

--

Programme structure

This programme which leads to the title of "Bachelor of Engineering Sciences : Bioengineering", is composed of three years of studies. The training programme comprises different types of course activities : lectures, practical exercises, group work, individual work, tutorials, work experience and, of course, personal study.

Each course title is followed by a number indicating the number of hours the course represents per academic year. This number corresponds to lectures, unless a different teaching method (seminars, exercises) is mentioned in the course title. Where course activities (exercises, laboratory work or practical tasks) accompany one or several lectures, these are characterised by a second volume of hours per year. The course timetable is available at the secretary's office of the Faculty.

The number in brackets next to the number of course hours, relates to the total number of credits attributed to the course activity. This unit is a measure of the student's global workload for one year of studies and corresponds to the unit used by the European Credit Transfer System (ECTS). A full study year includes 60 credits. The sign (-) refers to the description of the training activity, available on the web site, when the credits differ for the study years or for the options of the same programme.

Information on credits not indicated on the study programme can be obtained from the secretary's office of the Faculty.

Principal Subjects

- Mathematics, analysis and data-processing
- Sciences and Engineering of Matter and Processes
- Life Sciences
- Earth Sciences and Ecosystems
- Human Sciences

BIR1BA 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

○ Major (148 credits)

○ Mathematics, data analysis (27 credits)

○ LBIR1110	Introduction to analysis	Emmanuel Hanert	FR [q1] [30h+30h] [6 Credits] 🌐	X		
○ LBIR1111	Complément d'analyse et d'algèbre	Marino Gran	FR [q2] [30h+30h] [6 Credits] 🌐	X		
○ LBIR1211	Analysis of multivariate functions ■	Emmanuel Hanert	FR [q1] [30h+30h] [5 Credits] 🌐		X	
○ LBIR1212	Probabilities and statistics (I) ■	Patrick Bogaert	FR [q1] [30h+15h] [4 Credits] 🌐		X	
○ LBIR1315	Probability and statistics II ■	Patrick Bogaert	FR [q1] [22.5h+22.5h] [3 Credits] 🌐			X
○ LBIR1351	Introduction to systems analysis ■	Philippe Baret	FR [q1] [10h+20h] [3 Credits] 🌐			X

○ Sciences et ingénierie de la matière et des procédés (46 credits)

○ LBIR1140	Chimie générale 1	Pierre Delmelle (coord.) Charles-André Fustin Michel Ghislain (coord.)	FR [q1] [30h+30h] [6 Credits] 🌐	X		
------------	-----------------------------------	--	---------------------------------	---	--	--

				Year		
				1	2	3
○ LBIR1340	Basis of quantum mechanics and spectroscopy 🇯🇵	Eric Gaigneaux (coord.) Xavier Gonze	FR [q2] [22.5h+22.5h] [3 Credits] 🌐 > English-friendly			x
○ LBIR1341	Laboratories, seminars and integrated practice of analytical chemistry					

Course prerequisites

The **table** below lists the activities (course units, or CUs) for which there are one or more prerequisites within the programme, i.e. the programme CU for which the learning outcomes must be certified and the corresponding credits awarded by the jury before the start of the course.

LBIR1328A	"Climatology and hydrology applied to agronomy and the environment - partim A (2 ECTS)" has prerequisite(s) LBIR1221 <ul style="list-style-type: none"> • LBIR1221 - Wave, optical and modern physics
LBIR1336	"Sciences du sol et excursions intégrées" has prerequisite(s) LBIR1130 ET LBIR1270 <ul style="list-style-type: none"> • LBIR1130 - Introduction to Earth sciences • LBIR1270 - Integrated project in environmental diagnosis
LBIR1340	"Fondements de mécanique quantique et de spectroscopie" has prerequisite(s) LBIR1211 ET LBIR1221 <ul style="list-style-type: none"> • LBIR1211 - Analysis of multivariate functions • LBIR1221 - Wave, optical and modern physics
LBIR1341	"Laboratoires, séminaires et exercices intégrés de chimie analytique" has prerequisite(s) LBIR1212 ET LCHM1211A <ul style="list-style-type: none"> • LBIR1212 - Probabilities and statistics (I) • LCHM1211A - Chimie générale 2
LBIR1342	"Analyse de composés organiques dans des matrices complexes" has prerequisite(s) LCHM1141B <ul style="list-style-type: none"> • LCHM1141B - Organic chemistry
LBIR1346	"Chimie des colloïdes et des surfaces (I)" has prerequisite(s) LCHM1211A <ul style="list-style-type: none"> • LCHM1211A - Chimie générale 2
LBIR1349	"Chimie analytique I" has prerequisite(s) LCHM1211A ET LBIR1221 <ul style="list-style-type: none"> • LCHM1211A - Chimie générale 2 • LBIR1221 - Wave, optical and modern physics
LBIR1350	"Microbiologie générale" has prerequisite(s) LBIR1250 <ul style="list-style-type: none"> • LBIR1250 - Biochemistry I
LBIR1351	"Introduction à l'analyse des systèmes" has prerequisite(s) LBIR1271 <ul style="list-style-type: none"> • LBIR1271 - Integrated project in programming and applied mathematics
LBIR1352M	"Génétique générale - Cours magistral pour bioingénieurs et TP "Mouches"" has prerequisite(s) LBIR1150 <ul style="list-style-type: none"> • LBIR1150 - Cell Biology
LBIR1352P	"Génétique générale - Cours magistral pour bioingénieurs et TP "PCR "" has prerequisite(s) LBIR1150 <ul style="list-style-type: none"> • LBIR1150 - Cell Biology
LBIR1353	"Biologie intégrative" has prerequisite(s) LBIR1251 <ul style="list-style-type: none"> • LBIR1251 - Plant physiology
LBIR1354	"Biologie des interactions" has prerequisite(s) LBIR1270 <ul style="list-style-type: none"> • LBIR1270 - Integrated project in environmental diagnosis
LBIR1355	"Métabolisme microbien et synthèse de biomolécules" has prerequisite(s) LBIR1250 <ul style="list-style-type: none"> • LBIR1250 - Biochemistry I
LBIR1360	"Firm management and organisation" has prerequisite(s) LBIR1260 <ul style="list-style-type: none"> • LBIR1260 - Principles of economics
LBIR1362	"Economie des ressources naturelles et de l'environnement" has prerequisite(s) LBIR1260 <ul style="list-style-type: none"> • LBIR1260 - Principles of economics
LCHM1211A	"Chimie générale 2" has prerequisite(s) LBIR1140 ET LBIR1170 <ul style="list-style-type: none"> • LBIR1140 - Chimie générale 1 • LBIR1170 - Projet appliqué en Chimie
LCHM1244	"Chimie organique 2 : approfondissement des concepts de base" has prerequisite(s) LCHM1141B <ul style="list-style-type: none"> • LCHM1141B - Organic chemistry

The programme's courses and learning outcomes

For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

Detailed programme per annual block

o Human Sciences

o LANGL1881



BIR1BA - 2ND ANNUAL UNIT**o Scienc1s**

- 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...)

o Major**o Mathematics, data analysis**

● LBIR1211	Analysis of multivariate functions ■	Emmanuel Hanert	[FR] [q1] [30h +30h] [5 Credits] 🌐
● LBIR1212	Probabilities and statistics (I) ■	Patrick Bogaert	[FR] [q1] [30h +15h] [4 Credits] 🌐

o Sciences et ingénierie de la matière et des procédés

● LBIR1221	Wave, optical and modern physics ■	Bruno Bertrand (coord.) Jean-Christophe Charlier	[FR] [q2] [30h +30h] [5 Credits] 🌐
● LCHM1211A	Chimie générale 2 ■	Yann Garcia Tom Leyssens	[FR] [q2] [30h +30h] [5 Credits] 🌐
● LCHM1244	Organic chemistry 2: deepening of basic concepts ■	Olivier Riant	[FR] [q1] [30h +22.5h] [4 Credits] 🌐

○ LBIR1260	Principles of economics 🇫🇷	Goedele Van den Broeck	FR [q1] [30h +15h] [4 Credits] 🌐 > French-friendly
○ LSC1120A	Philosophy	Charles Pence	FR [q1] [45h] [2 Credits] 🌐

○ Projects and Soft skills

○ LBIR1270	Integrated project in environmental diagnosis 🇫🇷	Yannick Agnan Anne-Laure Jacquemart (coord.)	FR [q1] [30h +30h] [5 Credits] 🌐 > English-friendly
○ LBIR1271	Integrated project in programming and applied mathematics 🇫🇷	Patrick Bogaert Emmanuel Hanert (coord.) Marnik Vanclooster	FR [q2] [30h +30h] [5 Credits] 🌐

BIR1BA - 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...)

o Major**o Mathematics, data analysis**

○ LBIR1315	Probability and statistics II ■	Patrick Bogaert	FR [q1] [22.5h +22.5h] [3 Credits] 🌐
○ LBIR1351	Introduction to systems analysis ■	Philippe Baret	FR [q1] [10h +20h] [3 Credits] 🌐

o Sciences et ingénierie de la matière et des procédés

○ LBIR1325A	Transfer of fluids and energy for Bio-engineer ■	Yann Bartosiewicz Quentin Goor (compensates Mathieu Javaux) Marnik Vanclooster	FR [q1] [37.5h +22.5h] [5 Credits] 🌐
○ LBIR1349	Analytical Chemistry I ■	Christine Dupont (coord.) Yann Garcia Yann Garcia (compensates Christine Dupont)	FR [q1] [30h +15h] [3 Credits] 🌐

o Life Sciences

○ LBIR1350	General Microbiology ■	Annika Gillis	FR [q2] [37.5h +15h] [4 Credits] 🌐
------------	------------------------	---------------	---

o Human Sciences

○ LANGL2480	English Communication Skills for Bioengineers ■	Ahmed Adriouche Ariane Halleux Lucille Meyers Philippe Neyt Charlotte Peters (coord.) Adrien Pham Anne-Julie Toubeau (coord.)	EN [q2] [30h] [2 Credits] 🌐 > French- friendly
○ LBIR1360	Firm management and organisation ■	Pierre De Muelenaere	FR [q1] [30h +7.5h] [3 Credits] 🌐 > French- friendly
○ LBIR1361	Report on the work experience training	David Alsteens Charles Bielders Stephan Declerck Eric Gaigneaux (coord.) Michel Ghislain Caroline Louis	FR [q1 or q2] [120h] [5 Credits] 🌐 > English- friendly

o Choice of an option

⌘ Agronomy

LBIR1328A

Climatology and hydrology applied to agronomy and the environment - partim A (2 ECTS) 🟡

Alice Alonso

BIR1BA - Information

Access Requirements

Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.

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

In addition, the student will also be able to access other master's programmes organised in other UCL faculties or in other universities in Belgium or abroad, subject to possible prerequisites specified for the programme in question.

Contacts

Curriculum Management

Faculty

Structure entity

SST/AGRO

Denomination

Faculty of bioscience engineering (AGRO)

Sector

Sciences and Technology (SST)

Acronym

AGRO

Postal address

Croix du Sud 2 - bte L7.05.01

1348 Louvain-la-Neuve

Tel: +32 (0) 10 47 37 19 - Fax: +32 (0) 10 47 47 45

<http://www.uclouvain.be/agro>

Website

Mandate(s)

- Dean : Christine Dupont
- Administrative director : Carole Dekelver

Commission(s) of programme

- Commission de programme - Master Bioingénieur-Sciences agronomiques (BIRA)
- Commission de programme - Master Bioingénieur-Chimie et bioindustries (BIRC)
- Commission de programme - Master Bioingénieur-Sciences & technologies de l'environnement (BIRE)
- Commission de programme - Bachelier en sciences de l'ingénieur, orientation bioingénieur (CBIR)
- Commission de programme interfacultaire en Sciences et gestion de l'environnement (ENVI)
- Fermes universitaires de Louvain (FERM)

Academic supervisor: [Mathieu Javaux](#)

Jury

- Président de jury: president-jury-agro@uclouvain.be
- Secrétaire de jury BIR11BA: [Sébastien Lambot](#)
- Secrétaire de jury BIR1BA: [Sébastien Lambot](#)

Useful Contact(s)

- Conseiller aux études: conseiller-agro@uclouvain.be

