

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

2	I002708	Soil Water Management [en] <i>Wim Cornelis -- Department of Environment</i>	5		A:2	150
3	I002709	Aquatic Ecotechniques [en] <i>Peter Goethals -- Department of Animal Sciences and Aquatic Ecology</i>	4		A:1	120
4	I002710	Water in the City <i>Katrien Van Eerdenbrugh -- Department of Environment</i>	4		A:1	120

## 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] <i>Peter Finke -- Department of Environment</i>	5	L, K		A:1	150
2	I002712 Soil Degradation [en] <i>Ann Verdoodt -- Department of Environment</i>	5	L, K		A:2	150
3	I002713 Applied Soil Biology [en] <i>Stefaan De Neve -- Department of Environment</i>	4	L		A:1	120
4	I002715 Irrigation and Drainage [en] <i>Wim Cornelis -- Department of Environment</i>	5	L, W		A:1	150
5	E054820 Inland Waterways and Locks [en] <i>Tom De Mulder -- Department of Civil Engineering</i>	6	W		B:2	180
6	I000631 Groundwater Chemistry [en] <i>Kristine Walraevens -- Department of Geology</i>	5	W		A:1	145
7	I002535 Applied Marine Ecology [en] <i>Colin Janssen -- Department of Animal Sciences and Aquatic Ecology</i>	3	W		A:1	90
8	C002664 Paleoclimatology [en] <i>Dirk Verschuren -- Department of Biology</i>	6	K		A:1	150

## 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] <i>Korneel Rabaey -- Department of Biotechnology</i>	5	T		B:2	150
2	C004177 Spatiotemporal Analysis and Modelling [en] <i>Nico Van de Weghe -- Department of Geography</i>	5	T, I		A:1	150
3	E084580 Sustainable Cities <i>Thomas Block -- Department of Political Sciences</i>	5	I		A:J	150
4	I002716 Environmental Impact Assessment <i>Sophie Huysveld -- Department of Green Chemistry and Technology</i>	4	I		A:2	120
5	I002685 Legal Framework for Environmental Technology <i>Hildegard Deweerdt -- Department of Agricultural Economics</i>	6	I, T		A:1	180
6	I002718 Economics and Management of Natural Resources [en] <i>Stijn Speelman -- Department of Agricultural Economics</i>	4	I		A:2	120
7	I002091 Predictive Modelling [en] <i>Willem Waegeman -- Department of Data Analysis and Mathematical Modelling</i>	5	D		B:2	150
8	I002719 Modelling and Simulation with Partial Differential Equations in Practice [en] <i>Ingmar Nopens -- Department of Data Analysis and Mathematical Modelling</i>	5	D		A:1	150
9	C003701 Selected Topics in Mathematical Optimization [en] <i>Michiel Stock -- Department of Data Analysis and Mathematical Modelling</i>	3	D		A:1	75

## 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 <i>Mario Vanhoucke -- Department of Business Informatics and Operations Management</i>	4			A:2	120

2	I001949	Entrepreneurship <i>Petra Andries -- Department of Marketing, Innovation and Organisation</i>	3		A:2	75
3	E076460	Dare to Venture [en] <i>Johan Verrue -- Department of Marketing, Innovation and Organisation</i>	4		A:2	120
4	E076471	Dare to Start [en] <i>Frank Gielen -- Department of Information Technology</i>	3		A:2	90
5	I002619	Management for Engineers [en, nl] <i>Jeroen Buysse -- Department of Agricultural Economics</i>	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] <i>Tom Desmet -- Department of Biotechnology</i>	5	a		A:J	150
2	I002638 International Internship [en, nl] <i>Tom Desmet -- Department of Biotechnology</i>	5	a		A:J	150
3	I002639 Extended Internship [en, nl] <i>Tom Desmet -- Department of Biotechnology</i>	10	a		A:J	300
4	I002640 Extended International Internship [en, nl] <i>Tom Desmet -- Department of Biotechnology</i>	10	a		A:J	300
5	I001944 Bio-ethics [en] <i>Farah Focquaert -- Department of Philosophy and Moral Sciences</i>	3			A:1	75
6	C002668 Scientific Communication in English [en] <i>Geert Jacobs -- Department of Linguistics</i>	5			A:2	150
7	I001784 Seminar [en, nl] <i>Mieke Uyttendaele -- Department of Food Technology, Safety and Health</i>	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 <i>Ann Verdoodt -- Department of Environment</i>	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 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 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