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 Cultureof 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

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

This year entitles access, without any complemetary 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

BIR1200	General mathematics II[52.5h+37.5h] (6 credits) (in French)	Pierre Bieliavsky
BIR1210A	Physique générale (II)[60h+45h] (8 credits) (in French)	René Prieels
CHM1241	Organic chemistry 2[60h+70h] (11 credits) (in French)	Istvan Marko, Olivier Riant
CHM1251	Elements of crystallography and molecular	Jean-Paul Declercq, Jean-Louis Habib

	spectroscopy[60h+30h] (8 credits) (in French)	Jiwan
CHM1231	Elements of inorganic and analytical chemistry[30h+50h] (6 credits) (in French)	Michel Devillers
CHM1271	Elements of biochemistry[30h+24h] (4 credits) (in French)	Robert Crichton
CHM1211	General Chemistry 2[30h+54h] (6 credits) (in French)	Michel Devillers (coord.), Bernard Tinant
CHM1252	Elements of physical molecular chemistry[45h+22.5h] (6 credits) (in French)	Daniel Peeters
ANG1862	Reading and listening comprehension of scientific texts[30h] (2 credits) (in French)	Ahmed Adrioueche
SC1120	Philosophy[30h] (2 credits) (in French)	Bernard Feltz

Programme for the students who opt for the minor in Biology

BIR1200	General mathematics II[52.5h+37.5h] (6 credits) (in French)	Pierre Bieliavsky
BIO1261	Biophysics[45h+30h] (6 credits) (in French)	Alain Cornet, Pierre Defrance, Patrick Gilon, Jean-François Rees (coord.)
CHM1241	Organic chemistry 2[60h+70h] (11 credits) (in French)	Istvan Marko, Olivier Riant
CHM1251	Elements of crystallography and molecular spectroscopy[60h+30h] (8 credits) (in French)	Jean-Paul Declercq, Jean-Louis Habib Jiwan
CHM1231	Elements of inorganic and analytical chemistry[30h+50h] (6 credits) (in French)	Michel Devillers
CHM1271	Elements of biochemistry[30h+24h] (4 credits) (in French)	Robert Crichton
CHM1211	General Chemistry 2[30h+54h] (6 credits) (in French)	Michel Devillers (coord.), Bernard Tinant
CHM1252	Elements of physical molecular chemistry[45h+22.5h] (6 credits) (in French)	Daniel Peeters
ANG1862	Reading and listening comprehension of scientific texts[30h] (2 credits) (in French)	Ahmed Adrioueche
SC1120	Philosophy[30h] (2 credits) (in French)	Bernard Feltz
MAT1275A	Statistiques en sciences naturelles[20h+20h] (3 credits) (in French)	Eric Le Boulengé

CHIM 13BA Third year of studies

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

CHM1331	Inorganic chemistry I[30h+15h] (4 credits) Δ (in French)	N.
CHM1341	Organic chemistry III[30h+15h] (4 credits) Δ (in French)	N.
CHM1342	Exercises in organic chemistry I[0h+65h] (4 credits) Δ (in French)	N.
CHM1321	Analytical chemistry I[40h] (4 credits) Δ (in French)	N.
CHM1322	Exercises in analytical chemistry[0h+66h] (5 credits) Δ (in French)	N.
CHM1351	Physical chemistry and physico-chemical calculations[45h+19h] (6 credits) Δ (in French)	N.
CHM1352	Physical methods of chemistry[0h+76h] (4 credits) Δ (in French)	N.
CHM1371	Metabolic Biochemistry[30h+30h] (5 credits) (in French)	Yves-Jacques Schneider
CHM1361	Introduction to polymer chemistry[22.5h] (2 credits) Δ (in French)	N.
CHM1381	Quantitative treatment of chemical data[22.5h] (3 credits) Δ (in French)	N.
CHM1311	Environmental chemistry[30h] (3 credits) Δ (in French)	N.
ANGL1863	ANG1863[30h]	N.
BIR1241	Political and social economy[30h] (3 credits) (in French)	Jean-François Sneessens
BIR1202	Applied computer science[22.5h+7.5h] (3 credits) (in French)	Philippe Sonnet
CHM1391	Project[0h+90h] (6 credits) Δ (in French)	N.

Options

at least 2 credits from among the following courses :

CHIM2181	Quantum chemistry I[22.5h+0h] (2 credits) (in French)	Daniel Peeters
CHIM2471	Nuclear chemistry[22.5h+0h] (2 credits) (in French)	Jean Ladrière

CHIM2321	Applied organic chemistry I[22.5h+0h] (2 credits) (in French)	Jean-Louis Habib Jiwan, Jacqueline Marchand
VETE1395	Animal Cellular Biology[22.5h] (2 credits) (in French)	Bernard Knoops, Yves-Jacques Schneider
Programme for the students who opt for the minor in Biology		
CHM1331	Inorganic chemistry I[30h+15h] (4 credits) Δ (in French)	N.
CHM1321	Analytical chemistry I[40h] (4 credits) Δ (in French)	N.
CHM1322A	Exercices de chimie analytique 1[0h+54h] (4 credits) (in French)	N.
CHM1351A	Chimie physique et calculs physico-chimiques 1[30h+12h] (4 credits) (in French)	N.
CHM1352A	Méthodes physiques de la chimie[0h+52h] (3 credits) (in French)	N.
CHM1371A	Biochimie métabolique[30h+15h] (4 credits) (in French)	N.
CHM1361	Introduction to polymer chemistry[22.5h] (2 credits) Δ (in French)	N.
ANG1863	Anglais - expression orale[30h] (2 credits) Δ (in English)	Philippe Denis, Philippe Neyt (coord.), Colleen Starrs, Françoise Stas
BIR1241	Political and social economy[30h] (3 credits) (in French)	Jean-François Sneessens
MAT1375	Biometry[25h+25h] (4 credits) Δ (in French)	N.
BIO1321	Molecular genetics[30h+10h] (3 credits) Δ (in French)	N.
BIO1322	Integrated tutorials in biochemistry and molecular genetics[0h+60h] (5 credits) Δ (in French)	N.
BIO1311A	Microbiologie et virologie[25h+15h] (3 credits) (in French)	N.
either the two following courses		
CHM1341	Organic chemistry III[30h+15h] (4 credits) Δ (in French)	N.
CHM1342A	Exercices de chimie organique I[0h+30h] (2 credits) (in French)	N.
or the two following courses		
BIR1317	Organic chemistry (part II)[30h+15h] (3.5 credits) (in French)	Jacqueline Marchand
CHM1311	Environmental chemistry[30h] (3 credits) Δ (in French)	N.
Options		
at least 2 credits from among the following courses :		
CHIM2181	Quantum chemistry I[22.5h+0h] (2 credits) (in French)	Daniel Peeters
CHIM2471	Nuclear chemistry[22.5h+0h] (2 credits) (in French)	Jean Ladrière
CHIM2321	Applied organic chemistry I[22.5h+0h] (2 credits) (in French)	Jean-Louis Habib Jiwan, Jacqueline Marchand
VETE1395	Animal Cellular Biology[22.5h] (2 credits) (in French)	Bernard Knoops, Yves-Jacques Schneider
at least 6 credits from among the following courses :		
BIO1331	Animal Biochemistry, physiology and histology[60h+22.5h] (6 credits) (in French)	Bernard Knoops (coord.), Jean-François Rees, Yves-Jacques Schneider
BIO1341	Plant physiology[45h+15h] (5 credits) Δ (in French)	N.
BIO1281	Project[10h+35h] (4 credits) (in French)	Jean Delcour, André Lejeune, Jean-François Rees (coord.), Hans Van Dyck
If the course on vegetal physiology is chosen, the students will follow		
BIO1311	Microbiology and virology[40h+15h] (4 credits) Δ (in French)	N.
If the project is chosen, the student's programme will include one of the four courses listed below :		
VETE1300	Integrated Seminars[25h] (2 credits) (in English)	Jean Delcour, Philippe Denis, André Moens, René Rezsohazy (coord.), Yves-Jacques Schneider, Colleen Starrs, Renate Wesselingh
BIO1335A	Immunologie[25h] (2 credits) (in French)	N.
BIO1332A	Embryologie animale[25h] (2 credits) (in French)	N.
BIO1251A	Introductory ecology[25h] (2 credits) (in French)	N.