



Bachelor in Biology

Option Charleroi

Programme mnemonic

BA-BIOL

> Option *Charleroi* : BA-BIOLC

Exists also in

> Option *Bruxelles* : BA-BIOLB

Studies level

Bachelor

Learning language

french

Schedule

office hours

Studies category / subcategory

Sciences and technics / Sciences

Campus

Charleroi Ville Haute

- > Biological sciences ;
- > Chemical sciences ;
- > Biomedical sciences ;
- > Pharmaceutical sciences.

The student will then be able to obtain a Master in Biochemistry (Molecular and Cellular Biology), a Master in Biology of Organisms and Ecology, but also (depending on the reinforcement chosen) in Biomedical Sciences, Chemical Sciences, Pharmaceutical Sciences.

Programme's added value

The specificities of this POLYVALENT training is that it allows the student, at the end of his first block of bachelor, to choose between several sectors: Biology, Chemistry, Pharmacy, Biomedical Sciences. This training is therefore aimed at students who wish to discover several orientations before making their final choice. This first block will allow them unconditional access to the ULB or UMONS to the Biology, Chemistry, Pharmacy, Biomedical Sciences courses, provided they pass the 60 credits making up BLOCK 1.

Practical laboratory training modules allow the student to carry out experiments and analyze the results.

Most molecular biology laboratories of the Faculty of Sciences of the ULB are grouped at the Biopark, a major centre of research and economic development located at Gosselies, near Charleroi. Many practical works are organized on this site. Shuttles are provided for student travel from Charleroi to Gosselies.

Teaching methods

The education are divided into:

- > Lectures (47%)
- > Exercises (17%)
- > Lab work (34%)
- > Field works (2%).

Programme objectives

- > Acquiring the general scientific training (in Mathematics, Chemistry, Physics and Earth science) necessary for the study of Biology and that raise awareness of the students in all aspects of the progress of science.
- > Appropriating all the fundamental concepts of Biology and using them in new situations.
- > Acquiring the principles of scientific approach.
- > Acquiring an experimental training in the key disciplines of Biology.
- > Learning to master the peculiarities of scientific language and writing, and communicating to a target audience appropriately.
- > Awareness of societal issues of Biology and Science (values, moral, ethic, and legal issues).

This bachelor organised in Charleroi is designed for students who want to discover several scientific orientation in order to take a final decision for their study choice. Passing the 60 credits of the first year gives the access, without condition, to ULB and UMONS programs in:

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

The training provided by the ULB and UMONS is internationally renowned. Thanks to the many agreements between the ULB and UMONS and institutions worldwide, students may pursue part of their studies abroad.

Job opportunities

By prolonging the BA by a MA in Biochemistry and Molecular and Cellular biology, Biology of organisms and Ecology, Biomedical sciences, or Bioinformatics and Modelling, students may pursue careers in the following areas:

- > **Industrial area** (pharmaceutical, biotechnology, food processing, environmental technology): research and development, responsible for management, communication and/or publishing; scientific advisor for the sale of high-tech products;
- > **Education**: teaching in secondary schools and at higher non-university level
- > **Academia**: teaching and research in universities and high schools;
- > **Public area** (local, regional, federal, international) and nongovernmental organizations (NGO): business related to conservation, management and valorization of resources of biological diversity; to environment and sustainable development, quality control, biosafety, forensics, continuing education, dissemination of science;

After the Master, the student can continue his education by achieving a PhD, for which fellowships are available.

By prolonging the BA by a MA in Biochemistry and Molecular and Cellular Biology, Biology of organisms and Ecology, or Bioinformatics and Modelling, the student will address to one of the following careers:

- > Research (in companies, universities, public research institutions)
- > Teacher (secondary schools, higher non-university level)
- > Project manager for the conservation and management of natural resources, in NGOs, administrations and international institutions
- > Responsible for educational projects in the field of natural sciences in museums, ASBL, botanical gardens
- > Scientific advisor for the sale of products derived from biotechnology, pharmaceutical companies
- > Responsible for the monitoring of analyses (clinical, quality control, biodiversity, bioremediation, biosecurity, forensic, companies in biotechnology and genomics...)
- > Instructor in in-service training activities
- > Responsible for management, communication and/or in scientific publishing in a company (pharmaceutical, biotechnology, environmental technologies...) or a public institution
- > Etc....

Contacts

 Info.charleroi@ulb.be

 Info.charleroi@ulb.be

Jury President

Colin Van Dyck

Jury Secretary

Sophie BONNOT



Bachelor in Biology

Option Charleroi

During the BA, you will receive a double competence:

- > a **general education** in Mathematics, Physics, Chemistry and Earth sciences;
- > a **specific education** in Life sciences: Zoology, Botany, Ecology, Physiology, Genetics, Biochemistry, Cell biology, Molecular biology, Microbiology (viruses and bacteria).

The program covers two main topics:

- > **Biology of organisms.** It concerns with the knowledge and understanding of biological diversity, its evolution and its role in ecosystem functioning; therefore it studies the organization, physiology, and ecology of various types of organisms (animals, plants, fungi, micro-organisms);
- > **Molecular biology.** It deals with the understanding of biological phenomena through the study of molecules and cells constituting organisms. It also contributes to the study of pathologies (molecular causes and development of therapies).

The importance of these two topics is substantially equivalent (50/50%).

Bloc 1 | BA-BIOLC | BA-BIOL

Enseignements obligatoires

Ce programme est organisé en collaboration avec l'UMons (Université de Mons). Pour avoir accès au programme complet, veuillez consulter le site suivant : <https://web.umons.ac.be/fs/fr/formations/sciences-biologiques-3/>



BIOL-F1703	Biologie I Sophie BONNOT (Coordinator) ⌚ 6 credits [lecture: 40h, tutorial classes: 12h, practical work: 18h] 📅 first term 🗨️ French
BIOL-Y226	Projet interbloc en Biologie 1 Sophie BONNOT (Coordinator), Jean-Christophe DE BISEAU D'HAUTEVILLE and Pierrick UZUREAU ⌚ 2 credits [project: 24h] 📅 first and second terms 🗨️ French
CHIM-F1704	Chimie organique Jérémy ODENT ⌚ 6 credits [lecture: 32h, tutorial classes: 20h, practical work: 20h] 📅 second term 🗨️ French
CHIM-Y1708	Chimie générale I Damien Thiry ⌚ 10 credits [lecture: 60h, tutorial classes: 25h, practical work: 35h] 📅 first term 🗨️ French
MATH-Y1706	Bases mathématiques pour disciplines scientifiques (avec remise à niveau) Colin Van Dyck (Coordinator) ⌚ 5 credits [lecture: 30h, tutorial classes: 30h] 📅 first term 🗨️ French
PHYS-Y1707	Physique I Colin Van Dyck (Coordinator) ⌚ 8 credits [lecture: 60h, tutorial classes: 10h, practical work: 20h] 📅 first term 🗨️ French

Enseignements optionnels

Les étudiants sont priés de choisir un module de 23 crédits parmi les 4 modules repris ci-dessous



Module chimie

BIOL-F1716	Biologie II Denis LAFONTAINE (Coordinator) and Sophie BONNOT ⌚ 4 credits [lecture: 30h, tutorial classes: 10h, field trips: 10h] 📅 second term 🗨️ French
BMOL-Y110	Biochimie Sabrina BOUSBATA (Coordinator) ⌚ 1 credit [lecture: 15h] 📅 second term 🗨️ French
CHIM-Y200	Chimie générale II Jérémy ODENT ⌚ 6 credits [lecture: 35h, tutorial classes: 12h, practical work: 25h] 📅 second term 🗨️ French

MATH-Y200 **Outils mathématiques des sciences de la vie (Partie A)** | Colin Van Dyck (Coordinator)
 7 credits [lecture: 42h, tutorial classes: 42h]  second term  French



PHYS-Y200 **Physique II** | Colin Van Dyck (Coordinator)
 5 credits [lecture: 30h, tutorial classes: 10h, practical work: 20h]  second term  French

Module Pharma

BIOL-F1709 **Biochimie** | Sabrina BOUSBATA (Coordinator)
 3 credits [lecture: 29h, practical work: 10h]  second term  French



BIOL-F1710 **Botanique** | Pierre Jacques MEERTS (Coordinator), Sophie BONNOT and Jason VLEMINCKX
 5 credits [lecture: 30h, practical work: 32h]  second term  French

BIOL-F1712 **Anatomie / Embryologie** | Eric BELLEFROID (Coordinator), Xavier CATTEAU, Maud MARTIN and Daniel RADBATA
 4 credits [lecture: 42h, practical work: 14h]  second term  French



BIOL-F1717 **Biologie II** | Sophie BONNOT (Coordinator) and Denis LAFONTAINE
 5 credits [lecture: 30h, tutorial classes: 10h, field trips: 8h, personal assignments: 12h]  second term  French



CHIM-Y201 **Chimie générale II**
 6 credits [lecture: 35h, tutorial classes: 12h, practical work: 25h]  second term  French



Module Biomed

BIOL-F1709 **Biochimie** | Sabrina BOUSBATA (Coordinator)
 3 credits [lecture: 29h, practical work: 10h]  second term  French


BIOL-F1712 **Anatomie / Embryologie** | Eric BELLEFROID (Coordinator), Xavier CATTEAU, Maud MARTIN and Daniel RADBATA
 4 credits [lecture: 42h, practical work: 14h]  second term  French



BIOL-F1718 **Biologie II** | Sophie BONNOT (Coordinator) and Denis LAFONTAINE
 5 credits [lecture: 30h, tutorial classes: 10h, field trips: 8h, personal assignments: 12h]  second term  French


CHIM-Y201 **Chimie générale II**
 6 credits [lecture: 35h, tutorial classes: 12h, practical work: 25h]  second term  French



PHYS-Y200 **Physique II** | Colin Van Dyck (Coordinator)
 5 credits [lecture: 30h, tutorial classes: 10h, practical work: 20h]  second term  French



Module Biologie

BIOL-F1710 **Botanique** | Pierre Jacques MEERTS (Coordinator), Sophie BONNOT and Jason VLEMINCKX
 4 credits [lecture: 30h, practical work: 20h]  second term  French

BIOL-F1717 **Biologie II** | Sophie BONNOT (Coordinator) and Denis LAFONTAINE
 5 credits [lecture: 30h, tutorial classes: 10h, field trips: 8h, personal assignments: 12h]  second term  French

BMOL-Y110 **Biochimie** | Sabrina BOUSBATA (Coordinator)
 1 credit [lecture: 15h]  second term  French

CHIM-Y201 **Chimie générale II**
 6 credits [lecture: 35h, tutorial classes: 12h, practical work: 25h]  second term  French

MATH-Y200 **Outils mathématiques des sciences de la vie (Partie A)** | Colin Van Dyck (Coordinator)
 7 credits [lecture: 42h, tutorial classes: 42h]  second term  French



Bachelor in Biology

Option Charleroi

Bloc 2 | BA-BIOLC | BA-BIOL

Enseignements obligatoires

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- BIOL-F2702 **Métabolisme du carbone et de l'azote** | Baptiste LEROY
 ⌚ 5 credits [lecture: 30h, practical work: 20h] 📅 first term 🗨 French
- BIOL-F2703 **Physiologie et histologie animale** | Jacob SOUOPGUI (Coordinator), Sophie BONNOT and Anna Maria MARINI
 ⌚ 5 credits [lecture: 48h, practical work: 12h] 📅 first term 🗨 French
- BIOL-F2704 **Biologie cellulaire et moléculaire** | David PEREZ-MORGA (Coordinator), Sophie BONNOT, Sophie Bouchat and Dukas Jurénas
 ⌚ 8 credits [lecture: 40h, tutorial classes: 10h, practical work: 40h] 📅 first and second terms 🗨 French
- BIOL-F2705 **Microbiologie** | Laurence VAN MELDEREN (Coordinator) and Sophie Bouchat
 ⌚ 5 credits [lecture: 24h, tutorial classes: 8h, practical work: 24h] 📅 second term 🗨 French
- BIOL-Y204 **Anglais**
 ⌚ 5 credits [lecture: 24h, tutorial classes: 24h] 📅 academic year 🗨 French
- BIOL-Y205 **Bio-informatique et sciences des données I** | Raphaël CONOTTE
 ⌚ 5 credits [practical work: 70h] 📅 academic year 🗨 French
- BIOL-Y209 **Zoologie** | Guillaume CAULIER
 ⌚ 4 credits [lecture: 24h, practical work: 24h] 📅 first term 🗨 French
- BIOL-Y210 **Compléments de biochimie** | Sabrina BOUSBATA (Coordinator) and Abel GARCIA-PINO
 ⌚ 5 credits [lecture: 10h, tutorial classes: 40h] 📅 first term 🗨 French
- BIOL-Y230 **Projet interbloc en Biologie 2** | Sophie BONNOT (Coordinator), Jean-Christophe DE BISEAU D'HAUTEVILLE and Pierrick UZUREAU
 ⌚ 2 credits [project: 24h] 📅 first and second terms 🗨 French
- GEOL-F2700 **Sciences de la Terre et géobiologie** | Steeve BONNEVILLE (Coordinator), Sandra ARNDT, Karen FONTIJN, Nadine MATTIELLI and Pierre REGNIER
 ⌚ 5 credits [lecture: 15h, field trips: 36h] 📅 second term 🗨 French

An alternative chosen from the two following

Module de rattrapage pour les étudiants ayant suivi l'option BioMED en BAB1

- BIOL-F1710 **Botanique** | Pierre Jacques MEERTS (Coordinator), Sophie BONNOT and Jason VLEMINCKX
 ⌚ 4 credits [lecture: 30h, practical work: 20h] 📅 second term 🗨 French
- MATH-Y200 **Outils mathématiques des sciences de la vie (Partie A)** | Colin Van Dyck (Coordinator)
 ⌚ 7 credits [lecture: 42h, tutorial classes: 42h] 📅 second term 🗨 French



or

Module de rattrapage pour les étudiants ayant suivi l'option Biologie en BAB1

- BIOL-F1712 **Anatomie / Embryologie** | Eric BELLEFROID (Coordinator), Xavier CATTEAU, Maud MARTIN and Daniel RADBATA
 ⌚ 5 credits [lecture: 42h, practical work: 14h] 📅 second term 🗨 French

PHYS-Y200
(optional)

Physique II | Colin Van Dyck (Coordinator)

6 credits [lecture: 30h, tutorial classes: 10h, practical work: 20h]  second term  French



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Bloc 3 | BA-BIOLC | BA-BIOL

Programme

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- BIOL-F3701 **Génétique I** | Bruno ANDRE (Coordinator)
 5 credits [lecture: 24h, practical work: 24h] first and second terms French
- BIOL-F3702 **Neurosciences** | Maud MARTIN (Coordinator)
 5 credits [lecture: 24h, practical work: 10h] second term French
- BIOL-F3703 **Mécanismes et épistémologie de l'évolution** | Jean-Christophe DE BISEAU D'HAUTEVILLE (Coordinator)
 5 credits [lecture: 24h, practical work: 24h] first term French
- BIOL-F3704 **Immunologie et microbiologie** | Fabienne ANDRIS (Coordinator) and Laurence VAN MELDEREN
 5 credits [lecture: 24h, practical work: 24h] first and second terms French
- BIOL-F3705 **Biologie du développement** | Eric BELLEFROID (Coordinator)
 5 credits [lecture: 24h, practical work: 24h] first and second terms French
- BIOL-Y206 **Bio-informatique et sciences des données II** | Raphaël CONOTTE
 5 credits [practical work: 60h] academic year French
- BIOL-Y207 **Biodiversité, évolution et écologie** | Guillaume CAULIER
 5 credits [lecture: 36h, practical work: 24h] second term French
- BIOL-Y301 **Pharmaco-toxicologie** | Sébastien BOUTRY (Coordinator)
 5 credits [lecture: 24h, practical work: 24h] first term French
- BIOL-Y302 **Physiopathologie** | Laurence Ris
 5 credits [lecture: 50h, practical work: 10h] second term French
- BIOL-Y330 **Projet interbloc en Biologie 3** | Jean-Christophe DE BISEAU D'HAUTEVILLE (Coordinator), Sophie BONNOT and Pierrick UZUREAU
 4 credits [lecture: 48h] first and second terms French
- BIOL-Y331 **Interactions hôtes pathogènes** | Fabienne WILLEMS (Coordinator) and Eric MURAILLE
 5 credits [lecture: 12h, tutorial classes: 36h, practical work: 24h] second term French
- BMOL-F3700 **Méthodologie de biochimie, biologie cellulaire et moléculaire** | Guillaume OLDENHOVE (Coordinator) and Ruddy WATTIEZ
 6 credits [lecture: 12h, practical work: 48h] first and second terms French