

**Cycle view of the study programme**

B1 Or Th Pr Au Cr

*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 (B1 : 60Cr, B2 : 33Cr)**
**Periods 1 and 2**
**CHIM1.10 Multivaried analysis**

STAT1213-1	<i>Multivariate analysis I: data exploration and structuring</i> - Yves BROSTAUX	B1	Q1	9	9	-	<b>2</b>
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**CHIM1.11 Analytical Chemistry : instrumental techniques**

CHIM9246-2	<i>Chemical analysis : instrumental techniques</i> (english language) - Giorgia PURCARO - [5h SEM]	B1	Q1	21	28	[+]	<b>6</b>
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**CHIM1.12 Food preservation and safety**

ALIM0001-1	<i>Food hygiene</i> - Mohamed AYADI, Georges DAUBE - [2h SEM]	B1	Q1	10	6	[+]	<b>2</b>
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ALIM0015-1	<i>Food sanitary safety</i> - Mohamed AYADI - [2h SEM]	B1	Q1	16	6	[+]	<b>2</b>
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ALIM0017-1	<i>Agro-food engineering procedures</i> - Sabine DANTHINE, Nicolas JACQUET	B1	Q1	24	24	-	<b>4</b>
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**CHIM1.13 Applied genoproteomics**

CHIM0715-1	<i>Applied genoproteomics</i> (english language) - Magali DELEU, Patrick FICKERS, Sébastien MASSART, Luc WILLEMS	B1	Q1	18	6	-	<b>2</b>
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**CHIM1.14 Biological chemistry and processes engineering**

CHIM0718-1	<i>Biological chemistry and corresponding processes engineering, Introduction</i> (english language) - Aurore RICHEL - [2h FT]	B1	Q1	16	23	[+]	<b>5</b>
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**CHIM1.15 Nutrition**

ALIM0010-3	<i>Food, human nutrition and dietetics</i> (english language) - Jérôme BINDELLE	B1	Q1	18	-	-	<b>2</b>
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**Corequisite :**

LANG2954-1 - Pratique de l'anglais scientifique de bioingénieur (CHIB) (niveau B2+)

**Periods 3 and 4**
**CHIM1.30 Core curriculum Q2**

MANA0004-1	<i>Portfolio (Master)</i> - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Pierre DELAPLACE, Dorothée GOFFIN - [24h AUTR]	B1	TA	-	-	[+]	<b>2</b>
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LANG2954-1	<i>Practice of Scientific English for bioengineers (CHIB) (level B2+)</i> - Estelle MAYARD, Lelania SPERRAZZA - [36h AUTR]	B1	TA	-	12	[+]	<b>4</b>
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**Corequisite :**

CHIM9245-1 - Advanced chromatographic techniques

CHIM9254-1 - Practice of natural product chemistry

ALIM0010-3 - Food, human nutrition and dietetics

**CHIM1.31 Microbial processes and interactions**

CHIM9334-1	<i>Bioprocess engineering</i> (english language) - Frank DELVIGNE	B1	Q2	24	18	-	<b>4</b>
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CHIM9335-1	<i>Downstream processing operations</i> - Patrick FICKERS	B1	Q2	20	4	-	<b>2</b>
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CHIM9336-1	<i>Applied microbial ecology</i> (english language) - Marc ONGENA	B1	Q2	20	4	-	<b>2</b>
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**CHIM1.32 Engineering and scaling conservation procedures**

INGE0014-1	<i>Engineering and scaling conservation procedures</i> - Nicolas JACQUET, Paul MALUMBA KAMBA - [6h AUTR]	B1	Q2	6	12	[+]	<b>2</b>
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INGE0002-1 *Refrigeration and drying* - Nicolas JACQUET, Paul MALUMBA KAMBA B1 Q2 18 6 - 2

**CHIM1.33 Food industry technologies**

ALIM0012-1 *Technology of fats* - Sabine DANTHINE - [3h FT] B1 Q2 18 30 [+] 4

**Period 3**

**CHIM1.34 Food engineering**

ALIM0007-1 *Physical chemistry of formulations* - Christophe BLECKER B1 Q2 16 8 - 2

ALIM0005-1 *Food formulations engineering* - Christophe BLECKER B1 Q2 16 8 - 2

**CHIM1.35 Practical chemistry of natural substances**

CHIM9245-1 *Advanced chromatographic techniques (english language)* - Giorgia PURCARO B1 Q2 15 3 - 2

**Corequisite :**

LANG2954-1 - Pratique de l'anglais scientifique de bioingénieur (CHIB) (niveau B2+)

CHIM9246-2 - Chemical analysis : instrumental techniques

CHIM9254-1 *Practice of natural product chemistry (english language)* - Manon GENVA, Aurore RICHEL B1 Q2 3 35 - 4

**Corequisite :**

LANG2954-1 - Pratique de l'anglais scientifique de bioingénieur (CHIB) (niveau B2+)

**CHIM1.36 Immunology**

CHIM9321-1 *Immunology* - Bénédicte MACHIELS B1 Q2 27 - - 3

**Period 4**

**AGRO2.30 Final work and internship**

RTFE2008-1 *Thesis in chemistry and bio-industries* - Giorgia PURCARO B2 Q2 - - - 24

RSTG0002-1 *Internship and professional relations* - Catherine COLAUX, Thomas DOGOT, Patrick FICKERS B2 TA 12 - - 8

**CHIM2.10 Research project and entrepreneurship**

CHIM9324-1 *Research projects or entrepreneurship* - Philippe JACQUES - [8h AUTR] B2 Q1 2 2 [+] 1

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

RSTG0011-1 *Additional internship* - Pierre DELAPLACE 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 *Multivariate analysis 3: Data mining et Machine Learning: advanced (english language)* - Yves BROSTAUX, David COLIGNON, Benoît MERCATORIS, Hélène SOYEURT B2 Q2 12 28 - 4

Notice : INFO8008-2: prerequisite for the course INFO9013-1

**Focus optional courses (B2 : 27Cr)**

**Period 1 and 2**

Choice n°1:

**Choose one of the following modules : (B2 : 6Cr)**

**CHIM2.11 Food supplements (B2 : 6Cr)**

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

GBLX0058-1	<i>Complement of food formulations engineering and sensory analysis</i> - Christophe BLECKER	B2	Q1	12	6	-	2
GBLX0059-2	<i>Logistics in food industry</i> - Mohamed AYADI - [3h FT, 4h SEM]	B2	Q1	9	6	[+]	2
GBLX0060-2	<i>Food and environmental biotechnology</i> (english language) - Frank DELVIGNE - [2h SEM]	B2	Q1	7	9	[+]	2

[...] Possibility to choose between 2 and 6 credits from the list of replacement courses

**CHIM2.12 From gene to protein (B2 : 6Cr)**

CHIM0716-1	<i>From gene to protein</i> - Magali DELEU, Patrick FICKERS, Malik HAMAÏDIA, Sébastien MASSART, Martine SCHROYEN, Luc WILLEMS - [12h AUTR]	B2	Q1	12	24	[+]	6
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**CHIM2.24 Extraction, purification, characterization and valuation of biosourced molecules (B2 : 6Cr)**

CHIM0722-1	<i>Extraction, purification, characterization and valorization of biosourced molecules</i> (english language) - Christian DAMBLON, MarieLaure FAUCONNIER, Manon GENVA, Loïc QUINTON, Aurore RICHEL	B2	Q1	4	36	-	6
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Choice n°2:

**Choose one of the following modules : (B2 : 9Cr)**

**CHIM2.14 Microbial biotechnology - applications (B2 : 9Cr)**

CHIM0719-1	<i>Microbial biotechnology - applications</i> (english language) - Frank DELVIGNE, Patrick FICKERS, Philippe JACQUES, Marc ONGENA - [96h Proj.]	B2	Q1	2	-	[+]	9
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**CHIM2.15 Food Science (B2 : 9Cr)**

Choose courses totalling 9 ECTS from the following : (B2 : 9Cr)

ALIM0006-1	<i>Food science</i> - Christophe BLECKER, Sabine DANTHINE - [6h AUTR]	B2	Q1	32	32	[+]	7
ALIM0018-1	<i>Food analysis</i> (english language) - Giorgia PURCARO	B2	Q1	3	15	-	2

[...] Possibilité de choisir entre 2 et 9 crédits parmi la liste des cours de remplacement

Choice n°3:

**Choose one of the following modules : (B2 : 4Cr)**

**CHIM2.16 Chemical contaminants analysis and risks of explosions (B2 : 4Cr)**

CHIM0720-1	<i>Analysis of chemical contaminants</i> (english language) - Giorgia PURCARO - [2h AUTR]	B2	Q1	-	16	[+]	2
CHIM0692-1	<i>Risks of using phytopharmaceutical products and biocides</i> - Jeroen MEERSMANS - [6h SEM]	B2	Q1	12	-	[+]	2

**CHIM2.17 Multivaried analysis (B2 : 4Cr)**

INFO8008-2	<i>Multivaried analysis 2: data mining et machine learning</i> (english language)	B2	Q1				4
	- <i>Introduction</i> - Yves BROSTAUX, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT			9	18	-	
	- <i>In-depth study</i> - Yves BROSTAUX, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT			3	6	-	

*Notice* : can only be chosen once in the curriculum

Choice no. 4:

**Choose one of the following modules : (B2 : 4Cr)**

**CHIM2.18 Chemistry of bioenergy production (B2 : 4Cr)**

CHIM9316-1 *Chemistry of bioenergy production, Introduction* (english language) - B2 Q1 1 48 - 4  
Aurore RICHEL

**CHIM2.19 Applied immunology (B2 : 4Cr)**

CHIM9325-1 *Applied immunology* - Magali DELEU, Malik HAMAÏDIA, B2 Q1 12 24 - 4  
Marc ONGENA, Sandra ORMESENE, Luc WILLEMS

**CHIM2.20 Machine learning (B2 : 4Cr)**

INFO8008-2 *Multivariate analysis 2: data mining et machine learning* (english language) B2 Q1 4  
- *Introduction* - Yves BROSTAU, Juan Antonio FERNANDEZ PIERNA, 9 18 -  
Hélène SOYEURT  
- *In-depth study* - Yves BROSTAU, 3 6 -  
Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT  
*Notice* : can only be chosen once in the curriculum

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

**All year round**

**CHIM 2.31 English (B2 : 4Cr)**

LANG2955-2 *Specialised English for chemistry and bio-industries (level C1 - Presentation)* - Estelle MAYARD, Lelania SPERRAZZA - [36h AUTR] B2 TA - 12 [+] 4

**CHIM 2.32 Dutch (B2 : 4Cr)**

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

**CHIM 2.33 Spanish (B2 : 4Cr)**

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

**Cours de remplacement :**

ENVT3129-1 *Evaluating sustainability* - Andrea DI MARIA - [2h SEM] B2 Q2 12 16 [+] 3  
ENVT3050-1 *Quantification of ecosystem services* - Marc DUFRÈNE - [6h AUTR] B2 Q1 9 5 [+] 2  
BIOD0001-3 *Biodiversity management* - Arnaud MONTY - [6h SEM] B2 Q1 18 - [+] 2  
VEGE0037-1 *Innovative system of plant production* B2 Q2 6  
- *Urban agriculture* - Haïssam JIAKLI 13 13 -  
- *Developmental physiology applied to plant productions* - 12 - [+]  
Pierre DELAPLACE - [6h FT]  
- *Physical parameters control of plant productions in controlled conditions* - Vincent LEEMANS 9 - -  
VEGE0028-1 *Methods for managing plant health* - Frédéric FRANCIS, B2 Q2 42 15 - 6  
Olivier GUELTON, Eric HAUBRUGE, François HENRIET,  
Haïssam JIAKLI, Sébastien MASSART, François VERHEGGEN

**Bridging courses Master in chemistry and bio-industries**

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

**Common core courses**

GEST3028-2 *Accounting and management* - Thomas DOGOT B0 Q1 22 26 - 4  
GEST3773-1 *Management of quality* - Mohamed AYADI, Sébastien MASSART - B0 Q1 18 - [+] 2  
[6h AUTR]

STAT2004-1	<i>Applied statistics : First part</i> - Yves BROSTAUX	B0	Q1	12	12	-	2
STAT2005-1	<i>Applied statistic : Second part</i> - Yves BROSTAUX <b>Corequisite :</b> STAT2004-1 - Statistique appliquée : 1ère partie	B0	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	B0	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	B0	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	B0	TA	6	-	[+]	2
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, Gauthier LIGOT, 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> - Lelania SPERRAZZA - [48h E-Lrng]	B0	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	B0	TA	6	6	[+]	6

### Chemistry and bio-industries

BIAA0003-1	<i>Modelling physical and biological processes</i> - Frank DELVIGNE	B0	Q2	24	-	-	2
BIOL2015-3	<i>Molecular biology</i> - Patrick FICKERS <b>Corequisite :</b> BIOL2016-3 - Génétique générale	B0	Q2	24	-	-	2
BIOL2016-3	<i>General genetics</i> - Nicolas GENGLER, Ludivine LASSOIS <b>Corequisite :</b> BIOL2015-3 - Biologie moléculaire	B0	Q2	12	12	-	2
BIOL2019-1	<i>Theoretical chemistry and physics applied to biomolecules structural analysis</i> - Christian DAMBLON, Loïc QUINTON	B0	Q2	24	24	-	4
CHIM9269-2	<i>Catalysis</i> - MarieLaure FAUCONNIER - [2h AUTR]	B0	Q2	6	12	[+]	2
CHIM9242-4	<i>Fundamentals of quantitative analytical chemistry</i> - Giorgia PURCARO	B0	Q2	16	32	-	4

ALIM0013-2	<i>Techniques for preparing and preserving foods</i>	B0	Q2					<b>2</b>
	- <i>General concepts</i> - Christophe BLECKER		21	-	-			
	- <i>In-depth study for bioengineers</i> - Christophe BLECKER		3	-	-			
	<b>Prerequisite :</b>							
	BIAA0002-1 - Technologie agricole et alimentaire							

**Optional activity (B0 : 5Cr)**

RSTG0012-1	<i>Additional internship</i> - Pierre DELAPLACE	B0	TA	-	-	-	-	<b>5</b>
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