7. understand ethical questions in life sciences

7.1 critically put into perspective the impact of science and technology on the evolution of societies

7.2 evaluate the ethical and societal issues of new biotechnologies and experimental practices in biology, involving, among other things, animal experimentation

7.3 recognize scientific fraud and plagiarism as unacceptable behavior in science

8. if he chooses the In-depth goal, enrich his knowledge, perfect his training in the experimental approach, technologies and written and oral scientific communication with a view to a career in research

8.1 demonstrate experience acquired through practical training on targeted scientific questions within host laboratories in different universities in the Wallonia-Brussels federation

8.2 use the skills acquired during the Master's degree in a new and supportive environment within a national or international research institution

The core study is taught in English with the exception of some social studies courses, English-speaking students are invited to take LSC2220.

- 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

LIST OF FOCUSES

The research focus is fully taught in English.

The professional focus is accessible to English-speaking students but they will have to choose their courses carefully because some are taught in French.

The teaching focus aims to teach in secondary education in the French Community of Belgium, therefore it is accessible only to students who have a good knowledge of French.

> Research Focus *[en-prog-2024-bbmc2m-lbbmc200a]*
> Teaching Focus *[en-prog-2024-bbmc2m-lbbmc200d]*
> Professional Focus : Biotechnology *[en-prog-2024-bbmc2m-lbbmc200s]*

RESEARCH FOCUS [30.0]

- 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...)

Content:

				Year 1	Year 2
LBBMC2205	Research internship - Part 1	Bernard Hallet	[EN] [q2] [25h+40h] [20 Credits]		x
LBBMC2203	Research Training Seminar	Henri Batoko Françoise Gofflot Charles Hachez Bernard Hallet Pierre Morsomme Patrice Soumillion	[EN] [q1+q2] [40h+40h] [5 Credits]		x

Elective activity(ies) (5 credits)

to choose from the list of elective courses.

TEACHING FOCUS [30.0]

IMPORTANT NOTE: In accordance with article 138 para. 4 of the decree of 7 November 2013 concerning higher education and the academic organisation of studies, teaching practice placements will not be assessed in the September session. Students are required to make every effort to successfully complete the teaching practice in the June session, subject to having to retake the year.

Year
1 2

PROFESSIONAL FOCUS : BIOTECHNOLOGY [30.0]

- 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...)

Content:

				Year 1	Year 2
LBBMC2215	Internship in a company	René Rezsohazy	[FR] [q2] [25h+40h] [20 Credits]		x

OPTIONS

> Elective courses *[en-prog-2024-bbmc2m-lbbmc300o]*
> INEO, Interdisciplinary training in entrepreneurship *[en-prog-2024-bbmc2m-lboe955o]*

ELECTIVE COURSES [36.0]

- 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

				Year 1	2
⊠ LAGRE2221	Learning and teaching with new technologies	Sandrine Decamps	FR [q1] [15h+15h] [2 Credits]	x	x
⊠ LMAT2330	Seminar on the teaching of mathematics	Enrico Vitale	FR [q1+q2] [15h+30h] [4 Credits]	x	x

⊠ 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]	x	x
⊠ LSST1002M	Information and critical thinking - MOOC	Anne Bauwens (compensates Jean-François Rees) Myriam De Kesel	FR [q2] [30h+15h] [3 Credits]	x	x

INEO, INTERDISCIPLINARY TRAINING IN ENTREPRENEURSHIP

- 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...)

This option lasts 2 years and is integrated into more than 30 Masters programs in 9 faculties/schools of the UCLouvain. The choice of this option implies the realization of an interfaculty dissertation (in team) on a business creation project. Access is limited to students selected on the basis of a portfolio. More info. via https://uclouvain.be/en/study/ineo

Admission to this CPME option is subject to selection, please submit your application in due time https://uclouvain.be/fr/etudier/ineo/admission.html

Courses in this option cannot be taken individually outside of the option.

From 20 to 25credit(s)

Year
1 2

Content:

LINEO2021	

Additional courses

Students coming from a bachelor degree different from the bachelor degree in chemical sciences in FWB and admitted into this cursus (see admission conditions) may be required to follow additional courses to complete their initial training. As an indication, here is a list of courses that could be added.

LBIO1237	Immunology : basis and applications in biology	Jean-Paul Dehoux	FR [q1] [25h+15h] [3 Credits]
LBIO1322	Integrated tutorials in biochemistry and molecular biology	Bernard Hallet Patrice Soumillion	FR [q2] [5h+45h] [4 Credits]
LBIO1333	Integrated animal biology: circulation, respiration, digestion and excretion	Patrick Dumont Françoise Gofflot René Rezsohazy	FR [q2] [30h+10h] [3 Credits]
LBIO1342	Plant morphogenesis	François Chaumont	FR [q2] [20h+15h] [3 Credits]
LBIO1240	Plant physiology	Xavier Draye Stanley Lutts	FR [q1] [40h+15h] [4 Credits]
LBIO1332	Molecular Biology of Development	Françoise Gofflot René Rezsohazy	FR [q1] [30h+10h] [3 Credits]
LBIO1236	Integrated animal biology : coordination, perception and locomotion	Frédéric Clotman (compensates Bernard Knoops) Patrick Dumont Patrick Dumont (compensates Bernard Knoops) Françoise Gofflot	FR [q2] [40h+10h] [4 Credits]
LCHM1111B	General chemistry	Benjamin Elias Alexandru Vlad	FR [q1] [45h+45h] [8 Credits]
LCHM1331	Inorganic chemistry I	Sophie Hermans	FR [q1] [37.5h+7.5h] [4 Credits]
LCHM1321A	Analytical chimistry	Christine Dupont Yann Garcia	FR [q1] [30h] [3 Credits]
LCHM1361	Introduction to polymer chemistry	Jean-François Gohy	FR [q2] [22.5h] [3 Credits]
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]

Course prerequisites

There are no prerequisites between course units (CUs) for this programme, i.e. the programme activity (course unit, CU) whose learning outcomes are to be certified and the corresponding credits awarded by the jury before registration in another CU.

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.

BBMC2M - Information

Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

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

SUMMARY

Specific access requirements

Since this program is taught in English, no prior proof of French language proficiency is required, except for students wishing to access the didactic program who must provide proof of a CEFR level C1 proficiency.

If the candidate lacks any prerequisites, additional refresher courses may be required. These will be taught in French. If there is no proof of sufficient knowledge of French, the application will not be considered.

Students who wish to be admitted on the basis of a dossier (see tables below) are invited to consult the criteria for the evaluation of application.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
BIOL1BA - Bachelier en sciences biologiques		Direct access	
CHIM1BA - Bachelier en sciences chimiques		Access based on application	
		Direct access	
		Access with additional training	
SBIM1BA		Direct access	

		être adapté en fonction de la formation antérieure.
Bachelors of the Dutch speaking Community of Belgium		
Bachelor in biologie	Access based on application	
Bachelors in de biochemie en de biotechnologie Bachelor in biologie	Access based on application	
Foreign Bachelors		
	Access based on application	

Non university Bachelors

> Find out more about links to the university

Diploma	Access	Remarks
BA - technologue de laboratoire médical - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation agro-industries et biotechnologies - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation agronomie des régions chaudes - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation environnement - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation forêt et nature - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation systèmes alimentaires durables et locaux - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation techniques et gestion agricoles - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation techniques et gestion horticoles - crédits supplémentaires entre 45 et 60 BA en agronomie, orientation technologie animalière - crédits supplémentaires entre 45 et 60 BA en chimie, orientation biochimie - crédits supplémentaires entre 45 et 60 BA en chimie, orientation biotechnologie - crédits supplémentaires entre 45 et 60 BA en chimie, orientation chimie appliquée - crédits supplémentaires entre 45 et 60 BA en chimie, orientation environnement - crédits supplémentaires entre 45 et 60	Les enseignements supplémentaires éventuels peuvent être consultés dans le module complémentaire.	Type court

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			
		Direct access	
Masters			
		Direct access	

Holders of a non-University 2nd cycle degree

Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about Validation of priori experience.

Access based on application

Access based on application : access may be granted either directly or on the condition of completing additional courses of a maximum of 60 ECTS credits, or refused.

The first step in the procedure is to submit a file online (see https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html).
Students who wish to be admitted on the basis of a dossier are invited to consult the criteria for the evaluation of application.

Admission and Enrolment Procedures for general registration

Specific professional rules

Successful completion of the master's course with **teaching focus** leads to the award of the master's degree with teaching focus and the title of secondary school education specialist.

The Réforme des Titres et Fonctions ("Titles and Functions Reform"), in force since 1 September 2016, is intended to harmonise the titles, functions and pay scales of basic and secondary education professionals in French Community of Belgium networks.

It also aims to guarantee the priority of preferred titles over minimum titles and to establish a regime for titles in short supply.

AESS holders can learn which functions they can carry out and the pay scales from which they can benefit by clicking here.

The university cannot be held responsible for any problems that students may encounter at a later date with a view to a teaching appointment in the French Community of Belgium.

Teaching method

The teaching strategy takes its inspiration from the idea of taking responsibility for one's own learning and offers a wide range of learning situations. Students must take three major decisions: the choice of an option course, a focus and final additional training.

Approximately thirty credits are reserved for activities which can be freely chosen from the overall **Biochemistry and Molecular and Cell Biolog y** programme or from related Masters.

Teaching is organized in small groups, most frequently in tutorial style and learning is for the most part centred on individual work (e.g. reading, consultation of databases and bibliographic references, presentation of seminars and research work). Before making a final choice for the subject of the dissertation, students do a â€˜rotationâ€™ in four laboratories relating to each of the four available option courses. Work on the dissertation usually starts in the second semester of the first year and continues until the first semester of the second year of the Master. The training is completed by an intensive placement in a professional environment lasting several months, preferably abroad.

The five programmes organized in the French Community of Belgium share a portfolio of approximately fifteen inter-university workshops which can be taken from the first semester of the second year. Each workshop consists of a week of immersion in an intellectual issue in an area of advanced research, spent in a host department which specializes in the area. UCL provides three workshops; our students must attend at least two of them.

Students doing the teaching focus may do advanced teaching in mathematics, physical sciences or geography.

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”.

Students will mainly be assessed on the basis of individual work (e.g. reading, consultation of databases and bibliographic references, writing monographs and reports, presentation of seminars, dissertation and work placement). Where necessary, students will also be assessed on how much they have learned from lectures. As far as possible, there will be continuous assessment, including regular ‘open book examinations’. Certain activities will not be given a precise mark but will be officially certified. Assessment of the dissertation is in two stages : a ‘progress report’ at the end of the first year of the Master and the final presentation.

Mobility and/or Internationalisation outlook

For the research and professional focuses, students are invited to spend time in a foreign country, preferably during the second semester of the second year cadre to do a work placement and/or (possibly) during the first semester of the second year to do the second part of their dissertation whilst also taking their option course and their focus-related training

Advanced courses are given by many visiting lecturers from different foreign institutions and some Belgian ones. These are mostly in English.

Possible trainings at the end of the programme

Whatever focuses and option courses are chosen, the Master **in Biochemistry and Molecular and Cell Biology** gives direct access to a doctorate in science.

Contacts

Curriculum Management

Entity

Structure entity	SST/SC/BIOL
Denomination	(BIOL)
Faculty	Faculty of Science (SC)
Sector	Sciences and Technology (SST)
Acronym	BIOL
Postal address	Croix du sud 4-5 - bte L7.07.05 1348 Louvain-la-Neuve Tel: +32 (0) 10 47 34 89 - Fax: +32 (0) 10 47 35 15
Website	https://uclouvain.be/fr/facultes/sc/biol

Academic supervisor: Pierre Morsomme

Jury

- President: Henri Batoko
- Secretary and Study advisor: Charles Hachez

Useful Contact(s)

- Administrative manager for the student's annual program: Aloysia Stephenne