



MA-BMOL | M-BMOLA | 2024-2025

Master in Biochemistry and Molecular and Cell Biology

Focus Research

The 2024-2025 programme is subject to change. It is provided for information purposes only.

Programme mnemonic

MA-BMOL

- > Focus *Research* : M-BMOLA

Exists also in

- > Focus *Teaching* : M-BMOLD

- > Focus *Research (Charleroi)* : M-BMOLC

Studies level

Master 120 credits

Learning language

french

Schedule

office hours

Studies category / subcategory

Sciences and technics / Agronomy and bioengineering

Campus

Plaine and Solbosch

to the master thesis, this cursus also offers the possibility to perform a 10 week-traineeship in a distinct laboratory.

- > The teaching focus is intended for future teachers, with active and passive courses as well as work placements.

Both focuses allow students to pursue a PhD programme.

Programme's added value

Starting in the first year of the Master programme, students have access to a wide range of experimental approaches in the department's various research laboratories (5-10 credits).

In addition, they are encouraged to analyse original scientific articles and are trained for scientific writing and communication tools.

In the second year, students are expected to attend many seminars and take part in journal clubs. Each student must also give a seminar on their Master's dissertation.

During the second year, students have an opportunity to take part in an exchange programme, by completing a research work placement (in a foreign country or in Belgium, in a university or a private company).

While they complete their dissertation, students may attend professional training sessions related to their research topic, offered by the 'Biopark training unit'.

The research programme on molecular biology was developed at ULB in the 1960s, and has since earned an international reputation.

Classes are given by several researchers from the Biopark, located in Gosselies, near Charleroi. The Biopark is a centre of excellence in molecular biology, hosting 700 researchers with expertise on a wide array of topics. The Biopark includes academic departments, spin offs, and pharmaceutical companies, on a campus that offers attractive possibilities for research-intensive programmes.

The department of molecular biology has concluded several partnerships with research institutes (IMI) and centres (CMMI).

Programme objectives

The Master programme provides fundamental courses in biochemistry and molecular and cellular biology (90 credits) in the following disciplines:

- > Molecular biology of the cell (cell growth and signaling, internal organisation and physiology, molecular biology of the gene)
- > Molecular biology of multicellular organisms (immunology, developmental biology, neurobiology)
- > Molecular microbiology (bacteriology, virology, parasitology)

In addition, students must choose one of two focuses (30 credits):

- > The research focus provides additional courses in bioinformatics and structural biology, as well as additional practical training in the department's research laboratories or optional course from the entire University catalog. In addition



Teaching methods

- > Regular classes (35-40%, depending on electives)
- > Practical training activities in research laboratories (15-20%, depending on electives)
- > Computer-aided training in bioinformatics and structural biology (2% in the research focus)
- > Personal assignments (15%, including writing laboratory reports and journal club presentations)
- > Master's dissertation: students are required to conduct original research projects in faculty laboratories, and to attend and host research seminars

Succeed in your studies

Choose

The information and guidance counsellors at the InfOR-études [<https://www.ulb.be/en/studies-info-desk-1>] service will help you choose your studies throughout the year.

Succeed

Take part in preparatory courses [<https://www.ulb.be/en/studies-info-desk-1>] or get help to succeed [<https://www.ulb.be/en/studies-info-desk-1>], before or during your studies.

Get help

Apply for financial aid, look for accommodation or a student job, get support [<https://www.ulb.be/fr/aides-services-et-accompagnement/aid-services-and-support-1>] for your specific needs.

International/Openness

1st year: Erasmus exchange programme (for 1 or 2 terms)

2nd year: opportunity to complete the work placement and/or dissertation in a foreign country.

Active participation of teachers from the Centre of Microscopy and Molecular Imaging (CMMI)

Job opportunities

Scientific research (in companies, universities, hospitals, etc.)

Training (teaching biology or chemistry in school) or continuing education

Management and/or communication in the fields of health, biotechnologies, food processing, clinical research, quality control, etc.

Graduates in BBMC can pursue the following careers:

- > Research in private companies (pharmacology, biotechnologies, food processing, etc.)
- > Academic research (universities, high schools)
- > Teaching in secondary schools or higher education institutions
- > Continuing education
- > Communication and/or scientific publishing
- > Forensic science analysis
- > Organising science outreach or awareness activities
- > Scientific counselling for products within a company
- > Quality control (hospitals, private companies, public QC services, etc.)
- > Monitoring analyses in the fields of biodiversity, bioremediation, biosafety, etc. (services of control of quality, ...)
- > Person in charge of monitoring analyses in the fields of biodiversity, bioremediation, biosafety, ...

Contacts

 ma-bmol@ulb.be

 +32 2 650 98 01

 <https://sciences.ulb.be/departement-biologie-moleculaire>

Jury President

Laurence VAN MELDEREN

Jury Secretary

Guillaume OLDENHOVE

















Master in Biochemistry and Molecular and Cell Biology





Focus Research

Bloc 1 | M-BMOLA | MA-BMOL

Tronc commun






- BMOL-F007 **Lectures d'articles en biologie moléculaire** | Laurence VAN MELDEREN (Coordinator)
 5 credits [project: 80h]  second term  French
- BMOL-F4005 **Travaux pratiques de biologie moléculaire 1** | Laurence VAN MELDEREN (Coordinator), Bruno ANDRE, Fabienne ANDRIS, Mélanie BOECKSTAENS, Louis DROOGMANS, Cyril GUEYDAN, Véronique KRUYIS, Denis LAFONTAINE, Anna Maria MARINI, Maud MARTIN, David PEREZ-MORGA, Bernard ROBAYE, Carine VAN LINT and René WINTJENS
 5 credits [practical work: 48h]  first term  French
- BMOL-F4008 **Travaux pratiques de biologie moléculaire 2** | Laurence VAN MELDEREN (Coordinator), Fabienne ANDRIS, Eric BELLEFROID, Sabrina BOUSBATA, Dukas Jurénas, Maud MARTIN, David PEREZ-MORGA, Jacob SOUOPGUI and Benoît VANHOLLEBEKE
 5 credits [practical work: 48h]  second term  French
- BMOL-F414 **Scientific writing** | Abel GARCIA-PINO (Coordinator) and Etienne MEYLAN
 5 credits [practical work: 48h]  first term  English
- BMOL-F416 **Expression génique** | Cyril GUEYDAN (Coordinator), Véronique KRUYIS, Denis LAFONTAINE and Carine VAN LINT
 5 credits [lecture: 42h]  first term  French
- BMOL-F417 **Communication inter-cellulaire (signalisation/intégration des signaux)** | Benoît VANHOLLEBEKE (Coordinator) and Bernard ROBAYE
 5 credits [lecture: 28h, seminars: 8h]  first term  French
- BMOL-F460 **Organisation interne et physiologie de la cellule** | Bruno ANDRE (Coordinator), Denis LAFONTAINE and Maud MARTIN
 5 credits [lecture: 36h, practical work: 6h]  first term  French

Cours spécifiques

- BMOL-F003 **Biologie Structurale, Enzymologie et Protéomie** | Louis DROOGMANS (Coordinator), Sabrina BOUSBATA and Abel GARCIA-PINO
 5 credits [lecture: 44h, tutorial classes: 8h]  first term  French
- BMOL-F413 **Bioinformatique** | Matthieu DEFRENCE (Coordinator) and Jean-François FLOT
 5 credits [lecture: 48h]  second term  French

Cours optionnels

A total of 15 credits chosen from the following

- BMOL-F006 (optional) **Microbiologie moléculaire** | Carine VAN LINT (Coordinator), Mélanie BOECKSTAENS, Abel GARCIA-PINO, Dukas Jurénas, Anna Maria MARINI and Laurence VAN MELDEREN
 5 credits [lecture: 40h, tutorial classes: 12h]  second term  French
- BMOL-F418 (optional) **Immunologie et biologie du cancer** | Etienne MEYLAN (Coordinator), Fabienne ANDRIS and Stanislas GORIELY
 5 credits [lecture: 40h]  second term  French
- BMOL-F419 (optional) **Neuroscience et biologie cardiovasculaire** | Maud MARTIN (Coordinator), Eric BELLEFROID, Alban DE KERCHOVE D'EXAERDE, Serge SCHIFFMANN and Benoît VANHOLLEBEKE
 5 credits [lecture: 42h, seminars: 10h]  second term  French

BMOL-F420
(optional)

Relations hôtes-vecteurs-parasites: notions approfondies | Sabrina BOUSBATA (Coordinator) and Luc VANHAMME

5 credits [lecture: 36h, practical work: 24h] second term French

BMOL-F421
(optional)

Questions d'actualités en Biologie moléculaire et Physiologie cellulaire | Véronique KRUYIS (Coordinator), Bruno ANDRE and Cyril GUEYDAN

5 credits [lecture: 12h, tutorial classes: 30h] second term French

TEMP-0000
(optional)

Cours extérieurs au programme

5 credits academic year French

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Bloc 2 | M-BMOLA | MA-BMOL

Tronc commun

- MEMO-F510 [Séminaires de recherche](#) | Laurence VAN MELDEREN (Coordinator)
🕒 5 credits [seminars: 48h] 📅 first and second terms 🗨️ French
- MEMO-F511 [Travail bibliographique en Biologie moléculaire](#) | Etienne MEYLAN (Coordinator)
🕒 10 credits [project: 48h] 📅 first and second terms 🗨️ French
- MEMO-F516 [Mémoire](#) | Laurence VAN MELDEREN (Coordinator)
🕒 30 credits [mfe/tfe: 900h] 📅 first and second terms

Cours spécifiques

- STAG-F022 [Stage de recherche en biologie moléculaire](#) | Sabrina BOUSBATA (Coordinator)
🕒 15 credits [work placement: 180h] 📅 academic year 🗨️ French