Bachelor in Chemistry

The 2025-2026 programme is subject to change. It is provided for information purposes only.

Programme mnemonic
BA-CHIM

Studies level
Bachelor

Learning language
french

Schedule
office hours

Studies category / subcategory
Sciences and technics / Sciences

Campus
Plaine and Solbosch

Programme objectives

Chemistry studies matter, its composition, properties and reactions. Chemistry naturally links Natural Sciences. Today, chemistry plays a **central role in three major areas** in our Society, which are as many challenges for our development: health, energy and environment.

The Department of Chemistry of ULB takes these demands into account: it trains students to analyse new problems Society poses and to develop their **creativity** to solve them. This training will allow students to fulfil their personal aspirations in a large number of areas of application, traditional or new, including creating materials having new properties, developing alternate sources of energy, discovering new medicines, helping to preserve the quality of food resources, controlling and reducing pollution…

The specific competences aimed are listed under the heading "Learning objectives".

Programme's added value

The training at ULB emphasises the importance of the **experimental approach** and **personal work**. Together with the practical work and sessions of supervised exercises, the "active" work carried out by the bachelor represents more than 50% of his/her training. During his/her BA, the student is also brought round to actively developing projects at the "Experimentarium of Chemistry" or the "Spring of Sciences".

The BA in Chemistry ends with an end-of-cyclepersonal work, during which the student tackles research for the first time in teams of the department.

Learning support is provided in personalised guidance structures in chemistry, physics and mathematics. A dedicated room, a library, collections of exercises, access to computer help, a standard laboratory and more are available for this purpose.

The ULB is a full, French-speaking university, located in the capital of Europe. It benefits from a remarkable cultural melting pot (a definite source of richness), which makes it naturally open to the international market.

The Department of Chemistry is composed of internationally-recognized research groups, the activities of which having been rewarded by several prestigious prices, including the Nobel Prize. To date, the Department of Chemistry is the only one in Belgium to have been awarded the Nobel Prize in Chemistry.

The Department of Chemistry also benefits from scientific activities (colloquia and chairs in Chemistry), organised at ULB by the International Solvay Institutes in Physics and Chemistry.

All year long, most courses are supplemented with exercise sessions and laboratory classes, which are supervised by academic and scientific staff, and individual supervised coursework.

The student has at his/her disposal:

- laboratories
- the university libraries
- individual guidance for chemistry, physics and mathematics with access to the following : fully equipped and supervised working room, library, collections of additional exercises, access to IT resources, standard laboratory …

In addition to the learning support mentioned above, the first-year students can be helped ("parrainer") by higher-degree students in Chemistry.

Teaching methods

The methods used depend upon the subject taught: ex cathedra courses, sessions of supervised exercises, practical work, practical training, projects, personal work

Succeed in your studies

Choose

The information and guidance counsellors at the InfOR-études [https://www.ulb.be/en/studies-info-desk-1] service will help you choose your studies throughout the year.

Succeed

Take part in preparatory courses [https://www.ulb.be/en/studies-info-desk-1] or get help to succeed [https://www.ulb.be/en/studies-info-desk-1] , before or during your studies.

Get help

Apply for financial aid, look for accommodation or a student job, get support [https://www.ulb.be/fr/aides-services-et-accompagnement/aid-services-and-support-1] for your specific needs.

International/Openness

Exchanges (Erasmus), from 6 months to 1 year, with other Belgian or foreign universities are organised within block 3 of the BA or the MA (more information can be obtained at the Mobility Office,

http://www.ulb.ac.be/international/students/en/index.html)

Job opportunities

Extension of the BA with a Master in Chemical Sciences will allow the student to work in the following areas:

- Industrial or academic research
- State-run services: crime laboratories, heritage laboratories, health services...
- Pharmaceutical industries (research towards new medicines)
- Health (research towards new treatments)
- Making of new materials
- Environment
- Teaching
- Production
- Analysis
- Technical/commercial sector
- ...

The chemical industry is the **second sector in the Belgian manufacturing industry**. It is also one of the better paid sectors, with salaries 20% larger than the average.

If, however, the student decides to go on with a different Master, he can do so in other areas of sciences related to chemistry, such as physics, geology, environmental sciences or bioengineer.

The chemist is a multi-faceted professional. He can be an architect creating molecules, a developer of new materials and of manufacturing, purification or separation processes, or a protector of the consumer by verifying and controlling the conformity with legislations and the quality of products. He can also proposes solutions to improve the quality of the environment, such as new insulators, photoconversion of solar energy, more effective processes...

Employment sectors

Chemical industries (basic chemistry, petrochemistry, gases, polymers, fertilizers, fine chemistry, specialties, paints, pigments, oleochemistry, bio-fuels, catalysts...)

Pharmaceutical companies

Consumer goods (cleaners, glues, cosmetics...)

Environment, recycling

Chemical engineering

Laboratory of analysis and control, research

Teaching

Academic sector (researcher or teacher in universities)

Federal institutions, musea, crime detection institute...

Types of duties

Research and development, intellectual property (patents), product steward (REACH), definition of manufacturing processes, production control, quality assurance control, analytical tests, technical support for customers, project leader...

Note that the large majority of these jobs are only accessible at the end of the full BA and MA degree courses in Chemistry; the BA in Chemistry is a transition diploma in the education system of the French Community of Belgium ("Fédération Wallonie Bruxelles").

Contacts

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https://sciences.ulb.be/departement-chimie

Bachelor in Chemistry

During the BA, students do basic training courses in mathematics, physics and chemistry, and tackle more specific aspects of chemistry, complemented by elements of closely related disciplines. To acquire both general and specific competences, the student learns to develop a coherent scientific approach and an operational knowledge of basic tools in sciences, notably in chemistry. The ex cathedra courses are complemented by exercises carried out in supervised small groups, personal work and laboratories. The student is introduced to the proper execution of personal work, which will allow him to optimize his/her creativity and sense of initiative.

The sub-disciplines of chemistry are tackled along the following main themes:

- organic chemistry
- analytical chemistry
- biochemistry
- theoretical chemistry
- inorganic chemistry
- quantum mechanics
- thermodynamics
- chemical physics

Bloc 1 | BA-CHIM

Cours obligatoires

BIOL-F102 **Biologie générale** | Patrick MARDULYN (Coordinator) and Etienne MEYLAN
5 credits [lecture: 48h] second term French

CHIM-F101 **Chimie générale** | François RENIERS (Coordinator), Laurence RONGY and Thierry VISART DE BOCARME
20 credits [lecture: 96h, tutorial classes: 60h, practical work: 84h, project: 75h] first and second terms French

CHIM-F102 **Chimie organique 1** | Cécile MOUCHERON (Coordinator)
5 credits [lecture: 30h, tutorial classes: 18h, project: 20h] second term French

MATH-F115 **Mathématiques 2** | Ignace LORIS (Coordinator)
5 credits [lecture: 30h, tutorial classes: 24h] second term French

MATH-F118 **Mathématiques** | Samuel FIORINI (Coordinator) and Andriy Haydys
10 credits [lecture: 60h, tutorial classes: 60h] first and second terms French

PHYS-F110 **Physique générale I et II** | Pascal VANLAER (Coordinator), Michele SFERRAZZA and Sophie VAN ECK
15 credits [lecture: 72h, tutorial classes: 72h, practical work: 36h] first and second terms French

Bachelor in Chemistry

Bloc 2 | BA-CHIM

Cours obligatoires

CHIM-F201 Chimie analytique 1 | Thomas DONEUX (Coordinator)
10 credits [lecture: 30h, practical work: 90h, project: 30h] first and second terms French

CHIM-F204 Chimie organique 2 | Ivan JABIN (Coordinator)
10 credits [lecture: 30h, practical work: 90h, project: 80h] first term French

CHIM-F205 Thermodynamique chimique | Geneviève DUPONT (Coordinator) and Yannick DE DECKER
5 credits [lecture: 24h, tutorial classes: 24h, practical work: 12h] second term French

CHIM-F206 Mécaniques classique et quantique | Nathalie VAECK (Coordinator) and Lieven CLARISSE
10 credits [lecture: 72h, tutorial classes: 48h] first and second terms French

CHIM-F207 Cristallochimie et chimie inorganique | Jon USTARROZ TROYANO (Coordinator), Karen FONTIJN and François RENIERS
5 credits [lecture: 44h, practical work: 16h] second term French

CHIM-F208 Biochimie 1 | Cyril GUEYDAN (Coordinator) and Véronique KRUYS
5 credits [lecture: 60h] first and second terms French

LANG-F201 Anglais scientifique I | Alexander CORNFORD (Coordinator)
5 credits [tutorial classes: 48h] second term English

MATH-F214 Compléments de mathématiques | Ignace LORIS (Coordinator)
5 credits [lecture: 30h, tutorial classes: 30h] first term French

Cours optionnels

A total of five credits chosen from the following

ENVI-F1001 (optional) Sciences de la Terre, Environnement et Société | Pierre REGNIER (Coordinator), Jean-Michel DECROLY and Frank PATTYN
5 credits [lecture: 48h] first and second terms French

ETHI-F201 (optional) Sciences, éthique, histoire et société | Grégoire Wallenborn (Coordinator) and Eric MURAILLE
5 credits [lecture: 48h] second term French

ETHI-F301 (optional) Science et Société : analyse de controverses scientifiques | Patrick MARDULYN (Coordinator) and Grégoire Wallenborn
5 credits [lecture: 24h, project: 70h] first term French

INFO-F206 (optional) Informatique | Olivier MARKOWITCH (Coordinator)
5 credits [lecture: 24h, tutorial classes: 24h, project: 12h] first term French

PHYS-F105 (optional) La structure de l'univers | Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ
5 credits [lecture: 48h] first term French

PHYS-F317 (optional) How To Make (almost) Any Experiment Using Digital Fabrication | Denis TERWAGNE (Coordinator)
5 credits [lecture: 24h, practical work: 36h] first term French

TRAN-F201 (optional) Introduction aux enjeux de la durabilité | Wouter ACHTEN (Coordinator), Chiara ARMENI and Emilie JEMPA KANKO MUTOMBO
5 credits [lecture: 24h, project: 24h] second term French

Bachelor in Chemistry

Bloc 3 | BA-CHIM

Cours obligatoires

CHIM-F301 Chimie organique 3 | Cécile MOUCHERON (Coordinator) and Cédric Theunissen
10 credits [lecture: 24h, practical work: 96h, project: 40h] first term French

CHIM-F302 Chimie analytique 2 | Jon USTARROZ TROYANO (Coordinator) and Thomas DONEUX
10 credits [lecture: 24h, practical work: 96h, project: 60h] first term French

CHIM-F304 Structures et symétries moléculaires | Emilie CAUET (Coordinator), Antoine Aerts and Sophie Bauduin
5 credits [lecture: 36h, tutorial classes: 24h] first term French

CHIM-F318 Analyse structurale spectrométrique | Michel LUHMER (Coordinator) and Pierre VAN ANTWERPEN
5 credits [lecture: 24h, tutorial classes: 24h] second term French

CHIM-F320 Cinétique chimique | Thierry VISART DE BOCARME (Coordinator)
5 credits [lecture: 36h, tutorial classes: 12h, practical work: 12h, project: 12h] second term French

CHIM-F321 Thermodynamique statistique | Yannick DE DECKER (Coordinator)
5 credits [lecture: 36h, tutorial classes: 24h] second term French

CHIM-F325 Spectroscopies moléculaires | Jean VANDER AUWERA (Coordinator), Sophie Bauduin and Pierre-François COHEUR
5 credits [lecture: 36h, tutorial classes: 12h, practical work: 12h, project: 15h] second term French

CHIM-F327 Scientific Literature and Communication | Yannick DE DECKER (Coordinator), Jean-Christophe LELOUP and Hugh MURPHY
5 credits [tutorial classes: 12h, project: 80h] first and second terms English/French

CHIM-F328 Travail de fin de cycle : Printemps des Sciences | Jean-Christophe LELOUP (Coordinator) and Yannick DE DECKER
5 credits [project: 150h] second term French

CHIM-F329 Biochimie 2 | Vincent RAUSSENS (Coordinator), Cédric GOVAERTS, Véronique KRUYS and Chloé MARTENS
5 credits [lecture: 36h, practical work: 24h] first term French