

#### 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 : 60Cr, B2 : 33Cr)

##### Periods 1 and 2

##### CHIM1.10 Multivaried analysis

STAT1213-1 *Multivariate analysis 1: data exploration and structuring* - B1 Q1 9 9 - 2  
Yves BROSTAUX

##### CHIM1.11 Analytical Chemistry : instrumental techniques

CHIM9246-2 *Chemical analysis : instrumental techniques* (english language) - B1 Q1 21 28 [+] 6  
Giorgia PURCARO - [5h SEM]  
**Corequisite :**  
LANG2954-1 - Pratique de l'anglais de spécialité en chimie et bio-industries : part 1 (niveau B2+)

##### CHIM1.12 Food preservation and safety

ALIM0001-1 *Food hygiene* - Mohamed AYADI, Georges DAUBE - [2h SEM] B1 Q1 10 6 [+] 2  
ALIM0015-1 *Food sanitary safety* - Mohamed AYADI - [2h SEM] B1 Q1 16 6 [+] 2  
ALIM0017-1 *Agro-food engineering procedures* - Sabine DANTHINE, Nicolas JACQUET B1 Q1 24 24 - 4

##### CHIM1.13 Applied genoproteomics

CHIM0715-1 *Applied genoproteomics* (english language) - Magali DELEU, Patrick FICKERS, Laurence LINS, Sébastien MASSART, Luc WILLEMS - B1 Q1 18 - [+] 2  
[6h AUTR]

##### CHIM1.14 Biological chemistry and processes engineering

CHIM0718-1 *Biological chemistry and corresponding processes engineering, Introduction* (english language) - Aurore RICHEL - [2h FT] B1 Q1 16 23 [+] 5

##### CHIM1.15 Nutrition

ALIM0010-3 *Food, human nutrition and dietetics* (english language) - B1 Q1 18 - - 2  
Jérôme BINDELLE  
**Corequisite :**  
LANG2954-1 - Pratique de l'anglais de spécialité en chimie et bio-industries : part 1 (niveau B2+)

##### Periods 3 and 4

##### CHIM1.30 Core curriculum Q2

MANA0004-1 *Portfolio (Master)* - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, Dorothee GOFFIN - [24h AUTR] B1 Q2 - - [+] 2

LANG2954-1 *Practice of specialized English in Chemistry and Bio-industries : part 1* (level B2+) - Sophie DEPOTERRE, Estelle MAYARD - Suppl : B1 TA - 12 [+] 4  
Fiona THEWISSEN - [36h AUTR]  
**Corequisite :**  
ALIM0010-3 - Food, human nutrition and dietetics  
CHIM9254-1 - Practice of natural product chemistry  
CHIM9245-1 - Advanced chromatographic techniques

##### CHIM1.31 Microbial processes and interactions

CHIM0717-1 *Microbial processes and interactions* (english language) - B1 Q2 57 18 [+] 8  
Frank DELVIGNE, Patrick FICKERS, Philippe JACQUES, Marc ONGENA, JeanClaude TWIZERE - [9h AUTR]

##### CHIM1.32 Engineering and scaling conservation procedures

INGE0014-1 *Engineering and scaling conservation procedures* - Nicolas JACQUET, Paul MALUMBA KAMBA - [6h AUTR] B1 Q2 6 12 [+] 2

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 :

CHIM9246-2 - Chemical analysis : instrumental techniques

LANG2954-1 - Pratique de l'anglais de spécialité en chimie et bio-industries : part 1 (niveau B2+)

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

##### Corequisite :

LANG2954-1 - Pratique de l'anglais de spécialité en chimie et bio-industries : part 1 (niveau B2+)

#### CHIM1.36 Immunology

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

#### Periods 3 and 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, Didier VAN CAILLIE 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 courses (B2 : 27Cr)

##### Single focus (B2 : 27Cr)

##### Professional Focus (B2 : 27Cr)

##### Periods 1 and 2

Choice n°1:

Choose one module from : (B2 : 6Cr)

#### CHIM2.11 Food supplements

GBLX0058-1 *Complement of food formulations engineering and sensory analysis* - Christophe BLECKER B2 Q1 12 6 - 2

GBLX0059-2 *Logistics in food industry* - Mohamed AYADI - [3h FT, 4h SEM] B2 Q1 9 6 [+] 2

GBLX0060-2 *Microbial ecology of water and wastewater (english language)* - Frank DELVIGNE - [2h SEM] B2 Q1 7 9 [+] 2

#### CHIM2.12 From gene to protein

CHIM0716-1 *From gene to protein* - Magali DELEU, Patrick FICKERS, Laurence LINS, Sébastien MASSART, Martine SCHROYEN, Luc WILLEMS - [12h AUTR] B2 Q1 12 24 [+] 6

#### CHIM2.24 Extraction, purification, characterization and valuation of biosourced molecules

CHIM0722-1 *Extraction, purification, characterization and valorization of biosourced molecules (english language)* - Christian DAMBLON, MarieLaure FAUCONNIER, Loïc QUINTON, Aurore RICHEL B2 Q1 4 36 - 6

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

Choice n°2:

Choose one module from : (B2 : 9Cr)

#### CHIM2.14 Microbial biotechnology - applications

CHIM0719-1 *Microbial biotechnology - applications (english language)* - Frank DELVIGNE, Patrick FICKERS, Philippe JACQUES, Marc ONGENA - [96h Proj.] B2 Q1 2 - [+] 9

#### CHIM2.15 Food Science

ALIM0006-1 *Food science* - Christophe BLECKER, Sabine DANTHINE - [6h AUTR] B2 Q1 32 32 [+] 7

ALIM0018-1 *Food analysis (english language)* - Giorgia PURCARO B2 Q1 6 12 - 2

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

Choice n°3:

Choose a module for at least 4 credits from: (B2 : 4Cr)

#### CHIM2.16 Chemical contaminants analysis and risks of explosions

CHIM0720-1 *Analysis of chemical contaminants (english language)* - Giorgia PURCARO - [2h AUTR] B2 Q1 - 16 [+] 2

CHIM0692-1 *Risks of using phytopharmaceutical products and biocides* - Jeroen MEERSMANS - [6h SEM] B2 Q1 12 - [+] 2

#### CHIM2.17 Multivaried analysis

INFO8008-1 *Multivaried analysis 2: data mining and machine learning (english language)* - Yves BROSTAU, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT B2 Q1 12 26 - 4  
*Notice* : can only be chosen once in the curriculum

STAT1213-1 *Multivariate analysis 1: data exploration and structuring* - Yves BROSTAU B2 Q1 9 9 - 2

[...] Possibility to choose between 2 and 4 credits from the list of replacement courses

Choice n°4:

Choose one module for 4 credits: (B2 : 4Cr)

#### CHIM2.18 Chemistry of bioenergy production

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

#### CHIM2.19 Applied immunology

CHIM9325-1 *Applied immunology* - Malik HAMAÏDIA, Marc ONGENA, Alain VANDERPLASSCHEN, Hervé VANDERSCHUREN, Luc WILLEMS B2 Q1 12 24 - 4

#### CHIM2.50 Machine learning

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

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

STAT1213-1 *Multivariate analysis 1: data exploration and structuring* - Yves BROSTAUX

[...] Possibility to choose between 2 and 4 credits from the list of replacement courses

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

##### Periods 3 and 4

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

LANG2955-2 *Practice of specialized English for chemistry and bioindustries : part 2 (level C1 - Presentation)* - Sophie DEPOTERRE, Estelle MAYARD, Fiona THEWISSEN - Suppl : Fiona THEWISSEN - [36h AUTR]

##### Corequisite :

RTFE2008-1 - Travail de fin d'études en chimie et bio-industries  
CHIM0716-1 - Du gène à la protéine

##### All year round

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

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

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

LANG9915-1 *Spanish - beginners* - Valérie COYETTE

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

GEOP0010-1 *Soil quality evaluation* - Gilles COLINET

ENVT3129-1 *Evaluating sustainability* - Andrea DI MARIA, Angélique LÉONARD - [2h SEM]

GERE0023-1 *Spatial analysis, organisation of grounds in the landscape and preservation of grounds* - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS - [8h FT]

ENVT3050-1 *Quantification of ecosystem services* - Marc DUFRÈNE - [6h AUTR]

BIOD0001-3 *Biodiversity management* - Arnaud MONTY - [6h SEM]

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

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

VEGE0036-1 *Tropical agroecology*  
- *Introduction* - Ludivine LASSOIS - Suppl : N... - [20h FT]  
- *Depth notions: part 1* - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...  
- *Depth notions: part 2* - Ludivine LASSOIS - Suppl : Nicolas DESOIGNIES, N...

#### 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 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 chemistry and bio-industries

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

###### Common core courses

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
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 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, Véronique JANS, Tiber MANFREDINI - [44h SEM] <b>Corequisite :</b> GEST3028-2 - Comptabilité et gestion des entreprises GEST3773-1 - Gestion de la qualité MANA0003-1 - Portfolio (Bachelier)	B0	TA	4	-	[+]	2
MANA0003-1	<i>Portfolio (Bachelor)</i> - Yves BECKERS, Hugues CLAESSENS, Gilles COLINET, Aurore DEGRÉ, 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> GEST3773-1 - Gestion de la qualité GEST3028-2 - Comptabilité et gestion des entreprises PSYC5897-3 - Equipe, organisation & changement	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, Adeline FAYOLLE, Benoît MERCATORIS	B0	Q1	24	24	-	4
PHYS3036-1	<i>Environmental physics</i> - 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 POCHE - [60h AUTR] B0 TA 6 6 [+] 6

**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

**Subject : Chemistry and bioindustry**

BIAA0003-1 *Modelling physical and biological processes* - Frank DELVIGNE B0 Q2 24 - - 2

BIOL2015-3 *Molecular biology* - Patrick FICKERS B0 Q2 24 - - 2

**Corequisite :**

BIOL2016-3 - Génétique générale

BIOL2016-3 *General genetics* - Nicolas GENGLER, Ludivine LASSOIS - Suppl : Martine SCHROYEN B0 Q2 12 12 - 2

**Corequisite :**

BIOL2015-3 - Biologie moléculaire

BIOL2019-1 *Theoretical chemistry and physics applied to biomolecules structural analysis* - Christian DAMBLON, Loïc QUINTON B0 Q2 24 24 - 4

CHIM9269-2 *Catalysis* - MarieLaure FAUCONNIER - [2h AUTR] B0 Q2 6 12 [+] 2

CHIM9242-4 *Fundamentals of quantitative analytical chemistry* - Giorgia PURCARO B0 Q2 16 32 - 4

ALIM0013-2 *Techniques of food preservation* - Christophe BLECKER B0 Q2 24 - - 2

**Prerequisite :**

BIAA0002-1 - Technologie agricole et alimentaire

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

RSTG0012-1 *Additional internship* - Aurore DEGRÉ B0 TA - - - 5