

## Block view of the study programme

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### Block 1

#### Compulsory courses

CHIM0724-1	<i>Organic chemistry</i> (english language) - JeanChristophe MONBALIU	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	Q1	30 20	-	-	5
CHIM0726-1	<i>Emerging analytical approaches</i> - Christian DAMBLON, AnneSophie DUWEZ, Gauthier EPPE, JeanFrançois FOCANT, Loïc QUINTON	Q1	50	-	-	5
CHIM0727-1	<i>Macromolecular and materials chemistry</i> (english language) - Christine JÉRÔME, Bénédicte VERTRUYEN	Q1	50	-	-	5
CHIM0728-1	<i>Design, structure and reactivity of chemical architectures</i> - Lionel DELAUDE, AnneSophie DUWEZ	Q1	50	-	-	5
CHIM0729-1	<i>Biological chemistry</i> - Christian DAMBLON, Loïc QUINTON	Q1	50	-	-	5
CHIM0096-1	<i>Nuclear chemistry</i> (english language)	Q2	25	-	-	3
SMEM0044-1	<i>Dissertation, Part A</i> - COLLÉGIALITÉ	Q2	-	-	-	15

#### Optional courses

Choose courses, with the approval of the Jury, totalling 12 credits among :

##### Language

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

##### Industrial chemistry

CHIM0074-2	<i>Seminars on industrial security</i> - JeanLuc BOZET, Angélique LÉONARD, Dominique TOYE - [2d FW]	Q1	15	-	[+]	3
CHIM0081-3	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD - [1d FW]	Q1	30	-	[+]	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

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 10	-	-	3
CHIM9260-1	<i>Properties and applications of surfactants</i> - Guy BROZE, Antoine DEBUIGNE	Q2	25	-	-	3

CHIM9230-1	<i>Nanomaterials: synthesis, properties and applications</i> (english language) - AnneSophie DUWEZ, Christine JÉRÔME, Damien SLUYSMANS	Q1	25	-	-	3
CHIM0742-1	<i>Chemistry of materials and sustainable development</i> - Catherine HENRIST - [0,5d Vis., 10h Mon. WS]	Q1	15	-	[+]	3
<b>Techniques of characterization and analysis</b>						
BIOL0114-4	<i>Electronic microscopies, Part A</i> - Philippe COMPÈRE	Q2	15	-	-	3
CHIM9236-2	<i>Microstructure of materials : characterization techniques</i> - Part A - Catherine HENRIST - Part B - Catherine HENRIST	Q2	15 10	- -	- -	3
CHIM9264-1	<i>Electrical and magnetic properties of materials</i> - Bénédicte VERTRUYEN	Q1	15	10	-	3
CHIM0732-1	<i>Characterisation of surfaces and interfaces</i> - AnneSophie DUWEZ, Damien SLUYSMANS	Q1	25	-	-	3
CHIM0220-1	<i>Recent nuclear magnetic resonance (NMR) methods in chemistry</i> - Christian DAMBLON	Q1	25	-	-	3
CHIM9257-2	<i>Introduction to solid state NMR</i> (english language) - Part A - Christian DAMBLON, Philippe LECOMTE - Part B - Christian DAMBLON, Philippe LECOMTE	Q1	15 10	- -	- -	3
CHIM9221-1	<i>Advanced techniques in nuclear magnetic resonance of biomolecules</i> - Christian DAMBLON	Q1	25	-	-	3
CHIM0653-1	<i>Imaging and marking techniques</i> - - Suppl : Mohamed Ali BAHRI, Sylvestre DAMMICCO	Q2	25	-	-	3
CHIM0657-1	<i>Emerging techniques in the science of separation</i> - JeanFrançois FOCANT, PierreHugues STEFANUTO	Q2	10	15	-	3
CHIM9259-2	<i>Analytical techniques in forensic chemistry</i> - JeanFrançois FOCANT, PierreHugues STEFANUTO	Q2	15	10	-	3
CRIS0204-1	<i>Complement of crystallography</i> - Frédéric HATERT	Q2	15	10	-	3
CHIM9310-1	<i>Advanced spectroscopic analysis methods</i> - Gauthier EPPE, Cédric MALHERBE	Q2	20	5	-	3
CHIM0743-1	<i>Introduction to data handling with MetaboAnalyst</i> (english language) - PierreHugues STEFANUTO	Q1	15	10	-	3
CHIM0744-1	<i>Introduction to quality assurance</i> - JeanFrançois FOCANT	Q1	15	-	-	3
<b>Biological chemistry</b>						
BIOC0232-1	<i>Macromolecular biochemistry</i> (english language) - Moreno GALLEN	Q1	25	-	-	3
CHIM9221-1	<i>Advanced techniques in nuclear magnetic resonance of biomolecules</i> - Christian DAMBLON	Q1	25	-	-	3
CHIM9262-1	<i>Biomimetic chemistry : when the Man is inspired by nature</i> - Loïc QUINTON	Q2	25	-	-	3
CHIM0731-1	<i>Chemistry and physical-chemistry of peptide and protein assemblies</i> - JeanChristophe MONBALIU, Loïc QUINTON	Q1	25	-	-	3
BIOC0719-1	<i>Enzymology</i> - André MATAGNE - [10h SEM]	Q2	15	-	[+]	3
CHIM0218-1	<i>Elements of medicinal chemistry</i> - Bernard PIROTTE - [5h SEM]	Q2	20	-	[+]	3
CHIM0683-2	<i>Green chemistry</i> - Aurore RICHEL	Q2	5	20	-	3
<b>Modelling and molecular dynamics</b>						
CHIM0707-1	<i>Physical organic chemistry</i> - JeanChristophe MONBALIU	Q2	25	-	-	3
CHIM0734-1	<i>Photochemistry</i> - Bernard LEYH	Q2	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
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**Sciences teaching**

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

**Block 2**
**Compulsory course**

SMEM0044-2	<i>Dissertation, Part B</i> - COLLÉGIALITÉ	Q1	-	-	-	15
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**Optional courses**

En accord avec le Jury, choisir des cours non déjà choisis pour un total de 15 crédits parmi :

**Language**

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

CHIM0074-2	<i>Seminars on industrial security</i> - JeanLuc BOZET, Angélique LÉONARD, Dominique TOYE - [2d FW]	Q1	15	-	[+]	3
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CHIM0081-3	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD - [1d FW]	Q1	30	-	[+]	3
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CHIM0022-3	<i>Transport phenomena, Part A</i> (english language) - Andreas PFENNIG	Q2	30	-	-	3
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CHIM0683-2	<i>Green chemistry</i> - Aurore RICHEL	Q2	5	20	-	3
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CHIM0699-2	<i>Life cycle assessment - Ecodesign</i> (english language) - Angélique LÉONARD	Q1	10	30	-	3
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**Synthesis and materials**

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

CHIM9260-1	<i>Properties and applications of surfactants</i> - Guy BROZE, Antoine DEBUIGNE	Q2	25	-	-	3
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CHIM9230-1	<i>Nanomaterials: synthesis, properties and applications</i> (english language) - AnneSophie DUWEZ, Christine JÉRÔME, Damien SLUYSMANS	Q1	25	-	-	3
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CHIM0742-1	<i>Chemistry of materials and sustainable development</i> - Catherine HENRIST	Q1	15	-	[+]	3
	- [0,5d Vis., 10h Mon. WS]					

**Techniques of characterization and analysis**

BIOL0114-4	<i>Electronic microscopies, Part A</i> - Philippe COMPÈRE	Q2	15	-	-	3
CHIM9236-2	<i>Microstructure of materials : characterization techniques</i> - Part A - Catherine HENRIST - Part B - Catherine HENRIST	Q2	15 10	- -	- -	3
CHIM9264-1	<i>Electrical and magnetic properties of materials</i> - Bénédicte VERTRUYEN	Q1	15	10	-	3
CHIM0732-1	<i>Characterisation of surfaces and interfaces</i> - AnneSophie DUWEZ, Damien SLUYSMANS	Q1	25	-	-	3
CHIM0220-1	<i>Recent nuclear magnetic resonance (NMR) methods in chemistry</i> - Christian DAMBLON	Q1	25	-	-	3
CHIM9257-2	<i>Introduction to solid state NMR</i> (english language) - Part A - Christian DAMBLON, Philippe LECOMTE - Part B - Christian DAMBLON, Philippe LECOMTE	Q1	15 10	- -	- -	3
CHIM9221-1	<i>Advanced techniques in nuclear magnetic resonance of biomolecules</i> - Christian DAMBLON	Q1	25	-	-	3
CHIM0653-1	<i>Imaging and marking techniques</i> - - Suppl : Mohamed Ali BAHRI, Sylvestre DAMMICCO	Q2	25	-	-	3
CHIM0657-1	<i>Emerging techniques in the science of separation</i> - JeanFrançois FOCANT, PierreHugues STEFANUTO	Q2	10	15	-	3
CHIM9259-2	<i>Analytical techniques in forensic chemistry</i> - JeanFrançois FOCANT, PierreHugues STEFANUTO	Q2	15	10	-	3
CRIS0204-1	<i>Complement of crystallography</i> - Frédéric HATERT	Q2	15	10	-	3
CHIM9310-1	<i>Advanced spectroscopic analysis methods</i> - Gauthier EPPE, Cédric MALHERBE	Q2	20	5	-	3
CHIM0743-1	<i>Introduction to data handling with MetaboAnalyst</i> (english language) - PierreHugues STEFANUTO	Q1	15	10	-	3
CHIM0744-1	<i>Introduction to quality assurance</i> - JeanFrançois FOCANT	Q1	15	-	-	3
<b>Biological chemistry</b>						
BIOC0232-1	<i>Macromolecular biochemistry</i> (english language) - Moreno GALLEN	Q1	25	-	-	3
CHIM9221-1	<i>Advanced techniques in nuclear magnetic resonance of biomolecules</i> - Christian DAMBLON	Q1	25	-	-	3
CHIM9262-1	<i>Biomimetic chemistry : when the Man is inspired by nature</i> - Loïc QUINTON	Q2	25	-	-	3
CHIM0731-1	<i>Chemistry and physical-chemistry of peptide and protein assemblies</i> - JeanChristophe MONBALIU, Loïc QUINTON	Q1	25	-	-	3
BIOC0719-1	<i>Enzymology</i> - André MATAGNE - [10h SEM]	Q2	15	-	[+]	3
CHIM0218-1	<i>Elements of medicinal chemistry</i> - Bernard PIROTTE - [5h SEM]	Q2	20	-	[+]	3
CHIM0683-2	<i>Green chemistry</i> - Aurore RICHEL	Q2	5	20	-	3
<b>Modelling and molecular dynamics</b>						
CHIM0707-1	<i>Physical organic chemistry</i> - JeanChristophe MONBALIU	Q2	25	-	-	3
CHIM0734-1	<i>Photochemistry</i> - Bernard LEYH	Q2	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
<b>Sciences teaching</b>						
CHIM0735-1	<i>Sciences and chemistry history</i> - Bernard LEYH	Q1	15	10	-	3
CHIM0736-1	<i>Conceptual approach to basic chemistry</i> - Bernard LEYH	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> - <i>Theory</i> - Yaël NAZÉ - <i>Practice</i> - Yaël NAZÉ	Q2	10	-	-	3
			-	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 :

##### Research Focus

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

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

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

##### Professional Focus

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

SSTG0057-1	<i>Industrial research placement (english language)</i> - COLLÉGIALITÉ - [5mois Internship]	Q2	-	-	[+]	30
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#### Bloc d'aménagement du programme de l'année

### Additional ECTS Master in chemistry (120 ECTS)

#### Optional courses

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.

CHIM0704-1	<i>Theoretical chemistry</i> - Françoise REMACLE - [15h QA Sess.]	Q1	25	-	[+]	<b>4</b>
CHIM9287-1	<i>Theoretical and quantum chemistry</i> - Françoise REMACLE - [15h QA Sess.]	Q1	30	10	[+]	<b>4</b>
CHIM9288-1	<i>Spectroscopy and statistical thermodynamics elements</i> - Bernard LEYH - [20h QA Sess.]	Q1	30	-	[+]	<b>4</b>
CHIM0278-1	<i>Organic chemistry III</i> - Lionel DELAUDE - [15h QA Sess.]	Q1	30	55	[+]	<b>7</b>
CHIM9289-1	<i>Analytical chemistry III - Physical methods</i> - <i>Physico-chemical methods of analysis</i> - <i>Electrochemical methods of analysis</i> - <i>Travaux pratiques et répétitions</i> - Gauthier EPPE - [15h QA Sess.]	Q1	15	-	-	<b>8</b>
			15	-	-	
			-	65	[+]	
CHIM0678-1	<i>Biochemistry</i> - André MATAGNE	Q1	30	-	-	<b>3</b>
INFO0202-1	<i>Programming Methods Applied to Chemistry</i> - Peter SCHLAGHECK	Q2	15	15	-	<b>2</b>
PHYS0968-1	<i>Signal processing</i> - Alejandro SILHANEK	Q2	25	20	-	<b>4</b>
CHIM9285-1	<i>Chemical Kinetics, Introduction to Spectroscopy and Group Theory</i> - Bernard LEYH - [20h QA Sess.]	Q2	35	-	[+]	<b>6</b>
CHIM9291-1	<i>Structural analysis</i> - Christian DAMBLON, Loïc QUINTON	Q2	20	25	-	<b>4</b>
CHIM0209-2	<i>Inorganic chemistry</i> - Bénédicte VERTRUYEN - [8h QA Sess.]	Q2	30	70	[+]	<b>8</b>
CHIM0283-4	<i>Chemistry of the macromolecules</i> - Christine JÉRÔME	Q2	20	20	-	<b>4</b>
PHIL0201-1	<i>Elements of sciences philosophy</i> - Julien PIERON	Q2	15	-	-	<b>2</b>
CHIM9292-1	<i>chemical Kinetics</i> - Bernard LEYH - [10h QA Sess.]	Q2	20	-	[+]	<b>3</b>
CHIM9293-1	<i>spectroscopy Integrated laboratory</i> - Christian DAMBLON, Gauthier EPPE, Bernard LEYH, JeanChristophe MONBALIU, Loïc QUINTON, Françoise REMACLE	Q2	-	105	-	<b>6</b>
CHIM9294-1	<i>Bibliographic research, research project</i> - Caroline COLLETTE, JeanChristophe MONBALIU - [30h Internship]	Q2	5	-	[+]	<b>2</b>
LANG0076-1	<i>English 1</i> (english language) - Véronique DOPPAGNE, ISLV	TA	45	-	-	<b>4</b>
LANG0077-1	<i>English 2</i> (english language) - Clara BRERETON, Véronique DOPPAGNE, ISLV	TA	45	-	-	<b>4</b>