

**Cycle view of the study programme**

		B1	Or	Th	Pr	Au	Cr
<b>Compulsory courses (B1 : 48Cr, B2 : 15Cr)</b>							
CHIM0724-1	<i>Organic chemistry</i> (english language) - Thibault GENDRON, JeanChristophe MONBALIU	B1	Q1	50	-	-	5
CHIM0725-1	<i>Modelling molecules and extended systems</i> (english language) - Partim A - Bernard LEYH, Françoise REMACLE - Partim B - Bernard LEYH, Françoise REMACLE	B1	Q1	30	-	-	5
CHIM0726-1	<i>Emerging analytical approaches</i> - Christian DAMBLON, AnneSophie DUWEZ, Gauthier EPPE, JeanFrançois FOCANT, Loïc QUINTON	B1	Q1	50	-	-	5
CHIM0727-1	<i>Macromolecular and materials chemistry</i> (english language) - Christine JÉRÔME, Bénédicte VERTRUYEN	B1	Q1	50	-	-	5
CHIM0728-1	<i>Design, structure and reactivity of chemical architectures</i> - Lionel DELAUDE, AnneSophie DUWEZ	B1	Q1	50	-	-	5
CHIM0729-1	<i>Biological chemistry</i> - Christian DAMBLON, Loïc QUINTON	B1	Q1	50	-	-	5
CHIM0096-1	<i>Nuclear chemistry</i> (english language) - Thibault GENDRON	B1	Q2	25	-	-	3
SMEM0044-1	<i>Dissertation, Part A</i> - COLLÉGIALITÉ	B1	Q2	-	-	-	15
SMEM0044-2	<i>Dissertation, Part B</i> - COLLÉGIALITÉ	B2	Q1	-	-	-	15

**Optional courses (B1 : 12Cr, B2 : 45Cr)**

In agreement with the Jury, choose courses for a total of 27 credits among: (B1 : 12Cr, B2 : 15Cr)

**Language**

LANG4007-1	<i>English - oral expression</i> (english language) - Clara BRERETON, Véronique DOPPAGNE	-	Q2	-	25	-	3
LANG2971-2	<i>Academic English Writing</i> (english language) - Clara BRERETON, Véronique DOPPAGNE	-	Q1	25	-	-	3

**Industrial chemistry**

CHIM0074-2	<i>Seminars on industrial security</i> - JeanLuc BOZET, Angélique LÉONARD, Dominique TOYE - [2d FW]	-	Q1	15	-	[+]	3
CHIM0022-3	<i>Transport phenomena, Part A</i> (english language) - Andreas PFENNIG	-	Q2	30	-	-	3
CHIM0683-2	<i>Green chemistry</i> - Aurore RICHEL	-	Q2	5	20	-	3
CHIM0699-2	<i>Life cycle assessment - Ecodesign</i> (english language) - Angélique LÉONARD	-	Q1	10	30	-	3

**Synthesis and materials**

CHIM0745-1	<i>Physico-chemistry in non-aqueous solvents</i> (english language) - Cédric MALHERBE	-	Q2	25	-	-	3
CHIM0707-1	<i>Physical organic chemistry</i> - JeanChristophe MONBALIU	-	Q2	25	-	-	3
CHIM9265-1	<i>Introduction to continuous flow organic synthesis</i> (english language) - JeanChristophe MONBALIU - [1d Vis.]	-	Q1	15	10	[+]	3
CHIM0731-1	<i>Chemistry and physical-chemistry of peptide and protein assemblies</i> - JeanChristophe MONBALIU, Loïc QUINTON	-	Q1	25	-	-	3
CHIM0656-1	<i>Organometallic catalysis</i> - Lionel DELAUDE	-	Q1	25	-	-	3
CHIM0219-1	<i>Industrial polymers</i> - Christine JÉRÔME	-	Q2	25	-	-	3
CHIM9234-2	<i>Polymers and environment</i> (english language) - Part A - Philippe LECOMTE - Part B - Philippe LECOMTE	-	Q1	15	-	-	3
CHIM9260-1	(pas organisé en 2022-2023) <i>Properties and applications of</i>	-	Q2	25	-	-	3

*surfactants - N...*

CHIM9230-1 *Nanomaterials: synthesis, properties and applications* (english language) - AnneSophie DUWEZ, Christine JÉRÔME, Damien SLUYSMANS - Q1 25 - - - 3

CHIM0742-1 *Chemistry of materials and sustainable development* - Catherine HENRIST - [0,5d Vis., 10h Mon. WS] - Q1 15 - [+]  
3

#### Techniques of characterization and analysis

BIOL0114-4 *Electronic microscopies, Part A* - Philippe COMPÈRE - Q2 15 - - - 3

CHIM9236-2 *Microstructure of materials : characterization techniques*  
- Part A - Catherine HENRIST - Q2 15 - - - 3  
- Part B - Catherine HENRIST - 10 - - -

CHIM9264-1 *Electrical and magnetic properties of materials* - Bénédicte VERTRUYEN - Q1 15 10 - - 3

CHIM0732-1 *Characterisation of surfaces and interfaces* - AnneSophie DUWEZ, Damien SLUYSMANS - Q1 25 - - - 3

CHIM0220-1 *Recent nuclear magnetic resonance (NMR) methods in chemistry* - Christian DAMBLON - Q1 25 - - - 3

CHIM9257-2 *Introduction to solid state NMR* (english language)  
- Part A - Christian DAMBLON, Philippe LECOMTE - Q1 15 - - - 3  
- Part B - Christian DAMBLON, Philippe LECOMTE - 10 - - -

CHIM9221-1 *Advanced techniques in nuclear magnetic resonance of biomolecules* - Christian DAMBLON - Q1 25 - - - 3

CHIM0653-1 *Imaging and marking techniques* - Thibault GENDRON - Q2 25 - - - 3

CHIM0657-1 *Emerging techniques in the science of separation* - JeanFrançois FOCANT, PierreHugues STEFANUTO - Q2 10 15 - - 3

CHIM9259-2 *Analytical techniques in forensic chemistry* - JeanFrançois FOCANT, PierreHugues STEFANUTO - Q2 15 10 - - 3

CRIS0204-1 *Complement of crystallography* - Frédéric HATERT - Q2 15 10 - - 3

CHIM9310-1 *Advanced spectroscopic analysis methods* - Gauthier EPPE, Cédric MALHERBE - Q2 20 5 - - 3

CHIM0743-1 *Introduction to data handling with MetaboAnalyst* (english language) - PierreHugues STEFANUTO - Q1 15 10 - - 3

CHIM0744-1 *Introduction to quality assurance* - JeanFrançois FOCANT (Odd years) - Q2 15 - - - 3

#### Biological chemistry

BIOC0232-1 *Macromolecular biochemistry* (english language) - Moreno GALLENi - Q1 25 - - - 3

CHIM9221-1 *Advanced techniques in nuclear magnetic resonance of biomolecules* - Christian DAMBLON - Q1 25 - - - 3

CHIM9262-1 *Biomimetic chemistry : when the Man is inspired by nature* - Loïc QUINTON - Q2 25 - - - 3

CHIM0731-1 *Chemistry and physical-chemistry of peptide and protein assemblies* - JeanChristophe MONBALIU, Loïc QUINTON - Q1 25 - - - 3

BIOC0719-1 *Enzymology* - André MATAGNE - [10h SEM] - Q2 15 - [+]  
3

CHIM0218-1 *Elements of medicinal chemistry* - Bernard PIROTTE - [5h SEM] - Q2 20 - [+]  
3

CHIM0683-2 *Green chemistry* - Aurore RICHEL - Q2 5 20 - - 3

#### Modelling and molecular dynamics

CHIM0707-1 *Physical organic chemistry* - JeanChristophe MONBALIU - Q2 25 - - - 3

CHIM0734-1	<i>Photochemistry</i> - Bernard LEYH (Odd years)	-	Q1	15	10	-	3
CHIM9233-1	<i>Molecular logic</i> (english language) - Françoise REMACLE	-	Q2	25	-	-	3
SPAT0054-1	<i>Astrophysics and astrochemistry</i> - Michaël DE BECKER	-	Q2	20	-	-	3

#### Sciences teaching

CHIM0735-1	<i>Sciences and chemistry history</i> - Bernard LEYH (Even years)	-	Q1	15	10	-	3
CHIM0736-1	<i>Conceptual approach to basic chemistry</i> - Bernard LEYH (Odd years)	-	Q2	15	10	-	3
PHIL0040-1	<i>Introduction to the philosophy of sciences</i> - Laurence BOUQUIAUX	-	Q1	30	-	-	3
DOCU0455-1	<i>Introduction to critical thinking</i>	-	Q2				3
	- <i>Theory</i> - Yaël NAZÉ			10	-	-	
	- <i>Practice</i> - Yaël NAZÉ			-	6	-	

[...] Or for a maximum of 9 credits in the course programmes of other sectors in the Faculty of Science, other faculties or other universities. Any request for exemption from the rule of 9 credits maximum will be examined by the jury.

#### Choose one focus from the following : (B2 : 1Nbr)

##### Research Focus (B2 : 30Cr)

Students must do a 5-month research internship in a university or research centre, in Belgium or preferably abroad.

SSTG0056-1	<i>Research placement</i> (english language) - COLLÉGIALITÉ - [5mois Internship]	B2	Q2	-	-	[+]	30
------------	--	----	----	---	---	-----	----

##### Teaching focus (B2 : 30Cr)

AESS1216-1	<i>Special didactics in chemistry : course and exercises (1st part)</i> - Bernard LEYH	B2	TA	40	-	-	3
AESS1219-1	<i>Special didactics in chemistry : placements (1st part)</i>	B2	TA				3
	- <i>Observation placements</i> - Bernard LEYH - [10h Internship]			-	-	[+]	
	- <i>Teaching placements</i> - Bernard LEYH - [20h Internship]			-	-	[+]	
	- <i>Reflexive practical work</i> - Bernard LEYH			-	5	-	
AESS2216-1	<i>Special didactics in chemistry : course and exercises (2nd part)</i> - Bernard LEYH	B2	TA	35	-	-	4
AESS2219-1	<i>Special didactics in chemistry : placements (2nd part)</i>	B2	TA				5
	- <i>Teaching placements</i> - Bernard LEYH - [20h Internship]			-	-	[+]	
	- <i>Reflexive practical work</i> - Bernard LEYH			-	5	-	
	- <i>Extra-scholar teaching activities</i> - Bernard LEYH			-	10	-	
AESS0202-1	<i>General didactics: course and exercises ; observation placements ; reflexive practices</i> - Annick FAGNANT - [10h Internship]	B2	TA	30	10	[+]	4
AESS0246-1	<i>Analysis of scholastic institutions and educational policies</i> - Annelise VOISIN	B2	Q2	15	-	-	1
AESS0248-1	<i>Elements of sociology of education</i> - JeanFrançois GUILLAUME	B2	Q2	10	-	-	1
AESS0004-1	<i>Media education</i> - Jérémy HAMERS	B2	Q1	15	-	-	1
AESS0249-1	<i>Interdisciplinary seminar</i> - Annick FAGNANT	B2	Q2	15	-	-	1
AESS0140-1	<i>Professional ethics and training to neutrality and citizenship</i> - Anne HERLA	B2	Q2	25	-	-	2
AESS0143-1	<i>Educational Psychology of adolescents and young adults</i> - Annick FAGNANT	B2	Q1	15	-	-	2
AESS0339-1	<i>Understand and manage the diversity of public schools</i> - Ariane BAYE	B2	TA	10	15	-	3

##### Professional Focus

Students must do a 5-month internship in a company, in Belgium or abroad.

SSTG0057-1 *Industrial research placement* (english language) - COLLÉGIALITÉ B2 Q2 - - [+] **30**  
- [5mois Internship]

## Additional ECTS Master in chemistry (120 ECTS)

### Optional courses (B0 : 60Cr)

Students will follow a study programme worth 15 to 60 ECTS selected from the courses below. The programme will be established by the master's jury for each student according to their qualifications. (B0 : 60Cr)

CHIM0704-1	<i>Theoretical chemistry</i> - Françoise REMACLE - [15h QA Sess.]	B0	Q1	25	-	[+]	<b>4</b>
CHIM9287-1	<i>Theoretical and quantum chemistry</i> - Françoise REMACLE - [15h QA Sess.]	B0	Q1	30	20	[+]	<b>4</b>
CHIM9288-1	<i>Spectroscopy and statistical thermodynamics elements</i> - Bernard LEYH - [20h QA Sess.]	B0	Q1	30	-	[+]	<b>4</b>
CHIM0278-1	<i>Organic chemistry III</i> - Lionel DELAUDE - [15h QA Sess.]	B0	Q1	30	55	[+]	<b>7</b>
CHIM9289-1	<i>Analytical chemistry III - Physical methods</i> - <i>Physico-chemical methods of analysis</i> - Gauthier EPPE - <i>Electrochemical methods of analysis</i> - Gauthier EPPE - <i>Travaux pratiques et répétitions</i> - Gauthier EPPE - [15h QA Sess.]	B0	Q1	15	-	-	<b>8</b>
CHIM0678-1	<i>Biochemistry</i> - André MATAGNE	B0	Q1	30	-	-	<b>3</b>
INFO0202-1	<i>Programming Methods Applied to Chemistry</i> - Peter SCHLAGHECK	B0	Q2	15	15	-	<b>2</b>
PHYS0968-1	<i>Signal processing</i> - Alejandro SILHANEK	B0	Q2	25	20	-	<b>4</b>
CHIM9285-1	<i>Chemical Kinetics, Introduction to Spectroscopy and Group Theory</i> - Bernard LEYH - [20h QA Sess.]	B0	Q2	35	-	[+]	<b>6</b>
CHIM9291-1	<i>Structural analysis</i> - Christian DAMBLON, Loïc QUINTON	B0	Q2	20	25	-	<b>4</b>
CHIM0209-2	<i>Inorganic chemistry</i> - Bénédicte VERTRUYEN - [8h QA Sess.]	B0	Q2	30	70	[+]	<b>8</b>
CHIM0283-4	<i>Chemistry of the macromolecules</i> - Christine JÉRÔME	B0	Q2	20	20	-	<b>4</b>
PHIL0201-1	<i>Elements of sciences philosophy</i> - Julien PIERON	B0	Q2	15	-	-	<b>2</b>
CHIM9292-1	<i>chemical Kinetics</i> - Bernard LEYH - [10h QA Sess.]	B0	Q2	20	-	[+]	<b>3</b>
CHIM9293-1	<i>Spectroscopy integrated laboratory</i> - Christian DAMBLON, Gauthier EPPE, Bernard LEYH, JeanChristophe MONBALIU, Loïc QUINTON	B0	Q2	-	100	-	<b>6</b>
CHIM9294-1	<i>Bibliographic research, research project</i> - Caroline COLLETTE, JeanChristophe MONBALIU - [30h Internship]	B0	Q2	5	-	[+]	<b>2</b>
LANG0076-1	<i>English 1</i> (english language) - Daphné BUI, Véronique DOPPAGNE	B0	TA	45	-	-	<b>4</b>
LANG0077-1	<i>English 2</i> (english language) - Clara BRERETON, Véronique DOPPAGNE	B0	TA	45	-	-	<b>4</b>