Cycle view of the study programme

		Bl	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 : 6Cr, B2 : 38Cr)

Periods 3 and 4

AGRO1.30 Core curriculum Q2

		Bl	Or	Th	Pr	Au	Cr
MANA0004-1	*Portfolio (Master)* - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, Dorothée GOFFIN - [24h AUTR]	B1	Q2	-	-	[+]	2
LANG2952-1	*Practice of specialized English in agriculture: Part 1 (level B2+)* - Sophie DEPOTERRE, Estelle MAYARD - Suppl : Fiona THEWISSEN - [36h AUTR] **Corequisite :** VEGE0041-1 - Biologie et écologie des bioagresseurs GEST3019-2 - Food policies and strategies	B1	TA	-	12	[+]	4

Periods 1 and 2

AGRO2.10 Group project

		Bl	Or	Th	Pr	Au	Cr
AGRO0020-1	*Group project* - Yves BECKERS - [36h AUTR]	B2	Q1	-	-	[+]	4
GEST3020-1	*Conceiving and economics assessment of projects* (english language) - Hossein AZADI - [9h SEM]	B2	Q1	9	-	[+]	2

Periods 3 and 4

AGRO2.31 Final dissertation, training programme and English

		Bl	Or	Th	Pr	Au	Cr
RTFE2007-1	*Thesis in agronomic sciences* - Yves BECKERS	B2	Q2	-	-	-	24
RSTG0001-1	*Internship and professional relations* - Catherine COLAUX, Thomas DOGOT, Hélène SOYEURT, Didier VAN CAILLIE	B2	TA	12	-	-	8

Optional courses (B1 : 54Cr, B2 : 22Cr)

Single focus (B1 : 30Cr)

Professional Focus (B1 : 30Cr)

Periods 1 and 2

AGRO1.11 Rural economics and European and international policy.

		Bl	Or	Th	Pr	Au	Cr
ECON0942-1	*Rural economics and farm business management* - Philippe BURNY, Thomas DOGOT - [8h FT]	B1	Q1	25	15	[+]	5
GEST3019-2	*Food policies and strategies* (english language) - Hossein AZADI - [3h FT] **Corequisite :** LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)	B1	Q1	9	15	[+]	3
STAT1213-1	*Multivariate analysis 1: data exploration and structuring* - Yves BROSTAUX	B1	Q1	9	9	-	2

AGRO1.12 General crop husbandry

		Bl	Or	Th	Pr	Au	Cr
VEGE0041-1	*Pest biology and ecology* *- Introduction* - Caroline DE CLERCK, Frédéric FRANCIS, Eric HAUBRUGE, Sébastien MASSART, François VERHEGGEN - [8h AUTR]	B1	Q1 34	6	[+]		5
	- Depth notions - Caroline DE CLERCK, Frédéric FRANCIS, Eric HAUBRUGE, Sébastien MASSART, François VERHEGGEN - [10h AUTR]		-	-	[+]		

Corequisite :
LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)

| VEGE0024-1 | *General and applied phytotechnology in temperate and tropical settings* - Nicolas DESOIGNIES, Benjamin DUMONT - [5h FT] | B1 | Q1 | 39 | 4 | [+] | **5** |

AGRO1.13 Livestock systems

| ANIM0029-1 | *Foundations and dynamics of livestock systems* - Yves BECKERS, Jérôme BINDELLE, Martine SCHROYEN | B1 | Q1 | 54 | - | - | **6** |
| ANIM0030-1 | *Animal recording, breeding and reproduction in modern sustainable animal production system* (english language) - Nicolas GENGLER, Martine SCHROYEN - [4h FT] | B1 | Q1 | 22 | 10 | [+] | **4** |

Corequisite :
LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)

Choose one module from the courses with options no. 1 (period 3): (B1 : 1Nbr)

AGRO1.32 Livestock systems engineering (B1 : 6Cr)

| ANIM0017-1 | *Biotechnology aspects of livestock systems* - Yves BECKERS, Jérôme BINDELLE, Martine SCHROYEN - [9h FT] | B1 | Q2 | 27 | - | [+] | **4** |
| ANIM0025-1 | *Feeding dairy cow* - Yves BECKERS | B1 | Q2 | 9 | 9 | - | **2** |

AGRO 1.33 Agricultural policy, sociology and rural legislation (B1 : 6Cr)

SOCI2234-1	*Construction of public policies* - AnneCatherine DALCQ, Juliette RENARD	B1	Q2	18	-	-	**2**
ECON2247-1	*Agricultural policy* - Philippe BURNY - [4h SEM]	B1	Q2	9	5	[+]	**2**
DROI0967-1	*Rural law* - Gaëtan GOISSE	B1	Q2	18	-	-	**2**

AGRO 1.34 Tropical agroecology (B1 : 6Cr)

VEGE0036-1	*Tropical agroecology*	B1	Q2				**6**
	- *Introduction* - Ludivine LASSOIS - Suppl : N... - [20h FT]			-	-	[+]	
	- *Depth notions: part 1* - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...			8	11	-	
	- *Depth notions: part 2* - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...			8	10	-	

Choose one module from the courses with options no. 2 (period 3): (B1 : 1Nbr)

AGRO 1.35 Biochemistry and animal pathology (B1 : 6Cr)

| ANIM0012-1 | *Farm animal immunology and pathology* (english language) - Martine SCHROYEN | B1 | Q2 | 18 | - | - | **2** |

Corequisite :
LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)

| ANIM0005-1 | *Functional biochemistry in health and disease* (english language) - Martine SCHROYEN | B1 | Q2 | 9 | 9 | - | **2** |

Corequisite :
LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)

| ANIM0016-1 | *Milk technology* - Mohamed AYADI - [2h FT] | B1 | Q2 | 15 | 3 | [+] | **2** |

AGRO 1.36 Economics of development (B1 : 6Cr)

| ECON2246-2 | *Economics of developing countries* (english language) - Hossein AZADI - [16h SEM] | B1 | Q2 | 8 | - | [+] | **2** |

Corequisite :
LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)

| ECON2254-2 | *Tropical markets* (english language) - Hossein AZADI | B1 | Q2 | 9 | 9 | - | **2** |

Corequisite :
LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)

ECON2253-2	*Economics of development Seminar* - Hossein AZADI, Thomas DOGOT - [18h SEM]	B1	Q2	-	-	[+]	**2**

AGRO 1.37 Innovative systems of plant production (B1 : 6Cr)

VEGE0037-1	*Innovative system of plant production*	B1	Q2				**6**
	- Urban agriculture - Haissam JIJAKLI		13	13	-		
	- Developmental physiology applied to plant productions - Pierre DELAPLACE - [6h FT]		12	-	[+]		
	- Physical parameters control of plant productions in controlled conditions - Vincent LEEMANS		9	-	-		

Choose 1 module from the optional courses n° 3 (period 4) (B1 : 1Nbr)

AGRO 1.41 Human - animal - society (B1 : 6Cr)

ANIM0024-1	*Breeding system for agroecology* - Yves BECKERS, Jérôme BINDELLE - [3h FT]	B1	Q2	9	6	[+]	**2**
ANIM0011-3	*Welfare and ethics in animal productions* (english language) - Nicolas GENGLER - [3h FT]	B1	Q2	9	6	[+]	**2**
	Corequisite : LANG2952-1 - Pratique de l'anglais de spécialité en sciences agronomiques : partie 1 (niveau B2+)						
ENVT3061-1	*Agrobiodiversity, ecosystemic and landscape services, Introduction* - Marc DUFRÊNE, Kevin MARÉCHAL - [8h AUTR]	B1	Q2	16	-	[+]	**2**

AGRO 1.42 Systemic approach to plant production in temperate regions (B1 : 6Cr)

VEGE0027-1	*Systematic approach to plant production in temperate regions*	B1	Q2				**6**
	- Plant sciences and different field crop and production species - Benjamin DUMONT - [6h Ex.]		28	-	[+]		
	- Implementation of technical pathways under real conditions - Benjamin DUMONT - [3h FT]		-	12	[+]		
	- Evaluation and optimisation of production systems - Benjamin DUMONT		-	9	-		
	Corequisite : VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux						

Choose 1 optional module n°4 (period 4): (B1 : 1Nbr)

AGRO 1.43 Economic decision support (B1 : 6Cr)

ECON2299-1	*Assistance in economic decision-making* - Yves BROSTAUX, Catherine CHARLES, Thomas DOGOT - [6h AUTR]	B1	Q2	30	24	[+]	**6**

AGRO1.44 Bromatology and the cultivation of animal fodder (B1 : 6Cr)

ANIM0018-1	*Bromatology and grazing management* - Yves BECKERS, Jérôme BINDELLE - [7h FT]	B1	Q2	37	13	[+]	**6**

AGRO 1.45 Plant protection methods (B1 : 6Cr)

VEGE0028-1	*Methods for managing plant health* - Frédéric FRANCIS, Olivier GUELTON, Eric HAUBRUGE, Haissam JIJAKLI, Ludivine LASSOIS, Sébastien MASSART, François VERHEGGEN	B1	Q2	42	15	-	**6**

Periods 1 and 2

Choose 3 modules from the 4 modules options : (B2 : 18Cr)

Option 1 of modules:

AGRO 2.11 Physiology, plant breeding and multiplication of cultivated plants

VEGE0026-1	*Physiology, plant breeding and multiplication of cultivated plants*	B2	Q1				**6**
	- Physiology - Pierre DELAPLACE		7	5	-		
	- Plant breeding - Hervé VANDERSCHUREN		9	5	-		

	- *Diversity of plant genetic resources* - Hervé VANDERSCHUREN - [7h FT]			7	1	[+]	
	- *Multiplication of cultivated plants* - Hervé VANDERSCHUREN - [2h FT]			9	5	[+]	
	Prerequisite : VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux VEGE0041-1 - Biologie et écologie des bioagresseurs						

AGRO 2.12 Data mining & Machine learning

INFO8008-1	*Multivaried analysis 2: data mining and machine learning* (english language) - Yves BROSTAUX, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT **Prerequisite :** STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données	B2	Q1	12	26	-	**4**
INFO8009-1	*Bioinformatics* - Sébastien MASSART, Martine SCHROYEN	B2	Q1	9	9	-	**2**

Module option 2 :

AGRO 2.13 Market and supply analysis

ECON2251-3	*Food value chains analysis, Introduction* (english language) - Hossein AZADI	B2	Q1	18	-	-	**2**
ECON2252-2	*Marketing and consumer market research* - Alain DECROP	B2	Q1	36	-	-	**4**

AGRO 2.14 Plant biotechnology

VEGE0032-1	*Plant biotechnology*	B2	Q1				**6**
	- *Molecular plant biotechnology* - Hervé VANDERSCHUREN			9	5	-	
	- *Exercise of plant biotechnology* - Hervé VANDERSCHUREN			-	14	-	
	- *Biology applied to pest prevention* - Frédéric FRANCIS			7	7	-	
	- *Biology applied to phytopathology* - Sébastien MASSART			3	12	-	

AGRO 2.15 Smart Farming

AGRO0023-1	*Smart farming* - JeanFrançois BASTIN, Jérôme BINDELLE, Benjamin DUMONT	B2	Q1	54	-	-	**6**

Option 3 of modules:

AGRO 2.16 Applied economic analysis

ECON2298-3	*Transition and new economic models* - Kevin MARÉCHAL **Prerequisite :** STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données GEST3019-2 - Food policies and strategies ECON0942-1 - Economie rurale et gestion des entreprises agricoles	B2	Q1	9	9	-	**2**
ECON2250-1	*International economics* (english language) - Hossein AZADI - [12h AUTR]	B2	Q1	6	-	[+]	**2**
ECON2248-1	*Environmental economy* - Kevin MARÉCHAL **Prerequisite :** STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données GEST3019-2 - Food policies and strategies ECON0942-1 - Economie rurale et gestion des entreprises agricoles	B2	Q1	18	-	-	**2**

AGRO 2.17 Applied strategies for the integrated management of pests and weeds

VEGE0042-1	*Integrated and agroecological protection of crops* - Frédéric FRANCIS, Eric HAUBRUGE, Haissam JIJAKLI, Ludivine LASSOIS, Sébastien MASSART, Jeroen MEERSMANS, François VERHEGGEN - Suppl : François HENRIET	B2	Q1	29	28	-	**6**

AGRO 2.18 Advanced animal genetics, genomics and biodiversity

ANIM0031-1	*Advanced animal genetics, genomics and biodiversity* (english language) - Nicolas GENGLER	B2	Q1	27	27	-	**6**

Prerequisite :
ANIM0029-1 - Fondements et dynamiques des systèmes d'élevage
ANIM0030-1 - Animal recording, breeding and reproduction in modern sustainable animal production system

Module option 4 :

AGRO 2.19 Applied rural socioeconomics

| ECON2273-1 | *Applied rural socioeconomics* - Yves BROSTAUX, Thomas DOGOT - [4h SEM] | B2 | Q1 | 10 | 43 | [+] | **6** |

Prerequisite :
STAT1213-1 - Analyse multivariée 1 : exploration et structuration de données

AGRO 2.20 Chemical, biological and environmental risks related to plant productions

| VEGE0034-1 | *Chemical, biological and environmental risks related to plant productions* - Patrick DU JARDIN, Benjamin DUMONT , Jeroen MEERSMANS, François VERHEGGEN | B2 | Q1 | 24 | 33 | - | **6** |

Prerequisite :
VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux
VEGE0041-1 - Biologie et écologie des bioagresseurs

AGRO 2.21 Feed & food

| ANIM0019-1 | *Current issues in breeding systems* - Yves BECKERS | B2 | Q1 | 5 | 31 | - | **4** |
| ALIM0010-3 | *Food, human nutrition and dietetics* (english language) - Jérôme BINDELLE | B2 | Q1 | 18 | - | - | **2** |

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

GEOP0010-1	*Soil quality evaluation* - Gilles COLINET	B2	Q2	14	13	-	**3**
ENVT3129-1	*Evaluating sustainability* - Andrea DI MARIA, Angélique LÉONARD - [2h SEM]	B2	Q2	12	16	[+]	**3**
GERE0023-1	*Spatial analysis, organisation of grounds in the landscape and preservation of grounds* - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS - [8h FT]	B2	Q2	23	23	[+]	**6**
ENVT3050-1	*Quantification of ecosystem services* - Marc DUFRÊNE - [6h AUTR]	B2	Q1	9	5	[+]	**2**
BIOD0001-3	*Biodiversity management* - Arnaud MONTY - [6h SEM]	B2	Q1	18	-	[+]	**2**
CHIM9321-1	*Immunology* - Bénédicte MACHIELS	B2	Q2	27	-	-	**3**
ALIM0015-1	*Food sanitary safety* - Mohamed AYADI - [2h SEM]	B2	Q1	16	6	[+]	**2**
ALIM0013-2	*Techniques of food preservation* - Christophe BLECKER	B2	Q2	24	-	-	**2**
BIOL2015-3	*Molecular biology* - Patrick FICKERS	B2	Q2	24	-	-	**2**

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

Periods 3 and 4

AGRO 2.31 English language (B2 : 4Cr)

| LANG2953-1 | *Practice of specialized English for agricultural sciences : part 2 (level C1 - Presentation)* - Sophie DEPOTERRE, Estelle MAYARD - Suppl : Fiona THEWISSEN - [36h AUTR] | B2 | TA | - | 12 | [+] | **4** |

Corequisite :
RTFE2007-1 - Travail de fin d'études en sciences agronomiques

All year round

AGRO 2.32 Dutch language (B2 : 4Cr)

| LANG9914-1 | *Dutch Intermediate Level* (dutch language) - Catherine PEETERS | B2 | TA | 18 | 18 | - | **4** |

AGRO 2.33 Spanish language (B2 : 4Cr)

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

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

RSTG0011-1	*Additional internship* - Aurore DEGRÉ	B1	TA	-	-	-	**5**
HULG9547-1	*French course for IN mobility students (S1)* - N...	B1	Q1	-	-	-	**3**
HULG9548-1	*French course for IN mobility students (S2)* - N...	B1	Q2	-	-	-	**3**
HULG9546-1	*Erasmus: integration weeks* - N...	B1	Q1	-	-	-	**3**
INFO9013-1	*Multivaried analysis 3: Data mining et Machine Learning: advanced* (english language) - Yves BROSTAUX, David COLIGNON, Benoît MERCATORIS, Hélène SOYEURT	B2	Q2	12	28	-	**4**
	Notice : INFO8001-1 prerequisite of the INFO9013-1 course						

Additional ECTS Master in agricultural bioengineering

Compulsory courses (B0 : 60Cr)

Common core courses

GEST3028-2	*Accounting and management* - *General accounting* - Thomas DOGOT - *Management, green accounting and business plan* - Thomas DOGOT	B0	Q1 	 12 10	 12 14	 - -	**4**
GEST3773-1	*Management of quality* - Mohamed AYADI, Sébastien MASSART - [6h AUTR]	B0	Q1	18	-	[+]	**2**
STAT2004-1	*Applied statistics : First part* - Yves BROSTAUX	B0	Q1	12	12	-	**2**
STAT2005-1	*Applied statistic : Second part* - Yves BROSTAUX **Corequisite :** STAT2004-1 - Statistique appliquée : 1ère partie	B0	Q2	12	12	-	**2**
PSYC5897-3	*Team, organization and change* - Daniel FAULX, Véronique JANS, Tiber MANFREDINI - [44h SEM] **Corequisite :** GEST3028-2 - Comptabilité et gestion des entreprises GEST3773-1 - Gestion de la qualité MANA0003-1 - Portfolio (Bachelier)	B0	TA	4	-	[+]	**2**
MANA0003-1	*Portfolio (Bachelor)* - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, Dorothée GOFFIN - [24h AUTR] **Corequisite :** PSYC5897-3 - Equipe, organisation & changement	B0	TA	-	-	[+]	**2**
RSTG0008-1	*Internship (Bachelor)* - Hélène SOYEURT - [18h AUTR] **Corequisite :** GEST3773-1 - Gestion de la qualité GEST3028-2 - Comptabilité et gestion des entreprises PSYC5897-3 - Equipe, organisation & changement	B0	TA	6	-	[+]	**2**
BIOL2044-1	*Plant physiology* - Patrick DU JARDIN	B0	Q1	27	9	-	**3**
BIOL2013-2	*General microbiology, Introduction* - Patrick FICKERS, Philippe JACQUES	B0	Q1	16	8	-	**2**
ENVT2044-1	*General ecology* - Grégory MAHY, Arnaud MONTY	B0	Q1	24	-	-	**2**
INFO2038-1	*Computer science and algorithmic* - Hélène SOYEURT	B0	Q1	2	22	-	**2**
MATH2016-1	*General mathematics and modelling of dynamics systems* -	B0	Q1	24	24	-	**4**

INDELLE, Catherine CHARLES, Frank DELVIGNE, Adeline FAYOLLE, Benoît MERCATORIS

PHYS3036-1	*Environmental physics* - Bernard LONGDOZ	B0	Q1	18	18	-	**3**
LANG2966-2	*English language: level 3* - Sophie DEPOTERRE, Estelle MAYARD, Fiona THEWISSEN - Suppl : Fiona THEWISSEN - [48h E-Lrng]	B0	TA	-	24	[+]	**4**
INGE0008-1	*Multidisciplinary experimental project* - Yves BROSTAUX, Pierre DELAPLACE, Sébastien MASSART, Benoît MERCATORIS, Arnaud MONTY, Bernard POCHET - [60h AUTR] **Corequisite :** 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	B0	TA	6	6	[+]	**6**

Course Agricultural Sciences

AGRO0001-1	*Basic principles of agriculture and agroecology* - Pierre DELAPLACE, Benjamin DUMONT - [4h FT]	B0	Q2	20	-	[+]	**2**
AGRO0002-1	*Fertilization and crop nutrition* - Caroline DE CLERCK, Patrick DU JARDIN, Benjamin DUMONT - [2h AUTR] **Corequisite :** AGRO0001-1 - Fondement d'agriculture et d'agroécologie BIOL2044-1 - Physiologie végétale	B0	Q2	18	4	[+]	**2**
AGRO0021-1	*Introduction to cultivation techniques and levers* - Benjamin DUMONT , Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES - [4h AUTR] **Corequisite :** AGRO0001-1 - Fondement d'agriculture et d'agroécologie	B0	Q2	20	-	[+]	**2**
BIOL2015-3	*Molecular biology* - Patrick FICKERS **Corequisite :** BIOL2016-3 - Génétique générale	B0	Q2	24	-	-	**2**
BIOL2016-3	*General genetics* - Nicolas GENGLER, Ludivine LASSOIS - Suppl : Martine SCHROYEN **Corequisite :** BIOL2015-3 - Biologie moléculaire	B0	Q2	12	12	-	**2**
BIOL2018-1	*Animal nutrition* - Yves BECKERS	B0	Q2	24	-	-	**2**
SPRA0001-1	*Sustainable breeding and zoogenetic resources* - Nicolas GENGLER - [4h FT] **Corequisite :** BIOL2016-3 - Génétique générale	B0	Q2	20	-	[+]	**2**
BIOL2043-1	*Application of molecular biology and genetics* - Nicolas GENGLER, Ludivine LASSOIS, Martine SCHROYEN, Hervé VANDERSCHUREN, Luc WILLEMS **Corequisite :** BIOL2016-3 - Génétique générale	B0	Q2	-	24	-	**2**
INGE0002-1	*Refrigeration and drying* - Nicolas JACQUET, Paul MALUMBA KAMBA	B0	Q2	18	6	-	**2**