

## First Year

### Compulsory courses

|            |                                                                                                                       |    |    |     |    |
|------------|-----------------------------------------------------------------------------------------------------------------------|----|----|-----|----|
| CHIM0213-2 | <i>Structural analysis</i> - 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                                        | 30 | -  | -   | 4  |
| CHIM0637-1 | <i>Chemistry of materials</i> (english language)<br>- <i>Inorganic materials</i> - Bénédicte VERTRUYEN                | 20 | -  | -   | 4  |
|            | - <i>Organic and biological materials</i> - Anne-Sophie DUWEZ - Suppl : Nicolas WILLET                                | 20 | -  | -   |    |
| BIOC0232-1 | <i>Macromolecular biochemistry</i> - Moreno GALLEN                                                                    | 30 | 30 | -   | 4  |
| CHIM0638-1 | <i>Surfaces and interfaces</i> (english language) - Anne-Sophie DUWEZ                                                 | 15 | -  | -   | 2  |
| CHIM9219-1 | <i>Theoretical and quantum chemistry</i> (english language) - Françoise REMACLE - [15h<br>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> -<br>- Anne-Sophie DUWEZ | -  | -  | -   | 14 |

### Optional courses

Choose courses totalling 14 ECTS from the following :

|            |                                                                                               |    |   |   |   |
|------------|-----------------------------------------------------------------------------------------------|----|---|---|---|
| CHIM0081-1 | <i>Industrial Chemistry Processes, structure of chemical industry</i> -<br>Angélique LÉONARD  | 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 |
| CHIM0641-1 | <i>Electronic, optical and magnetic properties of solids</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 |
| CHIM9258-1 | <i>Thermodynamic and spectroscopic characterization of biomolecules</i> -<br>Valérie GABELICA | 15 | - | - | 2 |
| CHIM9259-2 | <i>Analytical techniques in forensic chemistry</i> - Jean-François FOCANT                     | 15 | - | - | 2 |
| CHIM0218-1 | <i>Elements of medicinal chemistry</i> - Bernard PIROTTE                                      | 15 | - | - | 2 |
| AESS0255-1 | <i>Introduction to chemistry didactics</i> - Bernard LEYH                                     | 15 | - | - | 2 |

## Second Year

### Compulsory courses

|            |                                                                         |   |   |   |    |
|------------|-------------------------------------------------------------------------|---|---|---|----|
| CHIM0651-1 | <i>Series of Seminars (all fields of chemistry)</i> - Anne-Sophie 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> - Anne-Sophie DUWEZ - Suppl :<br>Perrine LUSSIS | 15 | - | - | 2 |

#### Techniques of characterization and analysis

|            |                                                                                            |    |   |   |   |
|------------|--------------------------------------------------------------------------------------------|----|---|---|---|
| CHIM0658-1 | <i>Analytical Electrochemistry</i> - Bernard GILBERT                                       | 15 | - | - | 2 |
| CHIM0220-1 | <i>Recent nuclear magnetic resonance (NMR) methods in chemistry</i> -<br>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> - Jean-François FOCANT                       | 15 | - | - | 2 |
| CHIM0248-1                                            | <i>Advanced ceramic materials : synthesis, characterization and use</i> - Rudi CLOOTS                | 15 | - | - | 2 |
| CRIS0204-1                                            | <i>Crystallography - additional issues</i> - Frédéric HATERT                                         | 15 | - | - | 2 |
| <b>Biological chemistry</b>                           |                                                                                                      |    |   |   |   |
| CHIM0652-1                                            | <i>Molecular recognition and non-covalent interactions</i> - Valérie GABELICA                        | 15 | - | - | 2 |
| 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> - Anne-Sophie DUWEZ - Suppl : Perrine LUSSIS         | 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                                   |    |   |   |   |

#### Compulsory courses

|            |                                                                                                                                   |    |    |     |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|
| AESS0246-1 | <i>Analysis of scholastic institutions and key-players, educational policies</i> - Jacqueline BECKERS                             | 15 | -  | -   | 1 |
| AESS0247-1 | <i>Views on cultural diversity</i> - Jérôme JAMIN                                                                                 | 10 | -  | -   | 1 |
| AESS0248-1 | <i>Elements of sociology of education</i> - Jean-François 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> - Geneviève VAN CAUWENBERGE                                                                                | 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 |
| AESS0142-1 | <i>Seminar on prevention and management of difficult school situations</i> - Jocelyne ROBERT                                      | 15 | -  | -   | 2 |
| AESS0216-1 | <i>Specialized chemistry didactics (Part I)</i>                                                                                   |    |    |     | 6 |
|            | - <i>Course and exercises</i> - Bernard LEYH                                                                                      | 40 | -  | -   |   |
|            | - <i>Observation practicums</i> - Bernard LEYH - [10h Internship]                                                                 | -  | -  | [+] |   |
|            | - <i>Teaching practicums</i> - Bernard LEYH - [20h Internship]                                                                    | -  | -  | [+] |   |
|            | - <i>Reflexive practice</i> - Bernard LEYH                                                                                        | -  | 5  | -   |   |
| AESS0234-1 | <i>Specialized chemistry didactics (part II)</i>                                                                                  |    |    |     | 9 |
|            | - <i>Course and exercises</i> - Bernard LEYH                                                                                      | 35 | -  | -   |   |
|            | - <i>Teaching practicums</i> - Bernard LEYH - [20h Internship]                                                                    | -  | -  | [+] |   |
|            | - <i>Reflexive practice</i> - Bernard LEYH                                                                                        | -  | 5  | -   |   |
|            | - <i>Extra-scholar teaching activities</i> - Bernard LEYH                                                                         | -  | 10 | -   |   |