UCLouvain

CHIM1BA

2024 - 2025

Bachelor in Chemistry

At Louvain-la-Neuve - 180 credits - 3 years - Day schedule - In French
Dissertation/Graduation Project : **NO** - Internship : **NO**
Activities in English: **NO** - Activities in other languages : **NO**
Activities on other sites : **NO**
Main study domain : **Sciences**
Organized by: **Faculty of Science (SC)**
Programme acronym: **CHIM1BA** - Francophone Certification Framework: 6

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Learning outcomes

The programme aims at :

- the acquisition of general knowledge and skills in the principal subjects of the Exact Sciences (Biology, Chemistry, Mathematics and Physics) and a deepening of the basic knowledge and skills in the various domains of Chemistry
- the acquisition of rigour in reasoning and in written and oral expression, a critical spirit and the capacity to solve scientific problems, particularly those relevant to the disciplines of Chemistry
- the acquisition of transversal skills (Human Sciences, computing, management, English, written and oral communication), with a view to enhancing the generalist character of the training programme as well as the chances of getting a foot-hold on the job market upon successful completion of the studies.

On successful completion of this programme, each student is able to :

1. Maitriser un ensemble de « savoirs scientifiques » permettant de résoudre des problématiques de chimie

1.1 Identifier et utiliser de manière critique les connaissances « essentielles » des sciences fondamentales : biologie, chimie, mathématique, physique pour résoudre une problématique donnée

1.2 Identifier et utiliser de manière critique les savoirs « spécialisés » de la chimie : organique, inorganique, analytique, physique pour résoudre un problème complexe de chimie.

2. Réaliser une démarche scientifique, théorique ou expérimentale, complète appliquée à l'appréhension, à l'analyse ou au développement d'une réaction chimique

2.1 Définir une problématique en des termes scientifiques rigoureux

2.2 Intégrer les connaissances acquises pour la formulation du problème en termes d'hypothèses permettant de proposer une solution pertinente au problème de chimie posé

2.3 Etablir les relations structures-propriétés pour une molécule donnée

2.4 Maîtriser les techniques expérimentales fondamentales de la chimie

2.5 Synthétiser, isoler et purifier au laboratoire une molécule donnée et quantifier sa concentration en répétant des modes opératoires décrits précédemment

2.6 Evaluer le risque lié à la réalisation au laboratoire d'une réaction chimique et veiller à la sécurité de l'environnement et des personnes dans le respect des règles de l'art de la chimie.

3. Communiquer oralement et par écrit en français et en anglais en vue de mener à son terme un projet scientifique en chimie

3.1 Formuler des conclusions pour la rédaction rigoureuse d'un rapport dans un esprit de synthèse (en français).

3.2 Rédiger des documents techniques en chimie (en français et en anglais)

3.3 Communiquer à ses pairs sous forme synthétique, graphique et schématique les résultats d'un projet scientifique (en français).

4. Apprendre et agir de manière autonome

4.1 Intégrer de manière autonome de nouvelles connaissances et compétences

4.2 Gérer de façon autonome sa formation et l'organisation de son travail

4.3 S'auto-évaluer en connaissant ses compétences et les limites de sa propre expertise

5. Faire preuve d'analyse critique et de rigueur scientifique

5.1 Analyser et exploiter des documents scientifiques et techniques en vue de résoudre une problématique de chimie.

5.2 Témoigner d'une ouverture d'esprit, accepter des approches innovantes pour résoudre des problèmes de chimie

5.3 Critiquer une démarche expérimentale et proposer des améliorations

5.4 Rassembler et traiter des données scientifiques pertinentes (en français et anglais) et en faire l'analyse critique

5.5 Citer et référencer son travail conformément aupc351rey,431s souureux

From the second year on, besides the major in Chemistry, the students will choose a minor or complete their programme with courses selected from among those on offer. There is a minor in Biology. The students may also choose another minor based on a project to be elaborated with the approval of the study advisor.

The possibility of selecting options helps the students to prepare for their future orientation.

Students are given the opportunity to elaborate a personal work project and to write a report summarising it.

Ongoing evaluations are organised with special attention paid to interdisciplinary comprehension of the subject matters.

Principal Subjects

Biochemistry (9 credits)

Biology (11 credits)

General Chemistry (16 credits)

Inorganic and Analytical Chemistry (17 credits)

Organic Chemistry (19 credits)

Physical Chemistry (12 credits)

The Chemistry of Polymers (2 credits)

Cristallography and Mollecular Spectroscopy (8 credits)

Quantitative Processing of Chemical data (3 credits)

General Mathematics (18 credits)

General Physics (20 credits)

Earth Sciences (6 credits)

English (6 credits)

Human Sciences (5 credits)

Computing tools and Documentary Research or project (3 credits)

CHIM1BA Programme

Detailed programme by subject

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Year
1 2 3

List of available minors

The students can choose a minor from the list belowor or can opt for another minor on the University programme, based on a project to be elaborated together with the study advisor.

> Minor in Biology

Mathématiques

LMAT1101	Mathematics 1	Pedro Dos Santos Santana Forte Vaz	FR [q1] [30h +20h] [4 Credits]
LMAT1102	Mathematics 2	Augusto Ponce	FR [q2] [30h +30h] [4 Credits]

Biologie

LBIO1110	Life : diversity and evolution	Patrick Dumont Alice Mouton	FR [q1] [30h +10h] [4 Credits]
LBIO1111	Cell and molecular biology	Patrick Dumont Charles Hachez	FR [q1] [30h +20h] [5 Credits]
LBIO1112	Organism biology : plants and animals	Matthew Dallemagne (compensates Jean-François Rees)0 m 39.067001 0 l 239001 37.06700m001 0 l S Q q 6 0	

CHIM1BA - 2ND ANNUAL UNIT

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Majeure

Biochimie

LCHM1271	Elements of biochemistry	Patrice Soumillion	FR [q1] [30h +24h] [4 Credits]

Chimie générale

LCHM1211	General Chemistry 2	Yann Garcia Tom Leyssens	FR [q2] [45h +60h] [8 Credits]

Chimie inorganique et analytique

LCHM1231	Elements of inorganic and analytical chemistry	Sophie Hermans	FR [q2] [30h +50h] [5 Credits]

Chimie organique

LCHM1244	Organic chemistry 2: deepening of basic concepts	Olivier Riant	FR [q1] [30h +22.5h] [4 Credits]
LCHM1245	Organic Chemistry 2: Heteroatomic Chemistry	Michael Singleton	FR [q2] [30h +47.5h] [5 Credits]

Chimie physique

LCHM1252	Elements of physical molecular chemistry	Marc de Wergifosse	FR [q2] [45h +22.5h] [6 Credits]

Cristallographie et spectroscopie moléculaire

LCHM1253	Elements of crystallography	Yaroslav Filinchuk	FR [q1] [30h +10h] [4 Credits]
LCHM1254	Elements of molecular spectroscopy	Sophie Hermans	FR [q2] [30h +20h] [4 Credits]

Anglais

LANG1862	English: reading and listening comprehension of scientific texts	Ahmed Adrioueche (coord.) Catherine Avery Ariane Halleux (coord.) Adrien Kefer (compensates Amandine Dumont)	FR [q1] [30h] [3 Credits]

Sciences humaines

Sciences religieuses

L'étudiant·e choisit 2 crédits parmi les cours suivants

LTECO2100	Sociétés, cultures, religions : Biblical readings	Hans Ausloos	FR [q1] [15h] [2 Credits]

CHIM1BA - 3RD ANNUAL UNIT

- Mandatory
- Optional
- Not offered in 2024-2025
- Not offered in 2024-2025 but offered the following year
- Offered in 2024-2025 but not the following year
- Not offered in 2024-2025 or the following year
- Activity with requisites
- Open to incoming exchange students
- Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Majeure

Biochimie

LCHM1371	Metabolic biochemistry	Melissa Page	EN [q2] [30h +30h] [5 Credits] > *French-friendly*

Chimie inorganique et analytique

LCHM1331	Inorganic chemistry I	Sophie Hermans	FR [q1] [37.5h +7.5h] [4 Credits]
LCHM1321	Analytical chemistry 1	Christine Dupont Yann Garcia	FR [q1] [40h] [5 Credits]
LCHM1322	Exercises in analytical chemistry	Yann Garcia	FR [q1] [0h +66h] [3 Credits]

Chimie organique

LCHM1341	Organic chemistry III	Raphaël Robiette	FR [q2] [30h +15h] [4 Credits]
LCHM1342	Exercises in organic chemistry I	Raphaël Robiette Michael Singleton	FR [q2] [0h +65h] [3 Credits]

Chimie physique

LCHM1351	Physical chemistry	Tom Leyssens	FR [q1] [45h +19h] [5 Credits]
LCHM1353	Quantum Chemistry	Benoît Champagne	FR [q1] [22.5h +7.5h] [3 Credits]

Chimie des polymères

LCHM1361	Introduction to polymer chemistry	Jean-François Gohy	FR [q2] [22.5h] [3 Credits]

Chimie des matériaux

LCHM1319	Material's chemistry	Charles-André Fustin Alexandru Vlad	FR [q2] [45h] [5 Credits]

Anglais

LANG1863	English for Students in Sciences (Upper-Intermediate level)	Ahmed Adrioueche (coord.) Catherine Avery (coord.) Amandine Dumont (coord.) Sandrine Jacob (coord.) Adrien Kefer (compensates Amandine Dumont) Nevin Serbest Florence Simon (coord.) Marine Volpe	EN [q1 or q2] [30h] [3 Credits]

Sciences humaines

Philosophie

L'étudiant·e choisit
From 2 to 4credit(s)

LFILO1250A	Logic (partim)	Peter Verdée	FR [q2] [45h] [4 Credits] *> English-friendly*
LSC1120A	Philosophy	Charles Pence	FR [q1] [45h] [2 Credits]

Optional courses

These credits are not counted within the 120 required credits.

LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin	FR [q1+q2] [15h +45h] [5 Credits]
LSST1002M	Information and critical thinking - MOOC	Anne Bauwens (compensates Jean-François Rees) Myriam De Kesel	FR [q2] [30h +15h] [3 Credits]

Minor or additional module

L'étudiant complète sa formation en choisissant un approfondissement ou une mineure dans la liste proposée pour le bachelier en sciences chimiques. Il répartit les unités d'enseignement dans le 2e et le 3e bloc annuel, de manière à ce que son programme annuel totalise 60 crédits.

Remarque : La mineure en sciences biomédicales se donnant sur le site de Woluwé, les étudiants qui souhaitent l'intégrer à leur programme devront faire face à des problèmes organisationnels (conflits horaires, …)
Maximum 1 element(s)

CHIM1BA - Information

Access Requirements

Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.
The admission requirements must be met prior to enrolment in the University.

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

SUMMARY

General access requirements

Except as otherwise provided by other specific legal provisions, admission to undergraduate courses leading to the award of a Bachelor's degree will be granted to students with one of the following qualifications :

1. A Certificate of Upper Secondary Education issued during or after the 1993-1994 academic year by an establishment offering full-time secondary education or an adult education centre in the French Community of Belgium and, as the case may be, approved if it was issued by an educational institution before 1 January 2008 or affixed with the seal of the French Community if it was issued after this date, or an equivalent certificate awarded by the Examination Board of the French Community during or after 1994;

2. A Certificate of Upper Secondary Education issued no later than the end of the 1992-1993 academic year, along with official documentation attesting to the student's ability to pursue higher education for students applying for a full-length undergraduate degree programme;

3. A diploma awarded by a higher education institution within the French Community that confers an academic degree issued under the above-mentioned Decree, or a diploma awarded by a university or institution dispensing full-time higher education in accordance with earlier legislation;

4. A higher education certificate or diploma awarded by an adult education centre;

5. A pass certificate for one of the entrance examinations organized by higher education institutions or by an examination board of the French Community; this document gives admission to studies in the sectors, fields or programmes indicated therein;

6. A diploma, certificate of studies or other qualification similar to those mentioned above, issued by the Flemish Community of Belgium, the German Community of Belgium or the Royal Military Academy;

7. A diploma, certificate of studies or other qualification obtained abroad and deemed equivalent to the first four mentioned above by virtue of a law, decree, European directive or international convention;

Note:

Requests for equivalence must be submitted to the Equivalence department (Service des équivalences) of the Ministry of Higher Education and Scientific Research of the French Community of Belgium in compliance with the official deadline.

The following two qualifications are automatically deemed equivalent to the Certificate of Upper Secondary Education (Certificat d'enseignement secondaire supérieur – CESS):

- European Baccalaureate issued by the Board of Governors of a European School,

- International Baccalaureate issued by the International Baccalaureate Office in Geneva.

8. Official documentation attesting to a student's ability to pursue higher education (diplôme d'aptitude à accéder à l'enseignement

• For any secondary school diploma **from a European Union country**, the admission request must contain the equivalence of your

Teaching method

Des séances sont organisées au cours de la première année autour des questions de méthode de travail, par exemple la gestion du temps ou la manière d'aborder les différentes matières.

Les exerices et laboratoires sont organisés en petits groupes et sont encadrés par des assistants. Les monitorats permettent à ceux qui le souhaitent de faire le point sur les matières vues au cours : les enseignants de chaque discipline répondent aux questions des étudiants et expliquent les points moins bien compris.

La plupart des enseignements disposent également d'un site internet ou est déposée une série d'informations utiles pour l'étude.

Des cours au choix permettent aux étudiants de préparer leur orientation future.

La possibilité de réaliser un travail personnel et d'en rédiger un rapport de synthèse est offerte aux étudiants.

Outre des rapports à remettre ou des contrôles de conssaissances au début de certaines séances de laboratoires, des interrogations obligatoires intervenant dans la note finale de chaque matière sont organisées après un mois de cours au premier quadrimestre.

Des évaluations continues sont mises en place avec une attention particulière sur la compréhension interdisciplinaire des matières.

Evaluation

The evaluation methods comply with the regulations concerning studies and exams. More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

Différentes modalités sont mises en oeuvre pour l'évaluation des connaissances et des compétences acquises au cours de la formation; elles sont adaptées aux types de prestations : évaluation continue notamment pour les exercices pratiques, évaluation des travaux personnels et de groupe, évaluation globale (écrite et/ou orale) durant les sessions d'examens.

Mobility and/or Internationalisation outlook

International mobility is recommended rather within the framework of master programmes. In special cases, however, it is possible to consider international mobility at the end of the bachelor's degree.

Moreover, participation in a short mobility can be envisaged at the end of the bachelor's degree in the framework of the Athens network https://www.paristech.fr/fr/international/europe/athens

Possible trainings at the end of the programme

Positioning of the programme within the University cursus

Tel: +32 (0) 10 47 40 45 - Fax: +32 (0) 10 47 28 36

Website https://uclouvain.be/fr/facultes/sc/chim

Academic supervisor: Olivier Riant

Jury

- President and Study advisor: Benjamin Elias
- Secretary: Marc de Wergifosse

Useful Contact(s)

- Administrative manager for the student's annual program: Nathalie Micha