



#### Programme mnemonic

BA-BIOL > Option *Bruxelles* : BA-BIOLB

**Exists also in**Option *Charleroi* : BA-BIOLC

**Studies level** Bachelor

Learning language french

**Schedule** office hours

#### Studies categories / subcategories

Sciences and technics / Agronomy and bioengineering and / Sciences

#### Campus

Plaine

### 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 (including dissections).
- > 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).

# Programme's added value

Each year of the program includes several modules of practical training in laboratories where the students learn how to perform experiments and analyze results.

The training includes excursions to conduct field studies (observation, exploration, collection, analysis...)

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In unit 2 and 3 a scientific training in English is provided.

In unit 2, computer training is provided.

Unit 1 comprises optional courses in earth and environmental sciences

In unit 3, students carry out a personal project of « Research and scientific communication ».

The ULB is internationally recognized for the excellence of its research teams in the field of Life Sciences.

The ULB has a Museum of Zoology (with the possibility of observation of living and preserved specimens) and an experimental botanical garden, freely available to students, and widely used in original teaching approaches.

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.

### Teaching methods

The education are divided into:

- > Lectures (48%)
- > Exercises (18%)
- > Lab work (24%)
- Personal work, including a project Research and scientific communication (8%)
- > Field works (3%).

### 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/studiesinfo-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 is internationally renowned. Thanks to the many agreements between the ULB 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, 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 nonuniversity 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

- 🔽 ba-biol@ulb.be
- https://sciences.ulb.be/departement-biologie-desorganismes

#### Jury Presidents

Cyril GUEYDAN (Bruxelles / bloc 1) and Jacob SOUOPGUI (Bruxelles / bloc 2 & 3)

#### **Jury Secretaries**

Christian HERMANS (Bruxelles / bloc 1) and Denis FOURNIER (Bruxelles / bloc 2 & 3)



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 (including dissections), Botany, Ecology, Physiology, Genetics, Biochemistry, Cell biology, Molecular biology, Microbiology (viruses and bacteria).

Theprogram 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-BIOLB BA-BIOL

## **Cours obligatoires**

BIOL-F103	Bases de la biologie des organismes   Martine VERCAUTEREN (Coordinator) and Karine VAN DONINCK 10 credits [lecture: 60h, tutorial classes: 24h, practical work: 24h, field trips: 12h] 🗂 academic year 📿 French
BIOL-F104	Bases moléculaires du vivant Cyril GUEYDAN (Coordinator), Mélanie BOECKSTAENS and Véronique KRUYS 10 credits [lecture: 64h, tutorial classes: 20h, practical work: 12h] 🛗 academic year 📿 French
CHIM-F101	Chimie générale   Laurence RONGY (Coordinator), François RENIERS and Thierry VISART DE BOCARME ② 15 credits [lecture: 84h, tutorial classes: 48h, practical work: 48h, project: 40h] 🛗 first and second terms 📿 French
CHIM-F102	Chimie organique 1       Cécile MOUCHERON (Coordinator)         ③ 5 credits [lecture: 30h, tutorial classes: 18h] <sup>(1)</sup> second term
ENVI-F1001	Sciences de la Terre, Environnement et Société   Pierre REGNIER (Coordinator), Jean-Michel DECROLY and Frank PATTYN ③ 5 credits [lecture: 48h, field trips: 12h]
MATH-F112	Mathématiques 1 Dimitri LEEMANS (Coordinator), Michele D'ADDERIO and Bruno PREMOSELLI ② 10 credits [lecture: 60h, tutorial classes: 60h]



# Bloc 2 | BA-BIOLB | BA-BIOL

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BIOL-F201	Evolution et diversité des eucaryotes : botanique   Pierre Jacques MEERTS (Coordinator) and Jason VLEMINCKX © 5 credits [lecture: 48h, practical work: 12h] 🛗 first and second terms 📿 French
BIOL-F202	Evolution et diversité des eucaryotes : métazoaires   Jean-Christophe DE BISEAU D'HAUTEVILLE (Coordinator) and Jean- François FLOT ② 5 credits [lecture: 60h] 📋 second term 📿 French
BIOL-F204	Microbiologie moléculaire et cellulaire   Laurence VAN MELDEREN (Coordinator) and Anne OP DE BEECK ② 5 credits [lecture: 36h] 📋 second term 📿 French
BIOL-F208	Biochimie et physiologie de la cellule   Vincent RAUSSENS (Coordinator), Véronique KRUYS and Maud MARTIN ② 5 credits [lecture: 60h]
BIOL-F209	Travaux pratiques de botanique et zoologie   Jean-Christophe DE BISEAU D'HAUTEVILLE (Coordinator), Jean-François FLOT, Pierre Jacques MEERTS and Jason VLEMINCKX ③ 5 credits [practical work: 60h] 📋 second term 📿 French
BIOL-F210	Evolution et diversité des bactéries et archées   Isabelle GEORGE (Coordinator) and Jean-François FLOT ② 5 credits [lecture: 32h, practical work: 16h]
BIOL-F211	Travaux pratiques de biochimie       Guillaume OLDENHOVE (Coordinator) and David PEREZ-MORGA         Image: Stredits [practical work: 48h]       Image: Stredits [practical work: 48h]
CHIM-F201	Chimie analytique 1   Thomas DONEUX (Coordinator) ② 5 credits [lecture: 24h, practical work: 36h]
LANG-F201	Anglais scientifique I Alexander CORNFORD (Coordinator), David Albert BEST and Hugh MURPHY ② 5 credits [tutorial classes: 48h] 📋 second term 🜻 English
MATH-F116	Mathématiques 2   Michele D'ADDERIO (Coordinator), Jennifer ALONSO GARCIA, Joel FINE and Laurent LA FUENTE-GRAVY ② 5 credits [lecture: 30h, tutorial classes: 30h] 📋 academic year 📿 French
PHYS-F205	Physique 2   Michel TYTGAT (Coordinator) and Michele SFERRAZZA

🕐 5 credits [lecture: 24h, tutorial classes: 14h, practical work: 22h] 🛛 🗂 first term 🛛 🔎 French

# Cours optionnels

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Choisir exactement 3 cours (un au bloc 2 et deux au bloc 3, dont au moins un des deux cours ETHI-F201 et/ou ETHI-F301)

One course chosei	n from the following
BIOL-F303	Laboratoires de biologie moléculaire   David PEREZ-MORGA (Coordinator) and Guillaume OLDENHOVE
(optional)	© 5 credits [practical work: 48h] 🛗 second term 🔎 French
BIOL-F304	Evolution et diversité des arthropodes et des vertébrés Vves ROISIN (Coordinator)
(optional)	© 5 credits [lecture: 28h, practical work: 28h, seminars: 4h] 🛱 second term 📿 French
BIOL-F305	Botanique, phytogéographie et ethnoécologie Farid DAHDOUH-GUEBAS (Coordinator)
(optional)	② 5 credits [lecture: 24h, practical work: 15h, field trips: 12h] 🛱 second term 🔉 English/French

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BIOL-F314	Projet de recherche et communication scientifique   Denis FOURNIER (Coordinator) and Louis DROOGMANS
(optional)	② 5 credits [project: 60h] 📋 academic year 📿 French
BIOL-F321	Spécificités du développement végétal   Mondher EL JAZIRI (Coordinator) and Marie BAUCHER
(optional)	② 5 credits [lecture: 24h, practical work: 24h] 🛗 first term 🜻 French
ETHI-F201	Sciences, éthique, histoire et société   Grégoire Wallenborn (Coordinator) and Eric MURAILLE
(optional)	② 5 credits [lecture: 48h] 🛗 second term 🔗 French
ETHI-F301	Science et Société : analyse de controverses scientifiques   Patrick MARDULYN (Coordinator) and Grégoire Wallenborr
(optional)	② 5 credits [lecture: 24h, project: 70h] 🛗 first term 🜻 French
INFO-F206	Informatique Olivier MARKOWITCH (Coordinator)
(optional)	② 5 credits [lecture: 24h, tutorial classes: 12h, project: 24h] 🛗 first term 🔎 French
PHYS-F105	La structure de l'univers Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ
(optional)	② 5 credits [lecture: 48h] 🗂 first term 🔎 French
PHYS-F517	How To Make (almost) Any Experiment Using Digital Fabrication Denis TERWAGNE (Coordinator)
(optional)	③ 5 credits [lecture: 24h, practical work: 24h]
TRAN-F201 (optional)	Introduction aux enjeux de la durabilité Wouter ACHTEN (Coordinator) and Chiara ARMENI



# Bloc 3 BA-BIOLB BA-BIOL

# Cours obligatoires

BIOL-F301	Physiologie et développement des plantes Nathalie VERBRUGGEN (Coordinator) ② 5 credits [lecture: 36h, practical work: 24h]             first and second terms
BIOL-F302	Génétique   Bruno ANDRE (Coordinator) ③ 5 credits [lecture: 30h, practical work: 24h]
BIOL-F308	Mécanismes de l'évolution biologique   Patrick MARDULYN (Coordinator) and Karine VAN DONINCK ② 5 credits [lecture: 48h, tutorial classes: 12h] 🛗 first term 🔎 French
BIOL-F309	Ecologie   Pierre Jacques MEERTS (Coordinator) and Jason VLEMINCKX ② 5 credits [lecture: 30h, practical work: 30h]
BIOL-F310	Biodiversité et conservation Bruno DANIS (Coordinator), Pierre Jacques MEERTS and Sonia VANDERHOEVEN ② 5 credits [lecture: 18h, tutorial classes: 18h, field trips: 24h] 🛗 first and second terms 🔎 French
BIOL-F318	Histolophysiologie et développement animal   Jacob SOUOPGUI (Coordinator), Eric BELLEFROID and Anna Maria MARINI ② 5 credits [lecture: 60h] 🛗 first term 🔎 French
BIOL-F322	Biotechnologies Benoît VANHOLLEBEKE (Coordinator) and Nathalie VERBRUGGEN ③ 5 credits [lecture: 48h] 🛗 second term 🔎 French
BIOL-F324	Physique bioinspirée       Denis TERWAGNE (Coordinator)         ③ 5 credits [lecture: 30h, practical work: 30h] <sup>(1)</sup> second term          ○ French
LANG-F301	Anglais scientifique II   Hugh MURPHY (Coordinator), David Albert BEST and Alexander CORNFORD ③ 5 credits [tutorial classes: 48h]   first term  Figlish
MATH-F316	Biogéostatistiques   Thomas VERDEBOUT (Coordinator) ② 5 credits [lecture: 30h, tutorial classes: 24h] 🛗 second term 🔗 French

# Cours optionnels

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Choisir exactement 3 cours (un au bloc 2 et deux au bloc 3, dont au moins un des deux cours ETHI-F-201 et/ou ETHI-F-301)

Two courses chosen from the following		
BIOL-F303	Laboratoires de biologie moléculaire David PEREZ-MORGA (Coordinator) and Guillaume OLDENHOVE	
(optional)	② 5 credits [practical work: 48h] 📋 second term 💭 French	
BIOL-F304	Evolution et diversité des arthropodes et des vertébrés Vves ROISIN (Coordinator)	
(optional)	② 5 credits [lecture: 28h, practical work: 28h, seminars: 4h] 🛗 second term 🔗 French	
BIOL-F305	Botanique, phytogéographie et ethnoécologie   Farid DAHDOUH-GUEBAS (Coordinator)	
(optional)	② 5 credits [lecture: 24h, practical work: 15h, field trips: 12h] 🛗 second term 👂 English/French	
BIOL-F314	Projet de recherche et communication scientifique Denis FOURNIER (Coordinator) and Louis DROOGMANS	
(optional)	© 5 credits [project: 60h] 📋 academic year 🔎 French	
BIOL-F320 (optional)	Travaux pratiques d'histophysiologie et développement animal   Eric BELLEFROID (Coordinator), Anna Maria MARINI and Jacob SOUOPGUI         ③ 5 credits [practical work: 48h]	

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BIOL-F321	Spécificités du développement végétal   Mondher EL JAZIRI (Coordinator) and Marie BAUCHER
(optional)	② 5 credits [lecture: 24h, practical work: 24h]
ETHI-F201	Sciences, éthique, histoire et société   Grégoire Wallenborn (Coordinator) and Eric MURAILLE
(optional)	② 5 credits [lecture: 48h] 📋 second term 🔎 French
ETHI-F301	Science et Société : analyse de controverses scientifiques   Patrick MARDULYN (Coordinator) and Grégoire Wallenborn
(optional)	② 5 credits [lecture: 24h, project: 70h] 🛱 first term 🔎 French
INFO-F206	Informatique Olivier MARKOWITCH (Coordinator)
(optional)	② 5 credits [lecture: 24h, tutorial classes: 12h, project: 24h] 🛗 first term 🔎 French
PHYS-F105	La structure de l'univers Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ
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PHYS-F517	How To Make (almost) Any Experiment Using Digital Fabrication   Denis TERWAGNE (Coordinator)
(optional)	② 5 credits [lecture: 24h, practical work: 24h] 🛗 first term 📿 French
TRAN-F201	Introduction aux enjeux de la durabilité   Wouter ACHTEN (Coordinator) and Chiara ARMENI

🕑 5 credits [lecture: 24h] 🛛 🛗 second term 🛛 💬 French

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