Study Programme

Academic year 2024-2025

GHENT UNIVERSITY

Faculty of Bioscience Engineering

Master of Science in Bioscience Engineering: Land, Water and Climate

Language of instruction: Dutch
Programme version 3

1 General Courses — 63 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002655	Meteorology and Ecoclimatology	5		1	A:1	150
		Hans Verbeeck -- Department of Environment					
2	I002656	Climate Change Processes [en]	5		1	A:2	150
		Diego Miralles -- Department of Environment					
3	I002657	Soil Physics [en]	5		1	A:1	150
		Wim Cornelis -- Department of Environment					
4	I002658	Environmental Soil Sensing [en]	4		1	A:2	120
		Philippe De Smedt -- Department of Environment					
5	I002659	Hydrological Modelling	4		1	A:1	120
		Hans Lievens -- Department of Environment					
6	I002660	Groundwater Flow	3		1	A:2	90
		Niko Verhoest -- Department of Environment					
7	I002661	Open Channel Hydraulics	4		1	A:1	120
		Niko Verhoest -- Department of Environment					
8	I002646	Nutrient Management [en]	3		1	B:2	90
		Stefaan De Neve -- Department of Environment					
9	I002698	Water Quality Management [en]	4		1	A:2	120
		Peter Goethals -- Department of Animal Sciences and Aquatic Ecology					
10	I002664	Soil Erosion Control: Principles and Practice [en]	4		1	A:1	120
		Ann Verdoodt -- Department of Environment					
11	I002662	Soil and Groundwater Remediation	5		2	A:1	150
		Ellen Van De Vijver -- Department of Environment					
12	I002663	Water Governance [en]	4		2	A:2	120
		Stijn Speelman -- Department of Agricultural Economics					
13	I002665	Integrated Land, Water and Climate Policy	3		2	A:J	90
		Stefaan De Neve -- Department of Environment					
14	I002666	Integrated Project: Land, Water and Climate	5		2	A:J	150
		Ann Verdoodt -- Department of Environment					
15	I003001	Planning for Multifunctional Landscapes [en]	5		2	A:2	150
		Ann Verdoodt -- Department of Environment					

2 Elective Courses

Subscribe to 27 credit units from no less than 1 and no more than 6 module(s) from the following list, of which at least 1 course unit is included from the list 2.1 Engineering Skills for Climate Adaptive Management of Land and Water. Subject to approval by the faculty.

Full-time standard learning track:
Students can choose which of the elective course units are taken in the first respectively the second standard learning track year (unless otherwise specified); in combination with the general course units, students take a total of 54 to 66 credits per standard learning track year. The sum of the total number of credits taken up over the 2 standard learning track years must be 120 credits.

2.1 Engineering Skills for Climate-Smart Land and Water Management

Subscribe to at least 1 course unit from the following list.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002707	Water Resources Engineering	5			A:2	150
		Niko Verhoest -- Department of Environment					

Nr	Course		CRDT	Ref	MT1	Session	Study
2	I002708	Soil Water Management [en]	5			A:2	150
		Wim Cornelis -- Department of Environment					
3	I002709	Aquatic Ecotechniques [en]	4			A:1	120
		Peter Goethals -- Department of Animal Sciences and Aquatic Ecology					

2.2 In-depth Knowledge and Skills in Land, Water and Climate

Subscribe to no more than 23 credit units from the following list.
Pillars (see reference)
L = Land
W = Water
K = Climate

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002712	Soil Degradation [en]	5	L, K		A:2	150
		Ann Verdoodt -- Department of Environment					
2	I002713	Applied Soil Biology [en]	4	L		A:1	120
		Stefaan De Neve -- Department of Environment					
3	E054820	Inland Waterways and Locks [en]	6	W		B:2	180
		Tom De Mulder -- Department of Civil Engineering					
4	I002535	Applied Marine Ecology [en]	3	W		A:1	90
		Colin Janssen -- Department of Animal Sciences and Aquatic Ecology					
5	I002710	Water in the City	4	W		A:1	120
		Katrien Van Eerdenbrugh -- Department of Environment					
6	C002664	Paleoclimatology [en]	6	K		A:1	150
		Dirk Verschuren -- Department of Biology					

2.3 Broadening Knowledge and Skills in Technology, Land Use and Management, and Data Analysis

Subscribe to no more than 23 credit units from the following list.
Module (see reference)
T = Technology
I = Land Use and Management
D = Data Analysis

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002508	Environmental Technology: Water [en]	5	T		B:2	150
		Jo De Vrieze -- Department of Biotechnology					
2	C004177	Spatiotemporal Analysis and Modelling [en]	5	T, I		A:1	150
		Nico Van de Weghe -- Department of Geography					
3	I002716	Environmental Impact Assessment	4	I		A:2	120
		Sophie Huysveld -- Department of Green Chemistry and Technology					
4	I002685	Legal Framework for Environmental Technology	6	I, T		A:1	180
		Hildegard Deweerdt -- Department of Agricultural Economics					
5	I002718	Economics and Management of Natural Resources [en]	4	I		A:2	120
		Stijn Speelman -- Department of Agricultural Economics					
6	E084581	Sustainable Cities	6	I		A:J	180
		Michiel Dehaene -- Department of Architecture and Urban Planning					
7	I002932	Machine Learning for Life Sciences [en]	5	D		A:1	150
		Willem Waegeman -- Department of Data Analysis and Mathematical Modelling					
8	C003701	Selected Topics in Mathematical Optimization [en]	3	D		A:1	75
		Paul Van Liedekerke -- Department of Data Analysis and Mathematical Modelling					

2.4 Entrepreneurship and Management

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

Nr	Course		CRDT	Ref	MT1	Session	Study
1	C000833	Project Management	4			A:2	120
		Mario Vanhoucke -- Department of Business Informatics and Operations Management					
2	I001949	Entrepreneurship	3			A:2	75
		Petra Andries -- Department of Marketing, Innovation and Organisation					
3	E076460	Dare to Venture [en]	4			A:2	120
		Johan Verrue -- Department of Marketing, Innovation and Organisation					
4	E076471	Dare to Start [en]	3			A:2	90
		Wouter Haerick -- Department of Information Technology					
5	I002619	Management for Engineers [en]	4			A:1	120
		Jeroen Buysse -- Department of Agricultural Economics					

2.5 Skills and Attitudes

Subscribe to no more than 15 credit units from the following list, with no more than 10 credit units with reference a.

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002637	Internship [en, nl]	5	a		A:J	150
		Paul Van der Meeren -- Department of Green Chemistry and Technology					
2	I002638	International Internship [en, nl]	5	a		A:J	150
		Paul Van der Meeren -- Department of Green Chemistry and Technology					
3	I002639	Extended Internship [en, nl]	10	a		A:J	300
		Paul Van der Meeren -- Department of Green Chemistry and Technology					
4	I002640	Extended International Internship [en, nl]	10	a		A:J	300
		Paul Van der Meeren -- Department of Green Chemistry and Technology					
5	I001944	Bio-ethics [en]	3			A:1	75
		Michiel De Proost -- Department of Philosophy and Moral Sciences					
6	C002668	Scientific Communication in English [en]	5			A:2	150
		Geert Jacobs -- Department of Linguistics					
7	I001784	Seminar [en, nl]	3			A:J	75
		Mieke Uyttendaele -- Department of Food Technology, Safety and Health					

2.6 Open Choice

Subscribe to course units from courses offered at Ghent University and at the alliance partner VUB, including the Ghent University Elective Courses.
A maximum of 2 such courses is allowed.
Maximum 8 credit units language courses are allowed within this master programme.
Subject to approval by the Faculty.

3 Master's Dissertation — 30 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I001478	Master's Dissertation	30		2	A:J	900
		Ann Verdoodt -- Department of Environment					

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 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