

#### Block view of the study programme

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#### Block 1

*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

##### Periods 1 and 2

##### CHIM1.10 Multivaried analysis

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

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

CHIM9246-2 *Chemical analysis : instrumental techniques* (english language) - Giorgia PURCARO - [5h SEM] Q1 21 28 [+] 6

##### 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] Q1 10 6 [+] 2

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

ALIM0017-1 *Agro-food engineering procedures* - Sabine DANTHINE, Nicolas JACQUET Q1 24 24 - 4

##### CHIM1.13 Applied genoproteomics

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

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

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

##### CHIM1.15 Nutrition

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

##### 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, Dorothée GOFFIN - [24h AUTR] Q2 - - [+] 2

LANG2954-1 *Practice of specialized English in Chemistry and Bio-industries : part 1* (level B2+) - Sophie DEPOTERRE, Estelle MAYARD - Suppl : Fiona THEWISSEN - [36h AUTR] TA - 12 [+] 4

##### 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) - Frank DELVIGNE, Patrick FICKERS, Philippe JACQUES, Marc ONGENA, JeanClaude TWIZERE - [9h AUTR] Q2 57 18 [+] 8

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

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

INGE0002-1 *Refrigeration and drying* - Nicolas JACQUET, Paul MALUMBA KAMBA Q2 18 6 - 2

#### CHIM1.33 Food industry technologies

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

#### Period 3

#### CHIM1.34 Food engineering

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

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

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

CHIM9245-1 *Advanced chromatographic techniques (english language)* - Giorgia PURCARO 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 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 Q2 27 - - 3

#### Optional activities

RSTG0011-1 *Additional internship* - Aurore DEGRÉ TA - - - 5

HULG9547-1 *French course for IN mobility students (S1)* - N... Q1 - - - 3

HULG9548-1 *French course for IN mobility students (S2)* - N... Q2 - - - 3

HULG9546-1 *Erasmus: integration weeks* - N... Q1 - - - 3

#### Block 2

*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

##### Periods 3 and 4

#### AGRO2.30 Final work and internship

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

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

#### CHIM2.10 Research project and entrepreneurship

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

#### Optional courses

##### Single focus

##### Professional Focus

##### Periods 1 and 2

Choice n°1:

Choose one module from :

#### CHIM2.11 Food supplements

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

#### CHIM2.12 From gene to protein

CHIM0716-1	<i>From gene to protein</i> - Magali DELEU, Patrick FICKERS, Laurence LINS, Sébastien MASSART, Martine SCHROYEN, Luc WILLEMS - [12h AUTR]	Q1	12	24	[+]	6
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#### CHIM2.24 Extraction, purification, characterization and valuation of biosourced molecules

CHIM0722-1	<i>Extraction, purification, characterization and valorization of biosourced molecules</i> (english language) - Christian DAMBLON, MarieLaure FAUCONNIER, Loïc QUINTON, Aurore RICHEL	Q1	4	36	-	6
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[...] Possibility to choose between 2 and 6 credits from the list of replacement courses

Choice n°2:

Choose one module from :

#### CHIM2.14 Microbial biotechnology - applications

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

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

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

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

#### CHIM2.17 Multivaried analysis

INFO8008-1	<i>Multivaried analysis 2: data mining and machine learning</i> (english language) - Yves BROSTAU, Juan Antonio FERNANDEZ PIERNA, Hélène SOYEURT <i>Notice</i> : can only be chosen once in the curriculum	Q1	12	26	-	4
STAT1213-1	<i>Multivariate analysis 1: data exploration and structuring</i> - Yves BROSTAU	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:

#### CHIM2.18 Chemistry of bioenergy production

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

#### CHIM2.19 Applied immunology

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

#### CHIM2.50 Machine learning

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

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

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

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

#### Choose a language module from :

##### Periods 3 and 4

#### CHIM 2.31 English

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

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

#### CHIM 2.33 Spanish

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 BROSTAU, David COLIGNON, Benoît MERCATORIS, Héléne SOYEURT

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

#### Bloc d'aménagement du programme de l'année

## Additional ECTS Master in chemistry and bio-industries

#### Compulsory courses

##### Common core courses

GEST3028-2 *Accounting and management* Q1 4  
- *General accounting* - Thomas DOGOT 12 12 -  
- *Management, green accounting and business plan* - Thomas DOGOT 10 14 -

GEST3773-1 *Management of quality* - Mohamed AYADI, Sébastien MASSART - [6h] Q1 18 - [+] 2

	AUTR]							
STAT2004-1	<i>Applied statistics : First part</i> - Yves BROSTAUX	Q1	12	12	-			2
STAT2005-1	<i>Applied statistic : Second part</i> - Yves BROSTAUX	Q2	12	12	-			2
	<b>Corequisite :</b> STAT2004-1 - Statistique appliquée : 1ère partie							
PSYC5897-3	<i>Team, organization and change</i> - Daniel FAULX, Véronique JANS, Tiber MANFREDINI - [44h SEM]	TA	4	-		[+]		2
	<b>Corequisite :</b> 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]	TA	-	-		[+]		2
	<b>Corequisite :</b> PSYC5897-3 - Equipe, organisation & changement							
RSTG0008-1	<i>Internship (Bachelor)</i> - Hélène SOYEURT - [18h AUTR]	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	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, Adeline FAYOLLE, 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> - Sophie DEPOTERRE, Estelle MAYARD, Fiona THEWISSEN - Suppl : Fiona THEWISSEN - [48h E-Lrng]	TA	-	24		[+]		4
INGE0008-1	<i>Multidisciplinary experimental project</i> - Yves BROSTAUX, Pierre DELAPLACE, Sébastien MASSART, Benoît MERCATORIS, Arnaud MONTY, Bernard POCHE - [60h AUTR]	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							
<b>Subject : Chemistry and bioindustry</b>								
BIAA0003-1	<i>Modelling physical and biological processes</i> - Frank DELVIGNE	Q2	24	-	-			2
BIOL2015-3	<i>Molecular biology</i> - Patrick FICKERS	Q2	24	-	-			2
	<b>Corequisite :</b> BIOL2016-3 - Génétique générale							
BIOL2016-3	<i>General genetics</i> - Nicolas GENGLER, Ludivine LASSOIS - Suppl : Martine SCHROYEN	Q2	12	12	-			2
	<b>Corequisite :</b> BIOL2015-3 - Biologie moléculaire							
BIOL2019-1	<i>Theoretical chemistry and physics applied to biomolecules structural analysis</i> - Christian DAMBLON, Loïc QUINTON	Q2	24	24	-			4
CHIM9269-2	<i>Catalysis</i> - MarieLaure FAUCONNIER - [2h AUTR]	Q2	6	12		[+]		2

CHIM9242-4	<i>Fundamentals of quantitative analytical chemistry</i> - Giorgia PURCARO	Q2	16	32	-	<b>4</b>
ALIM0013-2	<i>Techniques of food preservation</i> - Christophe BLECKER	Q2	24	-	-	<b>2</b>
	<b>Prerequisite :</b> BIAA0002-1 - Technologie agricole et alimentaire					

#### Optional activity

RSTG0012-1	<i>Additional internship</i> - Aurore DEGRÉ	TA	-	-	-	<b>5</b>
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#### Possibility to choose between 2 and 6 credits among the following courses, replacing the B2 elective courses:

GEP0010-1	<i>Soil quality evaluation</i> - Gilles COLINET	Q2	14	13	-	<b>3</b>
ENVT3129-1	<i>Evaluating sustainability</i> - Andrea DI MARIA, Angélique LÉONARD - [2h SEM]	Q2	12	16	[+]	<b>3</b>
GERE0023-1	<i>Spatial analysis, organisation of grounds in the landscape and preservation of grounds</i> - Gilles COLINET, Aurore DEGRÉ, Jeroen MEERSMANS - [8h FT]	Q2	23	23	[+]	<b>6</b>
ENVT3050-1	<i>Quantification of ecosystem services</i> - Marc DUFRÈNE - [6h AUTR]	Q1	9	5	[+]	<b>2</b>
BIOD0001-3	<i>Biodiversity management</i> - Arnaud MONTY - [6h SEM]	Q1	18	-	[+]	<b>2</b>
VEGE0037-1	<i>Innovative system of plant production</i> - <i>Urban agriculture</i> - Haissam JIAKLI - <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				<b>6</b>
			13	13	-	
			12	-	[+]	
			9	-	-	
VEGE0028-1	<i>Methods for managing plant health</i> - Frédéric FRANCIS, Olivier GUELTON, Eric HAUBRUGE, Haissam JIAKLI, Ludivine LASSOIS, Sébastien MASSART, François VERHEGGEN	Q2	42	15	-	<b>6</b>
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...	Q2				<b>6</b>
			-	-	[+]	
			8	11	-	
			8	10	-	