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## One-year master program (60 ECTS)

### Compulsory courses

CHIM0213-2	<i>Structural analysis</i> (english language) - Christian DAMBLON, Edwin DE PAUW	45	-	-	4
CHIM0609-1	<i>Advanced organic chemistry</i> - André LUXEN	30	-	-	4
CHIM0635-1	<i>Advanced physical chemistry</i> (english language) - Bernard LEYH	30	-	-	4
CHIM0636-1	<i>Macromolecular physical chemistry</i> (english language) - Christine JÉRÔME - Suppl : Philippe LECOMTE	30	-	-	4
CHIM0637-1	<i>Chemistry of materials</i> (english language)				4
	- <i>Inorganic materials</i> - Bénédicte VERTRUYEN	20	-	-	
	- <i>Organic and biological materials</i> - AnneSophie DUWEZ	20	-	-	
BIOC0232-1	<i>Macromolecular biochemistry</i> (english language) - Moreno GALLEN	30	30	-	4
CHIM0638-1	<i>Surfaces and interfaces</i> (english language) - AnneSophie DUWEZ	15	-	-	2
CHIM9219-1	<i>Theoretical and quantum chemistry</i> (english language) - Françoise REMACLE - [15h QA Sess.]	30	15	[+]	4
CHIM0096-1	<i>Nuclear chemistry</i> (english language) - André LUXEN	15	-	-	2
SMEM0015-1	<i>Final thesis</i> - COLLÉGIALITÉ	-	-	-	16

### Optional courses

Choose courses totalling 12 ECTS from the following :

#### Chemistry

CHIM0081-3	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD - [1d FW]	30	-	[+]	4
BIOL0114-4	<i>Electronic microscopies</i> - Philippe COMPÈRE	15	-	-	2
CHIM9236-1	<i>Microstructure of Materials : characterization techniques</i> - Catherine HENRIST	15	-	-	2
CHIM9264-1	<i>Electrical and magnetic properties of materials</i> - Bénédicte VERTRUYEN	15	-	-	2
CHIM0642-1	<i>Molecular dynamics and photochemistry</i> - Bernard LEYH	30	-	-	4
BIOC0719-1	<i>Enzymology</i> - André MATAGNE	15	-	-	2
CHIM9259-2	<i>Analytical techniques in forensic chemistry</i> - JeanFrançois FOCANT	15	-	-	2
CHIM0218-1	<i>Elements of medicinal chemistry</i> - Bernard PIROTTE	15	-	-	2
CHIM9265-1	<i>Introduction to continuous flow organic synthesis</i> (english language) - JeanChristophe MONBALIU - [1d Vis.]	15	10	[+]	4
AESS0255-1	<i>Introduction to chemistry didactics</i> - Bernard LEYH	15	-	-	2

#### Environmental management

ENVT0031-2	<i>Society / Environment</i> - François MELARD	24	12	-	3
ENVT0030-2	<i>Managing the environment</i> - JeanMarie HAUGLUSTAINE, François MELARD, Pierre M. STASSART	24	12	-	3
ENVT0034-1	<i>Environmental data management</i> - Philippe ANDRE, AnneClaude ROMAIN, Bernard TYCHON	12	12	-	2
ENVT0013-3	<i>Assessment tools (impact assessment, LCA)</i> - Alain HANSON, Nathalie SEMAL	12	12	-	2
ENVT0848-3	<i>Impacts of human activities on ecosystems and including land use</i> - Célia JOAQUIMJUSTO, Angélique LÉONARD, Roberto RENZONI, Emmanuël SÉRUSIAUX	20	10	-	2

*Notice* : students who have chosen all classes in the 'Environmental Sciences and Management' module will have direct access to the 2nd year of the Masters in Environmental Sciences and Management, organised at the Arlon campus. Other students will also have access to the 2nd year of the Masters in Environmental Sciences and Management, on the condition that they follow classes corresponding to these 12 credits in addition to the 60 credits from this study year.

## Two-Year Master Program (120 ECTS)

### First Year

### Compulsory courses

CHIM0213-2	<i>Structural analysis</i> (english language) - Christian DAMBLON, Edwin DE PAUW	45	-	-	4
CHIM0609-1	<i>Advanced organic chemistry</i> - André LUXEN	30	-	-	4
CHIM0635-1	<i>Advanced physical chemistry</i> (english language) - Bernard LEYH	30	-	-	4
CHIM0636-1	<i>Macromolecular physical chemistry</i> (english language) - Christine JÉRÔME - Suppl : Philippe LECOMTE	30	-	-	4
CHIM0637-1	<i>Chemistry of materials</i> (english language) - <i>Inorganic materials</i> - Bénédicte VERTRUYEN - <i>Organic and biological materials</i> - AnneSophie DUWEZ	20 20	- -	- -	4
BIOC0232-1	<i>Macromolecular biochemistry</i> (english language) - Moreno GALLEN	30	30	-	4
CHIM0638-1	<i>Surfaces and interfaces</i> (english language) - AnneSophie DUWEZ	15	-	-	2
CHIM9219-1	<i>Theoretical and quantum chemistry</i> (english language) - Françoise REMACLE - [15h QA Sess.]	30	15	[+]	4
CHIM0096-1	<i>Nuclear chemistry</i> (english language) - André LUXEN	15	-	-	2
CHIM0645-1	<i>Integrated research project in laboratory (including group projects and bibliography)</i> - AnneSophie DUWEZ	-	-	-	14

### Optional courses

Choose courses totalling 14 ECTS from the following :

CHIM0081-3	<i>Industrial Chemistry Processes, structure of chemical industry</i> - Angélique LÉONARD - [1d FW]	30	-	[+]	4
BIOL0114-4	<i>Electronic microscopies</i> - Philippe COMPÈRE	15	-	-	2
CHIM9236-1	<i>Microstructure of Materials : characterization techniques</i> - Catherine HENRIST	15	-	-	2
CHIM9264-1	<i>Electrical and magnetic properties of materials</i> - Bénédicte VERTRUYEN	15	-	-	2
CHIM0642-1	<i>Molecular dynamics and photochemistry</i> - Bernard LEYH	30	-	-	4
BIOC0719-1	<i>Enzymology</i> - André MATAGNE	15	-	-	2
CHIM9259-2	<i>Analytical techniques in forensic chemistry</i> - JeanFrançois FOCANT	15	-	-	2
CHIM0218-1	<i>Elements of medicinal chemistry</i> - Bernard PIROTTE	15	-	-	2
CHIM9265-1	<i>Introduction to continuous flow organic synthesis</i> (english language) - JeanChristophe MONBALIU - [1d Vis.]	15	10	[+]	4
AESS0255-1	<i>Introduction to chemistry didactics</i> - Bernard LEYH	15	-	-	2

## Second year

### Compulsory courses

CHIM0651-1	<i>Seminars (all fields of chemistry)</i> - AnneSophie DUWEZ	-	-	-	2
SMEM0016-1	<i>Final thesis</i> - COLLÉGIALITÉ	-	-	-	20

### Optional courses

Choose, with the approval of the Board of Studies in Chemistry, courses totaling 8 credits from the list below or from the programme of other masters inside or outside the ULg.

#### Synthesis and materials

CHIM0246-1	<i>New reactions in organic synthesis</i> - Albert DEMONCEAU	15	-	-	2
CHIM0656-1	<i>Organometallic Catalysis</i> - Lionel DELAUE	15	-	-	2
CHIM0219-1	<i>Industrial polymers</i> - Christine JÉRÔME	15	-	-	2
CHIM0659-1	<i>Polymers and Environment</i> - Philippe LECOMTE, Jutta RIEGER	15	-	-	2
CHIM9260-1	<i>Properties and applications of surfactants</i> - Guy BROZE, Antoine DEBUIGNE	15	-	-	2
CHIM0248-1	<i>Advanced ceramic materials : synthesis, characterization and use</i> - Rudi CLOOTS	15	-	-	2
CHIM0088-1	<i>Nanomaterials, principles of synthesis and application</i> - Christophe DETREMBLEUR	15	-	-	2
CHIM0654-1	<i>Molecular devices and molecular machines</i> - AnneSophie DUWEZ	15	-	-	2

#### Techniques of characterization and analysis

CHIM0220-1	<i>Recent nuclear magnetic resonance (NMR) methods in chemistry</i> - Christian DAMBLON	15	-	-	2
CHIM9261-1	<i>Introduction to NMR in solid phase</i> - Christian DAMBLON, Philippe LECOMTE, Bénédicte VERTRUYEN	15	-	-	2
CHIM9221-1	<i>Advanced techniques in nuclear magnetic resonance of biomolecules</i> - Christian DAMBLON	15	-	-	2

CHIM0653-1	<i>Imaging and marking techniques</i> - André LUXEN	15	-	-	2
CHIM0655-1	<i>Advanced mass spectrometry methods</i> - Edwin DE PAUW	15	-	-	2
CHIM0657-1	<i>Emerging techniques in the science of separation</i> - JeanFrançois FOCANT	15	-	-	2
CHIM0248-1	<i>Advanced ceramic materials : synthesis, characterization and use</i> - Rudi CLOOTS	15	-	-	2
CRIS0204-1	<i>Complement of crystallography</i> - Frédéric HATERT	15	-	-	2
CHIM0693-1	<i>Major instruments for studying the subject</i> - Raphaël HERMANN - [2d Vis.]	10	10	[+]	2
<b>Biological chemistry</b>					
CHIM9221-1	<i>Advanced techniques in nuclear magnetic resonance of biomolecules</i> - Christian DAMBLON	15	-	-	2
CHIM0655-1	<i>Advanced mass spectrometry methods</i> - Edwin DE PAUW	15	-	-	2
CHIM9262-1	<i>Biomimetic chemistry : when the Man is inspired by nature</i> - Loïc QUINTON	15	-	-	2
<b>Modelling and molecular dynamics</b>					
CHIM0654-1	<i>Molecular devices and molecular machines</i> - AnneSophie DUWEZ	15	-	-	2
CHIM0090-1	<i>Theory and modeling of hybrid molecular complexes</i> - Françoise REMACLE	15	-	-	2
CHIM0089-1	<i>Molecular logic</i> - Françoise REMACLE	15	-	-	2
CHIM0231-1	<i>Chemical reaction dynamics : experimental approaches</i> - Bernard LEYH	15	-	-	2
SPAT0054-1	<i>Astrophysics and astrochemistry</i> - Michaël DE BECKER	15	5	-	2
<b>Programme of courses for other masters degrees</b>					
[...]	Programme of courses of other Master in the ULg and out of the ULg				

**Choose one focus from the following :**

**Research Focus**

**Compulsory courses**

CHIM0646-1	<i>Physical chemistry of nanostructures</i> (english language) - AnneSophie DUWEZ	15	-	-	2
CHIM0647-1	<i>Coordination Chemistry and Catalysis</i> - Lionel DELAUDE	30	-	-	4
CHIM0648-1	<i>Chemometrics and quality systems</i> (english language) - JeanFrançois FOCANT	15	-	-	2
CHIM0649-1	<i>Molecular Modelling</i> - Françoise REMACLE	20	-	-	3
CHIM0650-1	<i>Structural biological chemistry</i> (english language) - Christian DAMBLON	30	-	-	4
CHIM9220-1	<i>Introduction to research</i> - AnneSophie DUWEZ	-	-	-	2
STRA0027-1	<i>Final thesis complement</i> - COLLÉGIALITÉ	-	-	-	9
STRA0037-1	<i>Final thesis monitoring</i> - COLLÉGIALITÉ	-	-	-	4

**Teaching focus**

**Compulsory courses**

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

**Professional Focus**

**Compulsory courses**

CHIM0022-3	<i>Introduction to Chemical Engineering</i> - Michel CRINE	30	-	-	<b>4</b>
CHIM0679-1	<i>Introduction to quality assurance</i> (english language) - JeanFrançois FOCANT	15	-	-	<b>2</b>
CHIM0074-2	<i>Seminars on industrial security</i> - JeanLuc BOZET, Angélique LÉONARD, Dominique TOYE - [10h SEM, 2d FW]	-	-	[+]	<b>2</b>
TOXI0004-1	<i>Principles of toxicology</i> - Corinne CHARLIER	20	-	-	<b>3</b>
GEST3002-1	<i>Human Resources</i> - Jocelyne ROBERT	24	-	-	<b>3</b>
SSTG0008-1	<i>Internship</i> - COLLÉGIALITÉ	-	-	-	<b>14</b>
SSTG0028-1	<i>Placement monitoring</i> - COLLÉGIALITÉ	-	-	-	<b>2</b>