Study Programme

Academic year 2021-2022

Faculty of Bioscience Engineering

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

Language of instruction: Dutch

Programme version 1

1 General Courses — 63 credits

Nr	Course		CRDT	Ref	MT1	Session	Study
1	I002655	Meteorology and Ecoclimatology Hans Verbeeck -- Department of Environment	5		1	A:1	150
2	I002656	Climate Change Processes [en, nl] Diego Miralles -- Department of Environment	5		1	A:2	150
3	I002657	Soil Physics [en] Wim Cornelis -- Department of Environment	5		1	A:1	150
4	I002658	Environmental Soil Sensing [en] Philippe De Smedt -- Department of Environment	4		1	A:2	120
5	I002659	Hydrological Modelling Niko Verhoest -- Department of Environment	4		1	A:1	120
6	I002660	Groundwater Flow Niko Verhoest -- Department of Environment	3		1	A:2	90
7	I002661	Open Channel Hydraulics Niko Verhoest -- Department of Environment	4		1	A:1	120
8	I002646	Nutrient Management [en] Stefaan De Neve -- Department of Environment	3		1	B:2	90
9	I002698	Water Quality Management [en] Peter Goethals -- Department of Animal Sciences and Aquatic Ecology	4		1	A:2	120
10	I002662	Soil and Groundwater Remediation Ellen Van De Vijver -- Department of Environment	5		2	A:1	150
11	I002663	Water Governance [en] Stijn Speelman -- Department of Agricultural Economics	4		2	A:2	120
12	I002699	Land Evaluation [en] Ann Verdoodt -- Department of Environment	5		1	A:2	150
13	I002664	Soil Erosion Control: Principles and Practice [en] Ann Verdoodt -- Department of Environment	4		1	A:1	120
14	I002665	Integrated Land, Water and Climate Policy Stefaan De Neve -- Department of Environment	3		2	A:J	90
15	I002666	Integrated Project: Land, Water and Climate Ann Verdoodt -- Department of Environment	5		2	A:1	150

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 Niko Verhoest -- Department of Environment	5			A:2	150

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					
4	I002710	Water in the City	4			A:1	120
		Katrien Van Eerdenbrugh -- Department of Environment					

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	I002711	Soil Genesis [en]	5	L, K		A:1	150
		Peter Finke -- Department of Environment					
2	I002712	Soil Degradation [en]	5	L, K		A:2	150
		Ann Verdoodt -- Department of Environment					
3	I002713	Applied Soil Biology [en]	4	L		A:1	120
		Stefaan De Neve -- Department of Environment					
4	I002715	Irrigation and Drainage [en]	5	L, W		A:1	150
		Wim Cornelis -- Department of Environment					
5	E054820	Inland Waterways and Locks [en]	6	W		B:2	180
		Tom De Mulder -- Department of Civil Engineering					
6	I000631	Groundwater Chemistry [en]	5	W		A:1	145
		Kristine Walraevens -- Department of Geology					
7	I002535	Applied Marine Ecology [en]	3	W		A:1	90
		Colin Janssen -- Department of Animal Sciences and Aquatic Ecology					
8	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
		Korneel Rabaey -- Department of Biotechnology					
2	C004177	Spatiotemporal Analysis and Modelling [en]	5	T, I		A:1	150
		Nico Van de Weghe -- Department of Geography					
3	E084580	Sustainable Cities	5	I		A:J	150
		Thomas Block -- Department of Political Sciences					
4	I002716	Environmental Impact Assessment	4	I		A:2	120
		Sophie Huysveld -- Department of Green Chemistry and Technology					
5	I002685	Legal Framework for Environmental Technology	6	I, T		A:1	180
		Hildegard Deweerdt -- Department of Agricultural Economics					
6	I002718	Economics and Management of Natural Resources [en]	4	I		A:2	120
		Stijn Speelman -- Department of Agricultural Economics					
7	I002091	Predictive Modelling [en]	5	D		B:2	150
		Willem Waegeman -- Department of Data Analysis and Mathematical Modelling					
8	I002719	Modelling and Simulation with Partial Differential Equations in Practice [en]	5	D		A:1	150
		Ingmar Nopens -- Department of Data Analysis and Mathematical Modelling					
9	C003701	Selected Topics in Mathematical Optimization [en]	3	D		A:1	75
		Michiel Stock -- 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					

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

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] Tom Desmet -- Department of Biotechnology	5	a		A:J	150
2	I002638	International Internship [en, nl] Tom Desmet -- Department of Biotechnology	5	a		A:J	150
3	I002639	Extended Internship [en, nl] Tom Desmet -- Department of Biotechnology	10	a		A:J	300
4	I002640	Extended International Internship [en, nl] Tom Desmet -- Department of Biotechnology	10	a		A:J	300
5	I001944	Bio-ethics [en] Farah Focquaert -- Department of Philosophy and Moral Sciences	3			A:1	75
6	C002668	Scientific Communication in English [en] Geert Jacobs -- Department of Linguistics	5			A:2	150
7	I001784	Seminar [en, nl] Mieke Uyttendaele -- Department of Food Technology, Safety and Health	3			A:J	75

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 Ann Verdoodt -- Department of Environment	30		2	A:J	900

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 2022-2023	f: annually, from 2023-2024	i: annually, from 2024-2025
b: tri-annually	d: bi-annually, from 2022-2023	g: bi-annually, from 2023-2024	j: bi-annually, from 2024-2025
	e: tri-annually, from 2022-2023	h: tri-annually, from 2023-2024	k: tri-annually, from 2024-2025