

## Block view of the study programme

Or Th Pr Au Cr

### Block 1

*Notice* : The Master's juries in bioengineering reserve the right not to organise elective courses if they are selected by fewer than five students.

#### Core curriculum compulsory courses

##### Periods 3 and 4

##### AGRO1.30 Core curriculum Q2

MANA0004-1	<i>Portfolio (Master)</i> - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Pierre DELAPLACE, Dorothée GOFFIN - [24h AUTR]	TA	-	-	[+]	2
LANG2952-1	<i>Practice of Scientific English for bioengineers (AGRO) (level B2+)</i> - Estelle MAYARD, Lelania SPERRAZZA - [36h AUTR] <b>Corequisite :</b> GEST3019-2 - Food policies and strategies VEGE0046-1 - Biologie et écologie des bioagresseurs	TA	-	12	[+]	4
INFO9028-1	<i>Data Management</i> - JeanFrançois BASTIN, Yves BROSTAUX, Nicolas GENGLER, Hélène SOYEURT - [12h Pr.]	Q2	6	-	[+]	2
AGRO0026-1	<i>Integrated production systems</i> - Jérôme BINDELLE, Benjamin DUMONT, Haïssam JIJAKLI	Q2	8	16	-	2
AGRO0027-1	<i>Excursion week</i> - Caroline DE CLERCK, Pierre DELAPLACE, Frédéric FRANCIS, Nicolas GENGLER, Martine SCHROYEN - [8h Pr., 32h FT]	Q2	-	-	[+]	2

#### Common core courses

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

##### AGRO1.32 Livestock systems engineering

ANIM0017-1	<i>Biotechnology aspects of livestock systems</i> - Yves BECKERS, Jérôme BINDELLE, Martine SCHROYEN	Q2	36	-	-	4
ANIM0024-1	<i>Breeding system for agroecology</i> - Yves BECKERS, Jérôme BINDELLE - [3h FT]	Q2	9	6	[+]	2

##### AGRO 1.33 Agricultural policy, sociology and rural legislation

SOCI2234-1	<i>Construction of public policies</i> - Laurence LAMBERT	Q2	18	-	-	2
ECON2247-1	<i>Agricultural policy</i> - Philippe BURNY - [4h SEM]	Q2	9	5	[+]	2
DROI0967-1	<i>Rural law</i> - Gaëtan GOISSE	Q2	18	-	-	2

##### AGRO 1.34 Systemic approach to plant production in temperate regions

VEGE0027-1	<i>Systemic approach to plant production in temperate regions</i> - <i>Plant sciences and different field crop and production species</i> - Benjamin DUMONT - <i>Implementation of technical pathways under real conditions</i> - Benjamin DUMONT - [3h FT] - <i>Evaluation and optimisation of production systems</i> - Benjamin DUMONT	Q2	21	7	-	6
	<b>Corequisite :</b> VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux		-	12	[+]	
			-	9	-	

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

##### AGRO 1.35 Biochemistry and animal pathology

ANIM0012-1	<i>Farm animal immunology and pathology</i> (english language) - Martine SCHROYEN <b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)	Q2	18	-	-	2
------------	--	----	----	---	---	---

ANIM0005-1	<i>Functional biochemistry in health and disease</i> (english language) - Martine SCHROYEN <b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)	Q2	9	9	-	2
ANIM0011-3	<i>Welfare and ethics in animal productions</i> (english language) - Nicolas GENGLER - [3h FT] <b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)	Q2	9	6	[+]	2

**AGRO 1.36 Economics of development**

ECON2246-2	<i>Economics of developing countries</i> (english language) - Isabel LAMBRECHT - [18h SEM] <b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)	Q2	9	-	[+]	3
ECON2254-2	<i>Economics of tropical markets</i> (english language) - Isabel LAMBRECHT - [9h SEM] <b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)	Q2	9	9	[+]	3

**AGRO 1.37 Innovative systems of plant production**

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	Q2	13	13	-	6
			12	-	[+]	
			9	-	-	

**Choose 1 optional module no. 3 (period 4) :**

**AGRO 1.43 Economic decision support**

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

**AGRO1.44 Bromatology and the cultivation of animal fodder**

ANIM0018-1	<i>Bromatology and grazing management</i> - Yves BECKERS, Jérôme BINDELLE - [7h FT]	Q2	37	13	[+]	6
------------	--	----	----	----	-----	---

**AGRO 1.45 Plant protection methods**

VEGE0028-1	<i>Methods for managing plant health</i> - Frédéric FRANCIS, Olivier GUELTON, Eric HAUBRUGE, François HENRIET, Haissam JIJAKLI, Sébastien MASSART, François VERHEGGEN	Q2	42	15	-	6
------------	---	----	----	----	---	---

**Optional activities**

RSTG0011-1	<i>Additional internship</i> - Pierre DELAPLACE	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

**Focus compulsory courses**

**Periods 1 and 2**

**AGRO1.11 Rural economics and European and international policy.**

ECON0942-1	<i>Rural economics and farm business management</i> - Philippe BURNY, Thomas DOGOT - [8h FT]	Q1	25	15	[+]	5
GEST3019-2	<i>Food policies and strategies</i> (english language) - [3h FT] <b>Corequisite :</b>	Q1	9	15	[+]	3

	LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)						
STAT1213-1	<i>Multivariate analysis 1: data exploration and structuring</i> - Yves BROSTAUX	Q1	9	9	-		2
<b>AGRO1.12 General crop husbandry</b>							
VEGE0046-1	<i>Biology and ecology of bioagressors</i> - Frédéric FRANCIS, François HENRIET, Sébastien MASSART - [9h AUTR]	Q1	32	13	[+]		5
	<b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)						
VEGE0024-1	<i>General and applied phytotechnology in temperate and tropical settings</i> - Nicolas DESOIGNIES, Benjamin DUMONT - [3h FT]	Q1	39	6	[+]		5
<b>AGRO1.13 Livestock systems</b>							
ANIM0029-1	<i>Foundations and dynamics of livestock systems</i> - Yves BECKERS, Jérôme BINDELLE, Martine SCHROYEN	Q1	54	-	-		6
ANIM0030-1	<i>Animal recording, breeding and reproduction in modern sustainable animal production system (english language)</i> - Nicolas GENGLER, Martine SCHROYEN - [4h FT]	Q1	22	10	[+]		4
	<b>Corequisite :</b> LANG2952-1 - Pratique de l'anglais scientifique de bioingénieur (AGRO) (niveau B2+)						

## Block 2

*Notice :* The Master's juries in bioengineering reserve the right not to organise elective courses if they are selected by fewer than five students.

## Core curriculum compulsory courses

### Periods 1 and 2

#### AGRO2.10 Mission expert

AGRO0020-1	<i>Mission Expert</i> - Fanny BOERAEVE, Sébastien MASSART - [72h AUTR]	Q1	-	-	[+]		8
GEST3020-1	<i>Life Cycle Analysis (english language)</i> - Andrea DI MARIA	Q1	9	-	-		1

### Periods 3 and 4

#### AGRO2.31 Final dissertation, work placement and language

RTFE2007-1	<i>Thesis in agronomic sciences</i> - Yves BECKERS	Q2	-	-	-		24
RSTG0001-1	<i>Internship and professional relations</i> - Catherine COLAUX, Thomas DOGOT, Hélène SOYEURT	TA	12	-	-		8

## Common core courses

### Periods 1 and 2

Choose 3 modules from the 4 modules options :

#### Option 1 of modules:

#### AGRO 2.11 Physiology, plant breeding and multiplication of cultivated plants

Choose courses totalling 5 ECTS from the following :

VEGE0047-1	<i>Physiology</i> - Pierre DELAPLACE	Q1	4	5	-		1
	<b>Prerequisite :</b> VEGE0046-1 - Biologie et écologie des bioagresseurs VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux						
VEGE0048-1	<i>Improving and multiplying cultivated plants</i>	Q1	-	-	-		4
	<b>Prerequisite :</b> VEGE0046-1 - Biologie et écologie des bioagresseurs VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux						

[...] Possibilité de choisir entre 1 et 5 crédits parmi les cours suivants, en remplacement des cours au choix

du B2 :

**AGRO 2.12 Data mining & Machine learning**

Choose courses totalling 5 ECTS from the following :

INFO8008-1 *Multivariate analysis 2: data mining et machine learning, Introduction (english language)* - Yves BROSTAUX, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT

**Prerequisite :**

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

INFO8009-1 *Bioinformatics* - Sébastien MASSART, Martine SCHROYEN

[...] Possibilité de choisir entre 2 et 5 crédits parmi les cours suivants, en remplacement des cours au choix du B2 :

**AGRO 2.13 Tropical agroecology**

VEGE0049-1 *Tropical agroecology* - Ludivine LASSOIS

**Module option 2 :**

**AGRO 2.14 Market and supply analysis**

ECON2318-1 *Analyse des marchés et filières*

**AGRO 2.15 Plant biotechnology**

VEGE0032-1 *Plant biotechnology*  
 - *Molecular plant biotechnology* - Hervé VANDERSCHUREN  
 - *Plant biotechnology and plant production* - Frédéric FRANCIS, Sébastien MASSART

**AGRO 2.16 Smart Farming**

AGRO0023-1 *Smart farming* - JeanFrançois BASTIN, Jérôme BINDELLE, Benjamin DUMONT

**Option 3 of modules:**

**AGRO 2.17 Analyse socio-économique des enjeux de transition**

Choose courses totalling 5 ECTS from the following :

ECON2298-3 *Transition and new economic models (Service Learning)* - Kevin MARÉCHAL

ECON2248-1 *Environmental economy* - Kevin MARÉCHAL

[...] Possibilité de choisir entre 2 et 5 crédits parmi les cours suivants, en remplacement des cours au choix du B2 :

**AGRO 2.18 Applied strategies for the integrated management of pests and weeds**

VEGE0042-1 *Integrated and agroecological protection of crops* - Frédéric FRANCIS, François HENRIET, Haïssam JIAKLI, Sébastien MASSART, François VERHEGGEN

**AGRO 2.19 Advanced animal genetics, genomics and biodiversity**

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

**Prerequisite :**

ANIM0030-1 - Animal recording, breeding and reproduction in modern sustainable animal production system

ANIM0029-1 - Fondements et dynamiques des systèmes d'élevage

**Module option 4 :**

**AGRO 2.20 Applied rural socioeconomics**

ECON2273-1 *Applied rural socioeconomics* - Yves BROSTAUX, Thomas DOGOT - [3h SEM] Q1 8 37 [+] 5

**Prerequisite :**

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

**AGRO 2.21 Chemical, biological and environmental risks related to plant productions**

VEGE0034-1 *Chemical, biological and environmental risks related to plant productions* Q1 20 28 - 5  
- Patrick DU JARDIN, Benjamin DUMONT , Jeroen MEERSMANS,  
François VERHEGGEN

**Prerequisite :**

VEGE0046-1 - Biologie et écologie des bioagresseurs

VEGE0024-1 - Phytotechnie générale et appliquée en milieux tempérés et tropicaux

**AGRO 2.22 Feed & food**

Choose courses totalling 5 ECTS from the following :

ANIM0025-1 *Feeding dairy cow* - Yves BECKERS Q1 9 18 - 3

ALIM0010-3 *Food, human nutrition and dietetics* (english language) - Q1 18 - - 2  
Jérôme BINDELLE

[...] Possibilité de choisir entre 2 et 5 crédits parmi les cours suivants, en remplacement des cours au choix du B2 :

**Choose one language module from:**

**All year round**

**AGRO 2.31 English language**

LANG2953-1 *Practice of specialized English for agricultural science (level C1 - Presentation)* - Estelle MAYARD, Lelania SPERRAZZA - [36h AUTR] TA - 12 [+] 4

**Corequisite :**

AGRO0020-1 - Mission Expert

**AGRO 2.32 Dutch language**

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

**AGRO 2.33 Spanish language**

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

**Optional activity**

INFO9013-1 *Multivariate 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**

**Bridging courses Master in agricultural bioengineering**

**Compulsory courses**

**Common core courses**

GEST3028-2 *Accounting and management* - Thomas DOGOT Q1 22 26 - 4

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	<i>Applied statistic : Second part</i> - Yves BROSTAUX <b>Corequisite :</b> STAT2004-1 - Statistique appliquée : 1ère partie	Q2	12	12	-	2
PSYC5897-3	<i>Team, organization and change</i> - Daniel FAULX, Tiber MANFREDINI, Elise SEGHERS - [44h SEM] <b>Corequisite :</b> MANA0003-1 - Portfolio (Bachelier) GEST3773-1 - Gestion de la qualité GEST3028-2 - Comptabilité et gestion des entreprises	TA	4	-	[+]	2
MANA0003-1	<i>Portfolio (Bachelor)</i> - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Pierre DELAPLACE, Dorothée GOFFIN - [24h AUTR] <b>Corequisite :</b> PSYC5897-3 - Equipe, organisation & changement	TA	-	-	[+]	2
RSTG0008-1	<i>Internship (Bachelor)</i> - Hélène SOYEURT - [18h AUTR] <b>Corequisite :</b> PSYC5897-3 - Equipe, organisation & changement GEST3028-2 - Comptabilité et gestion des entreprises GEST3773-1 - Gestion de la qualité	TA	6	-	[+]	2
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, Gauthier LIGOT, 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> - Lelania SPERRAZZA - [48h E-Lrng]	TA	-	24	[+]	4
INGE0008-1	<i>Multidisciplinary experimental project</i> - Yves BROSTAUX, Pierre DELAPLACE, Sébastien MASSART, Benoît MERCATORIS, Jacques MIGNON, Arnaud MONTY - [60h AUTR] <b>Corequisite :</b> ENVT2044-1 - Ecologie générale BIOL2044-1 - Physiologie végétale GEST3773-1 - Gestion de la qualité STAT2004-1 - Statistique appliquée : 1ère partie STAT2005-1 - Statistique appliquée : 2ème partie	TA	6	6	[+]	6

**Course Agricultural Sciences**

AGRO0001-1	<i>Basic principles of agriculture and agroecology</i> - Pierre DELAPLACE, Benjamin DUMONT - [4h Ex.]	Q2	16	4	[+]	2
AGRO0002-1	<i>Fertilization and crop nutrition</i> - Caroline DE CLERCK, Patrick DU JARDIN, Benjamin DUMONT - [4h AUTR] <b>Corequisite :</b> AGRO0001-1 - Fondement d'agriculture et d'agroécologie BIOL2044-1 - Physiologie végétale	Q2	16	4	[+]	2
AGRO0021-1	<i>Introduction to cultivation techniques and levers</i> - Nicolas DESOIGNIES, Benjamin DUMONT - [4h AUTR] <b>Corequisite :</b> AGRO0001-1 - Fondement d'agriculture et d'agroécologie	Q2	18	2	[+]	2
BIOL2015-3	<i>Molecular biology</i> - Patrick FICKERS <b>Corequisite :</b> BIOL2016-3 - Génétique générale	Q2	24	-	-	2
BIOL2016-3	<i>General genetics</i> - Nicolas GENGLER, Ludivine LASSOIS	Q2	12	12	-	2

**Corequisite :**

BIOL2015-3 - Biologie moléculaire

BIOL2018-1 *Animal nutrition* - Yves BECKERS Q2 24 - - 2

SPRA0001-1 *Sustainable breeding and zoogenetic resources* - Nicolas GENGLER - [4h FT] Q2 20 - [+] 2

**Corequisite :**

BIOL2016-3 - Génétique générale

BIOL2043-1 *Application of molecular biology and genetics* - Nicolas GENGLER, Martine SCHROYEN, Hervé VANDERSCHUREN, Luc WILLEMS Q2 - 24 - 2

**Corequisite :**

BIOL2016-3 - Génétique générale

GERE0043-1 *Foundations of soil quality* - Gilles COLINET, Caroline DE CLERCK, Aurore DEGRÉ Q2 18 6 - 2

**Cours de remplacement :**

ENVT3129-1 *Evaluating sustainability* - Andrea DI MARIA - [2h SEM] Q2 12 16 [+] 3

ENVT3050-1 *Quantification of ecosystem services* - Marc DUFRÊNE - [6h AUTR] Q1 9 5 [+] 2

BIOD0001-3 *Biodiversity management* - Arnaud MONTY - [6h SEM] Q1 18 - [+] 2

CHIM9321-1 *Immunology* - Bénédicte MACHIELS Q2 27 - - 3

ALIM0015-1 *Food sanitary safety* - Mohamed AYADI - [2h SEM] Q1 16 6 [+] 2

ALIM0013-2 *Techniques for preparing and preserving foods* Q2 21 - - 2  
 - *General concepts* - Christophe BLECKER 3 - -  
 - *In-depth study for bioengineers* - Christophe BLECKER

BIOL2015-3 *Molecular biology* - Patrick FICKERS Q2 24 - - 2