



BBMC2M

2024 - 2025

BBMC2M - Introduction

Introduction

Introduction

From the academic year 2020-2021, this master's degree will be taught mainly in English. Nevertheless, access to the teaching focus requires good mastery of French.

The Master's degree develops the knowledge necessary for an experimental approach to any question relating to the structure, functioning and exploitation for biotechnological purposes of living cells and their molecular components.

It forms

- biochemists, capable of understanding the structure, functioning and evolution of macromolecules that form the basis of the structure, functioning and programming of living organisms;
- Molecular and cellular biologists who understand how cells interact with each other, how they grow, adapt, differentiate and die.

Your profile

You

- wish to develop know-how and technical and experimental skills in biochemistry and molecular and cellular biology;
- are interested in living cells, their molecular components and the field of biotechnology;
- wish to contribute to research in biochemistry, molecular and cellular biology;
- wish to join a company active in the field of biotechnology, whether in the agri-food, pharmaceutical or biomedical sector.

Your future job

By touching the very essence of life, biology is the cornerstone of many scientific disciplines: analysis of genetic information, genome sequencing, biotechnology, etc.

Along with chemistry, it contributes to the de4 /Fno/Alopwrofictios.ntrnteract wn ofth chphis csit conetiras toopwrmherodsor bie de4 chnon

BBMC2M - Teaching profile

Learning outcomes

Students on the Master in Biochemistry and Molecular and Cell Biology programme must acquire knowledge and technical expertise which enable them to gain advanced understanding of and deal experimentally with issues relating to the structure, working and use for biotechnical purposes of living cells and their molecular components. Not only will they simply learn, but, more importantly, they will be able to learn independently

- as biochemists : how macromolecules work and develop, since they are the molecular foundations of the structure, functioning and programming of living beings;
- as molecular and cellular biologists : how, both as a single cell or as a component of multicellular organisms, cells interact, how they convert the special features and/or changes in their environment into biochemical and/or genetic regulation signals, how they grow, adapt, become differentiated and die.

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

9. if he chooses the Specialized purpose, enrich his knowledge in the field of biotechnologies and confront the reality of the company

9.1 demonstrate the acquisition of cutting-edge methodological and technological approaches in relation to entrepreneurial practices

9.2 use the skills acquired during the Master's degree in a new and promising environment within a company in the broad sense, whether it is a 1 0 0 -1 r3mpasterrch6ther it is a 1 0 0 -1 r3mpasterrch

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]

- 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
-

Year

1 2

⌘
LAGRE2020Q

Comprendre l'adolescent en situation scolaire, Gérer la relation interpersonnelle et animer le groupe classe.

Nathalie Roland
Morgane Senden
(compensates
Baptiste Barbot)

PR [q2] [22.5h+22.5h] [4 Credits]

x

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, ...)
-



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
 - [FR]dents
-

				Year	
				1	2
✘ LBBMC2206	Internship - Part 2	Bernard Hallet René Rezsöházy	EN [q2] [10h+10h] [10 Credits] 🌐	X	X
✘ LB RTE2201	Human and environmental toxicology	Cathy Debier	EN [q1] [30h+7.5h] [4 Credits] 🌐 > French-friendly	X	X
✘ LBBMC2204	Cellular and molecular pharmacology - basic concepts	Melissa Page	EN [q1] [30h] [3 Credits] 🌐	X	X
✘ LBBMC2214	Molecular and cellular pharmacology seminar	Laure Bridoux (compensates René Rezsöházy) Patrick Dumont	EN [q2] [24h] [2 Credits] 🌐	X	X
✘ LDATS2360	Seminar in data management: basic	Céline Bugli	EN [q1] [15h+10h] [5 Credits] 🌐	X	X

✘ One of the other technical courses

✘ LBIRC2101	Biochemical analysis	François Chaumont Pierre Morsomme (coord.)	FR [q1] [22.5h+30h] [4 Credits] 🌐 > English-friendly	X	X
✘ LBRMC2101	Genetic engineering	François Chaumont (coord.) Charles Hachez	FR [q1] [37.5h+15h] [5 Credits] 🌐 > English-friendly	X	X
✘ LBRMC2202	Cell culture technology	David Alsteens Charles Hachez (coord.) Pascal Hols	EN [q1] [30h] [3 Credits] 🌐 > French-friendly	X	X

✘ Other courses of the deepening modules

✘ Activities of the Master's degree in Biomedical Sciences at UCLouvain

✘ Activities of the Master's degree in chemistry



✘ Activities of the BBMC master's degree at UNamur

✘ Upgrading activities

✘ LBIO1237	Immunology : basis and applications in biology	Jean-Paul Dehoux	FR [q1] [25h+15h] [3 Credits] 🌐	X	X
✘ LBIO1322	Integrated tutorials in biochemistry and molecular biology	Bernard Hallet Patrice Soumillon	FR [q2] [5h+45h] [5 Credits] 🌐	X	X
✘ LBIO1333	Integrated animal biology: circulation, respiration, digestion and excretion	Patrick Dumont Françoise Gofflot René Rezsöházy	FR [q2] [30h+10h] [3 Credits] 🌐	X	X
✘ LBIO1342	Plant morphogenesis	François Chaumont	FR [q2] [20h+15h] [3 Credits] 🌐	X	X
✘ LBIO1240	Plant physiology	Xavier Draye Stanley Lutts	FR [q1] [40h+15h] [4 Credits] 🌐	X	X
✘ LBIO1332	Molecular Biology of Development	Françoise Gofflot René Rezsöházy	FR [q1] [30h+10h] [3 Credits] 🌐	X	X
✘ 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] 🌐	X	X
✘ LCHM1111B	General chemistry	Benjamin Elias Alexandru Vlad	FR [q1] [45h+45h] [8 Credits] 🌐	X	X
✘ LCHM1331	Inorganic chemistry I	Sophie Hermans	FR [q1] [37.5h+7.5h] [4 Credits] 🌐	X	X
✘ LCHM1321A	Analytical chemistry	Christine Dupont Yann Garcia	FR [q1] [30h] [3 Credits] 🌐	X	X
✘ LCHM1361	Introduction to polymer chemistry	Jean-François Gohy	FR [q2] [22.5h] [2 Credits] 🌐	X	X

				Year	
				1	2
⌘ LAGRE2310	Micro-teaching exercises	Marc Blondeau Pascalia Papadimitriou	EB [q1 or q2] [15h] [2 Credits]	x	x
⌘ LAGRE2221	Learning and teaching with new technologies	Sandrine Decamps	EB [q1] [15h+15h] [2 Credits]	x	x
⌘ LMAT2330	Seminar on the teaching of mathematics	Enrico Vitale	EB [q1+q2] [15h+30h] [4 Credits]	x	x

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INEO, INTERDISCIPLINARY TRAINING IN ENTREPRENEURSHIP

- Mandatory
- ⊗ Optional
- △ Not offered in 2024-2025
- ⊖ Not offered in 2024-2025 but offered the following year
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- (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 25 credit(s)

Year

1 2

Content:

⊗ LINEO2021	Financer son projet <i>Ce cours est obligatoire pour les étudiants qui n'ont pas de prérequis en gestion (les étudiants qui ont suivi la mineure en gestion, ou la mineure en esprit d'entreprendre sont dispensés de ce cours).</i>	Philippe Grégoire Olivier Vercrusse	FR [q2] [30h+15h] [5 Credits] 🌐	X
● LINEO2001	Théorie de l'entrepreneuriat	Frank Janssen	FR [q1] [30h+20h] [5 Credits] 🌐	X
● LINEO2002				

o **Additional courses**

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

- > [General access requirements](#)
- > [Specific access requirements](#)
- > [University Bachelors](#)
- > [Non university Bachelors](#)
- > [Holders of a 2nd cycle University degree](#)
- > [Holders of a non-University 2nd cycle degree](#)
- > [Access based on validation of professional experience](#)
- > [Access based on application](#)
- > [Admission and Enrolment Procedures for general registration](#)

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
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être adapté en fonction de la
formation antérieure.

The first step in the procedure is to submit a file online (see <https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html>).

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 Biology** 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 "rotation" 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 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

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

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](#)

