study 900
Nr 1 3 Su Su 3.	Course C003721 Elective bscribe to no bject to appro 1 Elective bscribe to no Course	Master's Dissertation Indicative price: unknown Courses eless than 1 and no more than 2 modules from the following list. oval by the curriculum committee. e Course List o more than 9 credit units from the following list.	CRDT 30 CRDT	Ref	MT1 2	Session A:J 9 c	Study 900 credits
Nr 1 Su Su Su Nr 1	Course C003721 Elective biscribe to no bject to appro 1 Elective biscribe to no Course C004001	Master's Dissertation Indicative price: unknown COURSES eless than 1 and no more than 2 modules from the following list. oval by the curriculum committee. e Course List o more than 9 credit units from the following list. Internship Indicative price: unknown	CRDT 30 CRDT 6	Ref	MT1 2 MT1	Session A:J 9 c Session A:1	Study 900 credits Study 150

Indicative price: € 0

3.2 Elective Courses UGent

Subscribe to no more than 9 credit units from the courses of Ghent University including the Intensive Programmes of the Faculty of 06-07-2025 04:27

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 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 b: tri-annually	c: annually, from 2026-2027 d: bi-annually, from 2026-2027 e: tri-annually, from 2026-2027	f: annually, from 2027-2028 g: bi-annually, from 2027-2028 h: tri-annually, from 2027-2028
	c. In annually, non 2020 2021	n. th annually, non 2021-2020

i: annually, from 2028-2029 j: bi-annually, from 2028-2029 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.