

Faculty of Sciences



CHIM1BA Baccalauréat en sciences chimiques (Bachelor of Chemical Sciences)



Study objectives

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.

General presentation of the programme

The progressive orientation of the programme starts as from the first year of polyvalent studies. The programme in the first year focuses on the acquisition of basic knowledge in the sciences (Mathematics, Physics, Chemistry, Biology, Earth Sciences).

Upon successful completion of the first year, the students may re-orientate their studies, without the need for any complementary subjects, to the second year of the bachelor's of Biological Sciences and of Bio-engineering subject to taking an extra course in Geography (GEO 1111) and also of Geographical Sciences.

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)

Minors or other options available

Besides the major in Chemistry, the student has three other possibilities :

- either to opt for complementary studies in Chemistry (30 credits) with complements in the different sub-disciplines of Chemistry and a personal piece of work in one of the sectors of Molecular Chemistry
- or to opt for a complementary minor in Biology (30 credits) which covers courses in Biophysics, Statistics, Biometrics, Molecular Genetics, Microbiology and Physiology and/or a project from the bachelor's programme in Biological Sciences
- or to opt for another minor offered on the University programme, based on a project to be elaborated together with the study advisor.

The content of the major orientation, described above, is subject to modification depending on the choice of the minor orientation.

Evaluation

Admission to the programme

Conditions of admission

The conditions and regular admission requirements are specified on the web page "Access to studies".

<http://www.ucl.ac.be/etudes/libres/en/acces.html>

Special admission conditions

Students from Colleges (Technical Higher Education Schools) who have followed a training in the domain of Chemistry will have access to the programme at a level which will depend on degree of knowledge acquired or will be subject to following a tailored programme of courses.

Re-orientation of studies is possible from the bachelor's programmes in Sciences, Bio-engineering, Medicine, Veterinary Medicine, and Biomedical Sciences and Pharmacy.

Admission requests, special rules and regulations

In the case of programme re-orientation, admission requests should be addressed to the Academic Secretary

Address : Place des sciences 2 - 1348 Louvain-la-Neuve

Positioning of the programme

Positioning of the programme within the University cursus

The bachelor's degree in Chemical Sciences entitles automatic access to the master's programme in Molecular Chemistry, orientated towards the domains of applications, research or teaching.

Other studies accessible upon completion of the programme

If a minor in biology has been chosen, the bachelor's degree also access to the master's of Biochemistry and Molecular and Cellular Biology.

Useful contacts

Programme management

CHIM Département de chimie

Contact :Nathalie Micha

and the Chemistry Department

Study Advisor

B. Tinant

Exam Jury

1st year

President : Cl. Remacle

Secretary : J. Lega

2nd year

President : Still to be determined

Secretary : Still to be determined

3rd year :

President : Still to be determined

Secretary : Still to be determined

List of accessible minors


- Minor in Theology
- Minor in Philosophy
- Minor in Law
- Minor in Criminology
- Minor in Information and Communication (*)
- Minor in Political Sciences
- Minor in Sociology and Anthropology
- Minor in Human and Social Sciences
- Minor in Economics
- Minor in Business Studies
- Minor in Linguistics
- Minor in Hispanic Studies (*)
- Minor in Italian Studies (*)
- Minor in French Studies (*)
- Minor in Latin Studies

- Minor in Greek Studies
- Minor in Oriental Studies
- Minor in Literature Studies
- Minor in History
- Minor in Medieval Studies
- Minor in History of Art and Archaeology (*)
- Minor in Musicology
- Minor in Psychology and Education (*)
- Minor in Human Nutrition
- Minor in General Biomedical Sciences
- Minor in Medication Sciences (*)
- Minor in Physical Activity, Health and Culture of Movement (*)
- Minor in Biology
- Minor in Geography
- Minor in Statistics
- Minor in Engineering Sciences : Applied Chemistry and Physics
- Minor in Urban Architecture
- Minor in Computing Science (*)
- Minor in Bio-engineering
- Minor in Biomedical Engineering
- Minor in Mathematics and Mathematical Applications
- Minor in Gender Studies
- Minor in Culture and Creation
- Minor in European Studies

(*) *Minor with access criteria.*

Detailed content of standard programme

CHIM 11BA First year of studies

<u>BIO1111</u>	A) Cell biology and introduction to prokaryotes, protists and fungi; B) Plant biology; C) Animal biology[90h+45h] (11 credits) (in French)	André Lejeune, Jean-François Rees, Claude Remacle
<u>CHM1111</u>	General chemistry 1[60h+60h] (10 credits)1q (in French)	Michel Devillers, Bernard Tinant
<u>MAT1111A</u>	Mathématiques générales 1[75h+60h] (11 credits) (in French)	N.
<u>PHY1113A</u>	General Physics 1[75h+75h] (12 credits) (in French)	N.
<u>CHM1141</u>	Organic chemistry 1[30h+30h] (5 credits)2q (in French)	Istvan Marko
<u>BIR1130</u>	Introduction to Earth sciences[45h+30h] (6 credits)2q (in French)	Joseph Dufey, Philippe Sonnet
<u>ANG1861</u>	Reading and listening comprehension of scientific texts[6h] (2 credits)2q (in French)	Ahmed Adriouèche, Isabelle Druant, Annick Sonck
Options (at least 3 credits to be chosen from among the following)		
<u>GEO1111</u>	General geography[30h+30h] (5 credits) (in French)	Eric Lambin, Eric Lambin (supplée Mark Rounsevell), Mark Rounsevell, Isabelle Thomas
<u>CHM1181</u>	Project[0h+45h] (3 credits)  (in French)	N.
<u>SC1181</u>	Computer tools and documentation research[15h+30h] (3 credits) (in French)	Daniel Peeters, Marie-Anne Van Hove

This year entitles access, without any complementary sessions, to the 2nd year of the bachelor studies in Biological Sciences and Bio-engineering, as well as to the second year of the bachelor studies in Geographical Sciences, without any complementary courses, on condition that the GEO 1111 course has been chosen as an option. This course will be added to the programme in the second year for the students who have not followed it.

CHIM 12BA Second year of studies

Programme for the students who choose to do further studies in Chemistry

<u>BIR1200</u>	General mathematics II[52.5h+37.5h] (6 credits)1q (in French)	Pierre Beliaivsky
<u>BIR1210A</u>	Physique générale (II)[60h+45h] (8 credits)2q (in French)	René Prieels

<u>CHM1241</u>	Organic chemistry 2[60h+70h] (11 credits) (in French)	Istvan Marko (coord.), Olivier Riant
<u>CHM1251</u>	Elements of crystallography and molecular spectroscopy[60h+30h] (8 credits) (in French)	Jean-Paul Declercq, Jean-Louis Habib Jiwan
<u>CHM1231</u>	Elements of inorganic and analytical chemistry[30h+50h] (6 credits) (in French)	Michel Devillers
<u>CHM1271</u>	Elements of biochemistry[30h+24h] (4 credits)1q (in French)	Patrice Soumilion
<u>CHM1211</u>	General Chemistry 2[30h+54h] (6 credits) (in French)	Michel Devillers (coord.), Bernard Tinant
<u>CHM1252</u>	Elements of physical molecular chemistry[45h+22.5h] (6 credits) (in French)	Daniel Peeters
<u>ANG1862</u>	Reading and listening comprehension of scientific texts[30h] (2 credits)1q (in French)	Ahmed Adriouèche
<u>SC1120</u>	Philosophy[30h] (2 credits)1q (in French)	Bernard Feltz
Programme for the students who opt for the minor in Biology		
<u>BIR1200</u>	General mathematics II[52.5h+37.5h] (6 credits)1q (in French)	Pierre Bieliavsky
<u>BIO1261</u>	Biophysics[45h+30h] (6 credits)1+2q (in French)	Alain Cornet, Pierre Defrance, Patrick Gilon, Jean-François Rees (coord.)
<u>CHM1241</u>	Organic chemistry 2[60h+70h] (11 credits) (in French)	Istvan Marko (coord.), Olivier Riant
<u>CHM1251</u>	Elements of crystallography and molecular spectroscopy[60h+30h] (8 credits) (in French)	Jean-Paul Declercq, Jean-Louis Habib Jiwan
<u>CHM1231</u>	Elements of inorganic and analytical chemistry[30h+50h] (6 credits) (in French)	Michel Devillers
<u>CHM1271</u>	Elements of biochemistry[30h+24h] (4 credits)1q (in French)	Patrice Soumilion
<u>CHM1211</u>	General Chemistry 2[30h+54h] (6 credits) (in French)	Michel Devillers (coord.), Bernard Tinant
<u>CHM1252</u>	Elements of physical molecular chemistry[45h+22.5h] (6 credits) (in French)	Daniel Peeters
<u>ANG1862</u>	Reading and listening comprehension of scientific texts[30h] (2 credits)1q (in French)	Ahmed Adriouèche
<u>SC1120</u>	Philosophy[30h] (2 credits)1q (in French)	Bernard Feltz
<u>MAT1275A</u>	Statistiques en sciences naturelles[20h+20h] (3 credits)1q (in French)	N.

CHIM 13BA Third year of studies

Programme for the students who choose to do further studies in Chemistry

<u>CHM1331</u>	Inorganic chemistry I[30h+15h] (4 credits) (in French)	Michel Devillers
<u>CHM1341</u>	Organic chemistry III[30h+15h] (4 credits) (in French)	Istvan Marko, Olivier Riant (coord.)
<u>CHM1342</u>	Exercices in organic chemistry I[0h+65h] (4 credits) (in French)	Jean-François Gohy, Olivier Riant (coord.)
<u>CHM1321</u>	Chimie analytique 1[40h] (4 credits) (in French)	Christine Dupont, Yann Garcia (coord.)
<u>CHM1322</u>	Exercices in analytical chemistry[0h+66h] (5 credits) (in French)	Yann Garcia
<u>CHM1351</u>	Physical chemistry and physico-chemical calculations[45h+19h] (6 credits) (in French)	Daniel Peeters (coord.), Jacques Vandooren
<u>CHM1352</u>	Physical methods of chemistry[0h+76h] (4 credits) (in French)	Daniel Peeters (coord.), Karim Snoussi, Jacques Vandooren
<u>CHM1371</u>	Metabolic Biochemistry[30h+30h] (5 credits)2q (in French)	Yves-Jacques Schneider
<u>CHM1361</u>	Introduction to polymer chemistry[22.5h] (2 credits) (in French)	Jean-François Gohy
<u>CHM1381</u>	Quantitative treatment of chemical data[22.5h] (3 credits) (in French)	Daniel Peeters
<u>CHM1311</u>	Environmental chemistry[30h] (3 credits) (in French)	Michel Devillers (coord.), Istvan Marko
<u>ANGL1863</u>	ANG1863[30h] 1+2q	N.
<u>BIR1241</u>	Political and social economy[30h] (3 credits)1q (in French)	Jean-François Sneessens
<u>BIR1202</u>	Applied computer science[22.5h+7.5h] (3 credits)1q (in French)	Philippe Sonnet
<u>CHM1391</u>	Project[0h+90h] (6 credits) (in French)	Sophie Hermans, Jacqueline Marchand (coord.), Karim Snoussi

Options

at least 2 credits from among the following courses :

<u>CHIM2181</u>	Quantum chemistry I[22.5h+0h] (2 credits) ▲ 1q (in French)	Daniel Peeters
<u>CHIM2471</u>	Nuclear chemistry[22.5h+0h] (2 credits)1q (in French)	Jean Ladrière
<u>CHIM2321</u>	Applied organic chemistry I[22.5h+0h] (2 credits) ▲ 1q (in French)	N.
<u>VEETE1395</u>	Animal Cellular Biology[22.5h] (2 credits)1q (in French)	Bernard Knoops, Yves-Jacques Schneider
Programme for the students who opt for the minor in Biology		
<u>CHM1331</u>	Inorganic chemistry I[30h+15h] (4 credits) (in French)	Michel Devillers
<u>CHM1321</u>	Chimie analytique 1[40h] (4 credits) (in French)	Christine Dupont, Yann Garcia (coord.)
<u>CHM1322A</u>	Exercices de chimie analytique 1[0h+54h] (4 credits) (in French)	Yann Garcia
<u>CHM1351A</u>	Chimie physique et calculs physico-chimiques 1[30h+12h] (4 credits) (in French)	N.
<u>CHM1352A</u>	Méthodes physiques de la chimie[0h+52h] (3 credits) (in French)	N.
<u>CHM1371A</u>	Biochimie métabolique[30h+15h] (4 credits)2q (in French)	N.
<u>CHM1361</u>	Introduction to polymer chemistry[22.5h] (2 credits) (in French)	Jean-François Gohy
<u>ANG1863</u>	Anglais - expression orale[30h] (2 credits)1+2q (in English)	Philippe Denis, Philippe Neyt (coord.), Colleen Starrs, Françoise Stas
<u>BIR1241</u>	Political and social economy[30h] (3 credits)1q (in French)	Jean-François Sneessens
<u>MAT1375</u>	Biometry[25h+25h] (4 credits)1q (in French)	Éric Le Boulengé
<u>BIO1321</u>	Molecular genetics[30h+10h] (3 credits)1q (in French)	Bernard Hallet
<u>BIO1322</u>	Integrated tutorials in biochemistry and molecular genetics[0h+60h] (5 credits)2q (in French)	Bernard Hallet, Patrice Soumillion
<u>BIO1311A</u>	Microbiologie et virologie[25h+15h] (3 credits)1q (in French)	N.
either the two following courses		
<u>CHM1341</u>	Organic chemistry III[30h+15h] (4 credits) (in French)	Istvan Marko, Olivier Riant (coord.)
<u>CHM1342A</u>	Exercices de chimie organique I[0h+30h] (2 credits) (in French)	N.
or the two following courses		
<u>BIR1317</u>	Chimie organique (3è partie)[30h+15h] (3 credits)1q (in French)	Jacqueline Marchand
<u>CHM1311</u>	Environmental chemistry[30h] (3 credits) (in French)	Michel Devillers (coord.), Istvan Marko
Options		
at least 2 credits from among the following courses :		
<u>CHIM2181</u>	Quantum chemistry I[22.5h+0h] (2 credits) ▲ 1q (in French)	Daniel Peeters
<u>CHIM2471</u>	Nuclear chemistry[22.5h+0h] (2 credits)1q (in French)	Jean Ladrière
<u>CHIM2321</u>	Applied organic chemistry I[22.5h+0h] (2 credits) ▲ 1q (in French)	N.
<u>VEETE1395</u>	Animal Cellular Biology[22.5h] (2 credits)1q (in French)	Bernard Knoops, Yves-Jacques Schneider
at least 6 credits from among the following courses :		
<u>BIO1331</u>	Animal Biochemistry, physiology and histology[60h+22.5h] (6 credits)1+2q (in French)	Bernard Knoops (coord.), Jean-François Rees, Yves-Jacques Schneider
<u>BIO1341</u>	Plant physiology[45h+15h] (5 credits)2q (in French)	Jean-François Ledent, Stanley Lutts
<u>BIO1281</u>	Project[10h+35h] (4 credits)1+2q (in French)	Pascal Hols, André Lejeune, Jean-François Rees (coord.), Hans Van Dyck, Marie-Anne Van Hove
<i>If the course on vegetal physiology is chosen, the students will follow</i>		
<u>BIO1311</u>	Microbiology and virology[40h+15h] (4 credits)1q (in French)	Claude Bragard, Jacques Mahillon
<i>If the project is chosen, the student's programme will include one of the four courses listed below :</i>		
<u>VEETE1300</u>	Integrated Seminars[25h] (2 credits)2q (in English)	Anne-Marie Corbisier, Philippe Denis, André Moens, René Rezsóhazy (coord.), Yves-Jacques Schneider, Colleen Starrs, Renate Wesselingh
<u>BIO1335A</u>	Immunologie[25h] (2 credits)1q (in French)	N.
<u>BIO1332A</u>	Embryologie animale[25h] (2 credits)1q (in French)	N.
<u>BIO1251A</u>	Introductory ecology[25h] (2 credits)2q (in French)	N.