

#### Block view of the study programme

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#### Block 1

*Notice* : The juries for the Masters in Bioengineering reserve the right not to organise specific classes if they are chosen by fewer than five students.

#### Compulsory courses

##### Periods 1 and 2

##### STE1.10 Core curriculum 1

GERE0015-1	<i>Group project</i> - JeanThomas CORNELIS - Suppl : Marie DINCHER - [180h AUTR]	Q1	4	-	[+]	6
HYDR0012-1	<i>Fluid transport and distribution</i> (english language) <b>Corequisite :</b> LANG2956-1 - Pratique de l'anglais de spécialité en Sciences et Technologies de l'environnement : partie 1 (niveau B2+)	Q1	11	10	-	2
ENVT0045-1	<i>Geomatics and applied remote sensing</i> - JeanFrançois BASTIN, Philippe LEJEUNE	Q1	24	33	-	6
GERE0037-1	<i>Modelling the dynamics of biosystems</i> - Bernard LONGDOZ, Benoît MERCATORIS - Suppl : Bernard HEINESCH	Q1	14	31	-	5
GEOP0003-2	<i>Origins and functions of soils</i> - JeanThomas CORNELIS, Aurore DEGRÉ - Suppl : Marie DINCHER - [6h FT]	Q1	31	26	[+]	6

#### Optional courses

##### Single focus

##### Professional Focus

##### Periods 1 and 2

##### STE1.10 Core curriculum 1

STAT1213-1	<i>Multivariate analysis 1: data exploration and structuring</i> - Yves BROSTAUX	Q1	9	9	-	2
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##### STE1.10 Core curriculum 2

MANA0004-1	<i>Portfolio (Master)</i> - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, Dorothée GOFFIN - [24h AUTR]	Q2	-	-	[+]	2
LANG2956-1	<i>Practice of specialized English in environment sciences and technologies : Part 1 (level B2+)</i> - Sophie DEPOTERRE, Estelle MAYARD - Suppl : Fiona THEWISSEN - [36h AUTR] <b>Corequisite :</b> GEOP0003-2 - Genèse et fonctionnement des sols HYDR0012-1 - Fluid transport and distribution GERE0037-1 - Modélisation de la dynamique des biosystèmes	TA	-	12	[+]	4

##### Period 3

##### STE1.10 Core curriculum 3

GERE0040-1	<i>Modelling soil transfers</i> - Aurore DEGRÉ	Q1	6	12	-	2
GEOP0010-1	<i>Soil quality evaluation</i> - Gilles COLINET	Q2	14	13	-	3

Choose courses totalling 10 credits out of the following :

##### STE1.32 Optional courses 1

GERE0028-2	<i>Building physics and special techniques</i> - Frédéric LEBEAU - [3h AUTR]	Q2	9	6	[+]	2
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GERE0041-1	<i>Instrumentation: data acquisition</i> - Bernard HEINESCH	Q2	9	27	-	4
GERE0019-1	<i>Grounds mechanic and geotechnology</i> - Frédéric COLLIN, Bertrand FRANÇOIS	Q2	21	21	-	4
INGE0004-2	<i>Construction processes</i> - JeanFrançois RONDEAUX - [3h FT]	Q2	13	8	[+]	2
HYDR0015-1	<i>Irrigation (english language)</i> - Joost WELLENS - [3h FT]	Q2	13	20	[+]	4
<b>Corequisite :</b>						
LANG2956-1 - Pratique de l'anglais de spécialité en Sciences et Technologies de l'environnement : partie 1 (niveau B2+)						

#### Period 4

##### STE1.44 Field applications and visits

GERE0039-1	<i>Field applications and visits</i> - Jeroen MEERSMANS - [23h FT]	Q2	1	-	[+]	2
GERE0038-1	<i>Energy systems and renewable energies</i> - Frédéric LEBEAU	Q2	18	18	-	4

#### Choose one module from the optional courses n°1 (block 1) :

##### STE1.41 Spatial analysis, soil organisation in the landscape and soil conservation

GERE0023-1	<i>Spatial analysis, organisation of grounds in the landscape and preservation of grounds</i> - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS - [8h FT]	Q2	23	23	[+]	6
<b>Corequisite :</b>						
GEOP0003-2 - Genèse et fonctionnement des sols						

##### STE1.42 Theory of structural calculations

GERE0021-1	<i>Theory of structural calculations</i> - Laurent DUCHENE, JeanMarc FRANSSSEN	Q2	29	28	-	6
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#### Optional activities

RSTG0011-1	<i>Additional internship</i> - Aurore DEGRÉ	TA	-	-	-	5
HULG9547-1	<i>French course for IN mobility students (S1)</i> - N...	Q1	-	-	-	3
HULG9548-1	<i>French course for IN mobility students (S2)</i> - N...	Q2	-	-	-	3
HULG9546-1	<i>Erasmus: integration weeks</i> - N...	Q1	-	-	-	3

#### Block 2

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#### Compulsory courses

##### Periods 1 and 2

##### STE2. Environmental law

ECON2248-1	<i>Environmental economy</i> - Kevin MARÉCHAL	Q1	18	-	-	2
DROI1306-1	<i>Environmental law</i> - Martin LAUWERS, Renaud SMAL	Q1	18	-	-	2

##### Periods 3 and 4

##### STE2.31 Final work and internship

RSTG0003-1	<i>Internship and professional relations</i> - Catherine COLAUX, Thomas DOGOT, Didier VAN CAILLIE, Joost WELLENS	TA	12	-	-	8
RTFE2002-1	<i>Thesis in education environmental sciences and technologies</i> - Catherine CHARLES	Q2	-	-	-	24

#### Optional courses

#### Periods 1 and 2

Choose courses totalling 7 ECTS from the following :

##### STE 2.11 Environmental techniques and Data mining

CHIM9248-1	<i>Wastewater engineering</i> (english language) - Frank DELVIGNE	Q1	18	-	-	2
GERE0029-1	<i>Ground remediation</i> - Gilles COLINET - [10h FT]	Q1	6	8	[+]	2
GERE0024-1	<i>Digital eco-design</i> - Frédéric LEBEAU	Q1	12	12	-	2
GERE0026-1	<i>Autonomous navigation in the natural environment</i> - Benoît MERCATORIS - [6h AUTR]	Q1	18	18	[+]	4
ENVT2053-1	<i>Waste management</i> - Luc MINNE - [4h FT]	Q1	14	-	[+]	2
GERE0027-1	<i>Microcontrollers Base</i> - Bernard HEINESCH - [6h AUTR]	Q1	3	15	[+]	2

[...] Between 2 and 6 credits from the list of replacement courses

Choose courses totalling 8 ECTS from the following :

##### STE2.12 Optional courses

GEST3020-1	<i>Conceiving and economics assessment of projects</i> (english language) - Hossein AZADI - [9h SEM]	Q1	9	-	[+]	2
GERE0030-1	<i>Image analysis</i> (english language) - Vincent LEEMANS	Q1	9	9	-	2
GERE0031-1	<i>Support systems for decision</i> (english language) - Vincent LEEMANS - [6h AUTR]	Q1	6	6	[+]	2
<b>Prerequisite :</b> STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données						
GERE0025-1	<i>Practical evaluation of grounds and water ressources</i> - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS, Youri ROTHFUSS - [19h AUTR]	Q1	19	19	[+]	6
<b>Prerequisite :</b> GEOP0010-1 - Evaluation de la qualité des sols						
INFO8008-1	<i>Multivaried analysis 2: data mining and machine learning</i> (english language) - Yves BROSTAU, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT	Q1	12	26	-	4
<b>Prerequisite :</b> STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données						
ENVT2049-2	<i>Assessing sustainability</i> - Andrea DI MARIA, Angélique LÉONARD - [9h AUTR]	Q1	9	-	[+]	2

[...] Between 2 and 6 credits from the list of replacement courses

Choose one module totalling 6 credits from :

##### STE2.13 Very high-resolution remote sensing applied to the management of natural environments

ENVT3060-1	<i>Very high resolution remote sensing applied to the management of natural environments</i> - Philippe LEJEUNE	Q1	18	36	-	6
<b>Prerequisite :</b> ENVT0045-1 - Géomatique et télédétection appliquée						

##### STE2.14 Ecosystem exchanges - atmosphere, under climate change

GERE0034-1	<i>Exchanges between the ecosystem and the atmosphere as a result of climate change</i> - Bernard HEINESCH, Bernard LONGDOZ, Youri ROTHFUSS - [3h AUTR]	Q1	14	40	[+]	6
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##### STE2.15 Integrated project on hydrogeophysics

GERE0035-1	<i>Integrated project on hydrogeophysics</i> (english language) - Frédéric NGUYEN	Q1	4	38	-	6
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##### STE2.16 Energy transition in agriculture

GERE0042-1 *Energy transition in agriculture* - Frédéric LEBEAU Q1 9 27 - 6  
 [...] or 6 credits from the list of replacement courses

**Choose a language module from :**

**Periods 3 and 4**

**STE 2.31 English language**

LANG2957-1 *Practice of specialized english in sciences and environmental technologies : part 2 (level C1 - presentation)* - Sophie DEPOTERRE, Estelle MAYARD -  
 Suppl : Fiona THEWISSEN - [36h AUTR] TA - 12 [+] 4

**All year round**

**STE 2.32 Dutch language**

LANG9914-1 *Dutch Intermediate Level (dutch language)* - Catherine PEETERS TA 18 18 - 4

**STE 2.33 Spanish language**

LANG9915-1 *Spanish - beginners* - Valérie COYETTE TA 18 18 - 4

**Optional activity**

INFO9013-1 *Multivaried analysis 3: Data mining et Machine Learning: advanced (english language)* - Yves BROSTAUX, David COLIGNON, Benoît MERCATORIS, Hélène SOYEURT Q2 12 28 - 4

*Notice : INFO8001-1 prerequisite of the INFO9013-1 course*

**Bloc d'aménagement du programme de l'année**

## Additional ECTS Master in environmental bioengineering

**Compulsory courses**

GEST3028-2 *Accounting and management* Q1 4  
 - *General accounting* - Thomas DOGOT 12 12 -  
 - *Management, green accounting and business plan* - Thomas DOGOT 10 14 -

GEST3773-1 *Management of quality* - Mohamed AYADI, Sébastien MASSART - [6h AUTR] Q1 18 - [+] 2

STAT2004-1 *Applied statistics : First part* - Yves BROSTAUX Q1 12 12 - 2

STAT2005-1 *Applied statistic : Second part* - Yves BROSTAUX Q2 12 12 - 2

**Corequisite :**

STAT2004-1 - Statistique appliquée : 1ère partie

PSYC5897-3 *Team, organization and change* - Daniel FAULX, Véronique JANS, Tiber MANFREDINI - [44h SEM] TA 4 - [+] 2

**Corequisite :**

GEST3028-2 - Comptabilité et gestion des entreprises

GEST3773-1 - Gestion de la qualité

MANA0003-1 - Portfolio (Bachelier)

MANA0003-1 *Portfolio (Bachelor)* - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, Dorothée GOFFIN - [24h AUTR] TA - - [+] 2

**Corequisite :**

PSYC5897-3 - Equipe, organisation & changement

RSTG0008-1 *Internship (Bachelor)* - Hélène SOYEURT - [18h AUTR] TA 6 - [+] 2

**Corequisite :**

GEST3773-1 - Gestion de la qualité

GEST3028-2 - Comptabilité et gestion des entreprises  
PSYC5897-3 - Equipe, organisation & changement

BIOL2044-1	<i>Plant physiology</i> - Patrick DU JARDIN	Q1	27	9	-	3
BIOL2013-2	<i>General microbiology, Introduction</i> - Patrick FICKERS, Philippe JACQUES	Q1	16	8	-	2
ENVT2044-1	<i>General ecology</i> - Grégory MAHY, Arnaud MONTY	Q1	24	-	-	2
INFO2038-1	<i>Computer science and algorithmic</i> - Hélène SOYEURT	Q1	2	22	-	2
MATH2016-1	<i>General mathematics and modelling of dynamics systems</i> - Jérôme BINDELLE, Catherine CHARLES, Frank DELVIGNE, Adeline FAYOLLE, Benoît MERCATORIS	Q1	24	24	-	4
PHYS3036-1	<i>Environmental physics</i> - Bernard LONGDOZ	Q1	18	18	-	3
LANG2966-2	<i>English language: level 3</i> - Sophie DEPOTERRE, Estelle MAYARD, Fiona THEWISSEN - Suppl : Fiona THEWISSEN - [48h E-Lrng]	TA	-	24	[+]	4
INGE0008-1	<i>Multidisciplinary experimental project</i> - Yves BROSTAUX, Pierre DELAPLACE, Sébastien MASSART, Benoît MERCATORIS, Arnaud MONTY, Bernard POCHE - [60h AUTR] <b>Corequisite :</b> STAT2005-1 - Statistique appliquée : 2ème partie STAT2004-1 - Statistique appliquée : 1ère partie GEST3773-1 - Gestion de la qualité BIOL2044-1 - Physiologie végétale ENVT2044-1 - Ecologie générale	TA	6	6	[+]	6

#### Option Environmental Bioengineering

GERE0036-1	<i>Instrumentation: sensors and signals</i> - Benoît MERCATORIS <b>Corequisite :</b> MATH2016-1 - Mathématique générale et modélisation des systèmes dynamiques	Q2	24	24	-	4
HYDR0001-1	<i>General hydrology</i> - Aurore DEGRÉ	Q2	14	10	-	2
HYDR0007-3	<i>Fluid mechanics</i> - Michel PIROTON	Q2	14	10	-	2
INGE0001-2	<i>Strength of materials and elasticity</i> - Introduction - Laurent DUCHENE - In-depth study - Laurent DUCHENE	Q2				3
			24	-	-	
			12	-	-	
PHYS3010-2	<i>Bioclimatology basis</i> - Bernard LONGDOZ - Suppl : Bernard HEINESCH	Q2	24	-	-	2
ENVT3129-1	<i>Evaluating sustainability</i> - Andrea DI MARIA, Angélique LÉONARD - [2h SEM]	Q2	12	16	[+]	3

#### Option cours

Select 1 course from Environmental sciences and technologies subject :

AGRO0001-1	<i>Basic principles of agriculture and agroecology</i> - Pierre DELAPLACE, Benjamin DUMONT - [4h FT]	Q2	20	-	[+]	2
INGE0002-1	<i>Refrigeration and drying</i> - Nicolas JACQUET, Paul MALUMBA KAMBA	Q2	18	6	-	2

#### Possibility to choose between 2 and 6 credits among the following courses, replacing the B2 elective courses:

ENVT3050-1	<i>Quantification of ecosystem services</i> - Marc DUFRÈNE - [6h AUTR]	Q1	9	5	[+]	2
BIOD0001-3	<i>Biodiversity management</i> - Arnaud MONTY - [6h SEM]	Q1	18	-	[+]	2
VEGE0037-1	<i>Innovative system of plant production</i> - Urban agriculture - Haïssam JIJAKLI - Developmental physiology applied to plant productions - Pierre DELAPLACE - [6h FT] - Physical parameters control of plant productions in controlled conditions - Vincent LEEMANS	Q2				6
			13	13	-	
			12	-	[+]	
			9	-	-	
VEGE0028-1	<i>Methods for managing plant health</i> - Frédéric FRANCIS, Olivier GUELTON, Eric HAUBRUGE, Haïssam JIJAKLI, Ludivine LASSOIS, Sébastien MASSART,	Q2	42	15	-	6

François VERHEGGEN

VEGE0036-1	<i>Tropical agroecology</i>	Q2				<b>6</b>
	- <i>Introduction</i> - Ludivine LASSOIS - Suppl : N... - [20h FT]		-	-	[+]	
	- <i>Depth notions: part 1</i> - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...		8	11	-	
	- <i>Depth notions: part 2</i> - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...		8	10	-	
CHIM9321-1	<i>Immunology</i> - Bénédicte MACHIELS	Q2	27	-	-	<b>3</b>
ALIM0015-1	<i>Food sanitary safety</i> - Mohamed AYADI - [2h SEM]	Q1	16	6	[+]	<b>2</b>
ALIM0013-2	<i>Techniques of food preservation</i> - Christophe BLECKER	Q2	24	-	-	<b>2</b>
BIOL2015-3	<i>Molecular biology</i> - Patrick FICKERS	Q2	24	-	-	<b>2</b>