

#### Cycle view of the study programme

B1 Or Th Pr Au Cr

*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 (B1 : 25Cr, B2 : 36Cr)

##### Periods 1 and 2

##### STE1.10 Core curriculum 1

GERE0015-1	<i>Group project</i> - JeanThomas CORNELIS - Suppl : Marie DINCHER - [180h AUTR]	B1	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+)	B1	Q1	11	10	-	2
ENVT0045-1	<i>Geomatics and applied remote sensing</i> - JeanFrançois BASTIN, Philippe LEJEUNE	B1	Q1	24	33	-	6
GERE0037-1	<i>Modelling the dynamics of biosystems</i> - Bernard LONGDOZ, Benoît MERCATORIS - Suppl : Bernard HEINESCH	B1	Q1	14	31	-	5
GEP0003-2	<i>Origins and functions of soils</i> - JeanThomas CORNELIS, Aurore DEGRÉ - Suppl : Marie DINCHER - [6h FT]	B1	Q1	31	26	[+]	6

##### STE2. Environmental law

ECON2248-1	<i>Environmental economy</i> - Kevin MARÉCHAL	B2	Q1	18	-	-	2
DROI1306-1	<i>Environmental law</i> - Martin LAUWERS, Renaud SMAL	B2	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	B2	TA	12	-	-	8
RTFE2002-1	<i>Thesis in education environmental sciences and technologies</i> - Catherine CHARLES	B2	Q2	-	-	-	24

#### Optional courses (B1 : 35Cr, B2 : 24Cr)

##### Single focus (B1 : 29Cr)

##### Professional Focus (B1 : 29Cr)

##### Periods 1 and 2

##### STE1.10 Core curriculum 1

STAT1213-1	<i>Multivariate analysis 1: data exploration and structuring</i> - Yves BROSTAU	B1	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]	B1	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> GEP0003-2 - Genèse et fonctionnement des sols HYDR0012-1 - Fluid transport and distribution GERE0037-1 - Modélisation de la dynamique des biosystèmes	B1	TA	-	12	[+]	4

##### Period 3

#### STE1.10 Core curriculum 3

GERE0040-1	<i>Modelling soil transfers</i> - Aurore DEGRÉ	B1	Q1	6	12	-	2
GEOP0010-1	<i>Soil quality evaluation</i> - Gilles COLINET	B1	Q2	14	13	-	3

Choose 10 credits from the following subject courses: (B1 : 10Cr)

#### STE1.32 Optional courses 1

GERE0028-2	<i>Building physics and special techniques</i> - Frédéric LEBEAU - [3h AUTR]	B1	Q2	9	6	[+]	2
GERE0041-1	<i>Instrumentation: data acquisition</i> - Bernard HEINESCH	B1	Q2	9	27	-	4
GERE0019-1	<i>Grounds mechanic and geotechnology</i> - Frédéric COLLIN, Bertrand FRANÇOIS	B1	Q2	21	21	-	4
INGE0004-2	<i>Construction processes</i> - JeanFrançois RONDEAUX - [3h FT]	B1	Q2	13	8	[+]	2
HYDR0015-1	<i>Irrigation (english language)</i> - Joost WELLENS - [3h FT]	B1	Q2	13	20	[+]	4

#### Corequisite :

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]	B1	Q2	1	-	[+]	2
GERE0038-1	<i>Energy systems and renewable energies</i> - Frédéric LEBEAU	B1	Q2	18	18	-	4

Choose one module totalling 6 credits from : (B1 : 1Nbr)

#### STE1.41 Spatial analysis, soil organisation in the landscape and soil conservation (B1 : 6Nbr)

GERE0023-1	<i>Spatial analysis, organisation of grounds in the landscape and preservation of grounds</i> - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS - [8h FT]	B1	Q2	23	23	[+]	6
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**Corequisite :**  
GEOP0003-2 - Genèse et fonctionnement des sols

#### STE1.42 Theory of structural calculations (B1 : 6Nbr)

GERE0021-1	<i>Theory of structural calculations</i> - Laurent DUCHENE, JeanMarc FRANSSSEN	B1	Q2	29	28	-	6
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#### Periods 1 and 2

Choose courses totalling 7 ECTS from the following : (B2 : 6Cr)

#### STE 2.11 Environmental techniques and Data mining

CHIM9248-1	<i>Wastewater engineering (english language)</i> - Frank DELVIGNE	B2	Q1	18	-	-	2
GERE0029-1	<i>Ground remediation</i> - Gilles COLINET - [10h FT]	B2	Q1	6	8	[+]	2
GERE0024-1	<i>Digital eco-design</i> - Frédéric LEBEAU	B2	Q1	12	12	-	2
GERE0026-1	<i>Autonomous navigation in the natural environment</i> - Benoît MERCATORIS - [6h AUTR]	B2	Q1	18	18	[+]	4
ENVT2053-1	<i>Waste management</i> - Luc MINNE - [4h FT]	B2	Q1	14	-	[+]	2
GERE0027-1	<i>Microcontrollers Base</i> - Bernard HEINESCH - [6h AUTR]	B2	Q1	3	15	[+]	2

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

Choose courses totalling 8 ECTS from the following : (B2 : 8Cr)

#### STE2.12 Optional courses

GEST3020-1	<i>Conceiving and economics assessment of projects</i> (english language) - Hossein AZADI - [9h SEM]	B2	Q1	9	-	[+]	2
GERE0030-1	<i>Image analysis</i> (english language) - Vincent LEEMANS	B2	Q1	9	9	-	2
GERE0031-1	<i>Support systems for decision</i> (english language) - Vincent LEEMANS - [6h AUTR] <b>Prerequisite :</b> STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données	B2	Q1	6	6	[+]	2
GERE0025-1	<i>Practical evaluation of grounds and water resources</i> - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS, Youri ROTHFUSS - [19h AUTR] <b>Prerequisite :</b> GEOP0010-1 - Evaluation de la qualité des sols	B2	Q1	19	19	[+]	6
INFO8008-1	<i>Multivariate analysis 2: data mining and machine learning</i> (english language) - Yves BROSTAU, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT <b>Prerequisite :</b> STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données	B2	Q1	12	26	-	4
ENVT2049-2	<i>Assessing sustainability</i> - Andrea DI MARIA, Angélique LÉONARD - [9h AUTR]	B2	Q1	9	-	[+]	2

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

Choose one module totalling 6 credits from : (B2 : 6Cr)

#### 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 <b>Prerequisite :</b> ENVT0045-1 - Géomatique et télédétection appliquée	B2	Q1	18	36	-	6
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#### 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]	B2	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	B2	Q1	4	38	-	6
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#### STE2.16 Energy transition in agriculture

GERE0042-1	<i>Energy transition in agriculture</i> - Frédéric LEBEAU	B2	Q1	9	27	-	6
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[...] or 6 credits from the list of replacement courses

Choose a language module from : (B2 : 4Cr)

#### Periods 3 and 4

##### STE 2.31 English language (B2 : 4Cr)

LANG2957-1	<i>Practice of specialized english in sciences and environmental technologies : part 2 (level C1 - presentation)</i> - Sophie DEPOTERRE, Estelle MAYARD - Suppl : Fiona THEWISSEN - [36h AUTR]	B2	TA	-	12	[+]	4
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#### All year round

##### STE 2.32 Dutch language (B2 : 4Cr)

LANG9914-1	<i>Dutch Intermediate Level</i> (dutch language) - Catherine PEETERS	B2	TA	18	18	-	4
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##### STE 2.33 Spanish language (B2 : 4Cr)

LANG9915-1 *Spanish - beginners* - Valérie COYETTE B2 TA 18 18 - 4

**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]	B2	Q1	9	5	[+]	2
BIOD0001-3	<i>Biodiversity management</i> - Arnaud MONTY - [6h SEM]	B2	Q1	18	-	[+]	2
VEGE0037-1	<i>Innovative system of plant production</i> - <i>Urban agriculture</i> - Haissam JIJAKLI - <i>Developmental physiology applied to plant productions</i> - Pierre DELAPLACE - [6h FT] - <i>Physical parameters control of plant productions in controlled conditions</i> - Vincent LEEMANS	B2	Q2	13	13	-	6
				12	-	[+]	
				9	-	-	
VEGE0028-1	<i>Methods for managing plant health</i> - Frédéric FRANCIS, Olivier GUELTON, Eric HAUBRUGE, Haissam JIJAKLI, Ludivine LASSOIS, Sébastien MASSART, François VERHEGGEN	B2	Q2	42	15	-	6
VEGE0036-1	<i>Tropical agroecology</i> - <i>Introduction</i> - Ludivine LASSOIS - Suppl : N... - [20h FT] - <i>Depth notions: part 1</i> - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N... - <i>Depth notions: part 2</i> - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...	B2	Q2	-	-	[+]	6
				8	11	-	
				8	10	-	
CHIM9321-1	<i>Immunology</i> - Bénédicte MACHIELS	B2	Q2	27	-	-	3
ALIM0015-1	<i>Food sanitary safety</i> - Mohamed AYADI - [2h SEM]	B2	Q1	16	6	[+]	2
ALIM0013-2	<i>Techniques of food preservation</i> - Christophe BLECKER	B2	Q2	24	-	-	2
BIOL2015-3	<i>Molecular biology</i> - Patrick FICKERS	B2	Q2	24	-	-	2

**Optional activities (B1 : 14Cr, B2 : 4Cr)**

RSTG0011-1	<i>Additional internship</i> - Aurore DEGRÉ	B1	TA	-	-	-	5
HULG9547-1	<i>French course for IN mobility students (S1)</i> - N...	B1	Q1	-	-	-	3
HULG9548-1	<i>French course for IN mobility students (S2)</i> - N...	B1	Q2	-	-	-	3
HULG9546-1	<i>Erasmus: integration weeks</i> - N...	B1	Q1	-	-	-	3
INFO9013-1	<i>Multivaried analysis 3: Data mining et Machine Learning: advanced (english language)</i> - Yves BROSTAU, David COLIGNON, Benoît MERCATORIS, Hélène SOYEURT	B2	Q2	12	28	-	4

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

## Additional ECTS Master in environmental bioengineering

**Compulsory courses (B0 : 60Cr)**

GEST3028-2	<i>Accounting and management</i> - <i>General accounting</i> - Thomas DOGOT - <i>Management, green accounting and business plan</i> - Thomas DOGOT	B0	Q1	12	12	-	4
				10	14	-	
GEST3773-1	<i>Management of quality</i> - Mohamed AYADI, Sébastien MASSART - [6h AUTR]	B0	Q1	18	-	[+]	2
STAT2004-1	<i>Applied statistics : First part</i> - Yves BROSTAU	B0	Q1	12	12	-	2
STAT2005-1	<i>Applied statistic : Second part</i> - Yves BROSTAU <b>Corequisite :</b> STAT2004-1 - Statistique appliquée : 1ère partie	B0	Q2	12	12	-	2
PSYC5897-3	<i>Team, organization and change</i> - Daniel FAULX, Véronique JANS,	B0	TA	4	-	[+]	2

Tiber MANFREDINI - [44h SEM]

**Corequisite :**

GEST3028-2 - Comptabilité et gestion des entreprises

GEST3773-1 - Gestion de la qualité

MANA0003-1 - Portfolio (Bachelier)

MANA0003-1	<i>Portfolio (Bachelor)</i> - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, Dorothée GOFFIN - [24h AUTR]	B0	TA	-	-	[+]	2
	<b>Corequisite :</b> PSYC5897-3 - Equipe, organisation & changement						
RSTG0008-1	<i>Internship (Bachelor)</i> - Hélène SOYEURT - [18h AUTR]	B0	TA	6	-	[+]	2
	<b>Corequisite :</b> 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	B0	Q1	27	9	-	3
BIOL2013-2	<i>General microbiology, Introduction</i> - Patrick FICKERS, Philippe JACQUES	B0	Q1	16	8	-	2
ENVT2044-1	<i>General ecology</i> - Grégory MAHY, Arnaud MONTY	B0	Q1	24	-	-	2
INFO2038-1	<i>Computer science and algorithmic</i> - Hélène SOYEURT	B0	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	B0	Q1	24	24	-	4
PHYS3036-1	<i>Environmental physics</i> - Bernard LONGDOZ	B0	Q1	18	18	-	3
LANG2966-2	<i>English language: level 3</i> - Sophie DEPOTERRE, Estelle MAYARD, Fiona THEWISSEN - Suppl : Fiona THEWISSEN - [48h E-Lrng]	B0	TA	-	24	[+]	4
INGE0008-1	<i>Multidisciplinary experimental project</i> - Yves BROSTAUX, Pierre DELAPLACE, Sébastien MASSART, Benoît MERCATORIS, Arnaud MONTY, Bernard POCHE - [60h AUTR]	B0	TA	6	6	[+]	6
	<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						

**Option Environmental Bioengineering**

GERE0036-1	<i>Instrumentation: sensors and signals</i> - Benoît MERCATORIS	B0	Q2	24	24	-	4
	<b>Corequisite :</b> MATH2016-1 - Mathématique générale et modélisation des systèmes dynamiques						
HYDR0001-1	<i>General hydrology</i> - Aurore DEGRÉ	B0	Q2	14	10	-	2
HYDR0007-3	<i>Fluid mechanics</i> - Michel PIROTTON	B0	Q2	14	10	-	2
INGE0001-2	<i>Strength of materials and elasticity</i> - Introduction - Laurent DUCHENE - In-depth study - Laurent DUCHENE	B0	Q2	24	-	-	3
PHYS3010-2	<i>Bioclimatology basis</i> - Bernard LONGDOZ - Suppl : Bernard HEINESCH	B0	Q2	24	-	-	2
ENVT3129-1	<i>Evaluating sustainability</i> - Andrea DI MARIA, Angélique LÉONARD - [2h SEM]	B0	Q2	12	16	[+]	3

**Option courses (B0 : 2Cr)**

Select 1 course from Environmental sciences and technologies subject : (B0 : 1Nbr)

AGRO0001-1	<i>Basic principles of agriculture and agroecology</i> - Pierre DELAPLACE, Benjamin DUMONT - [4h FT]	B0	Q2	20	-	[+]	2
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INGE0002-1 *Refrigeration and drying* - Nicolas JACQUET,  
Paul MALUMBA KAMBA

B0 Q2 18 6 - 2