Bachelor in Biology
Option Bruxelles

The 2023-2024 programme is subject to change. It is provided for information purposes only.

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'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...)
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**

**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 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 scientific publishing in a company (pharmaceutical, biotechnology, environmental technologies...) or a public institution
- Etc.…

**Contacts**

- ba-biol@ulb.be

**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)
Bachelor in Biology
Option Bruxelles

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).

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, microorganisms);
- **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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Coordinator(s)</th>
<th>Credits</th>
<th>Lecture Hours</th>
<th>Tutorial Classes</th>
<th>Practical Work</th>
<th>Project</th>
<th>Terms</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL-F103</td>
<td><strong>Bases de la biologie des organismes</strong></td>
<td>Martine VERCAUTEREN (Coordinator) and Karine VAN DONINCK</td>
<td>10</td>
<td>60h</td>
<td>24h</td>
<td>24h</td>
<td>12h</td>
<td>academic year</td>
<td>French</td>
</tr>
<tr>
<td>BIOL-F104</td>
<td><strong>Bases moléculaires du vivant</strong></td>
<td>Cyril GUEYDAN (Coordinator), Mélanie BOECKSTAENS and Véronique KRUYS</td>
<td>10</td>
<td>64h</td>
<td>20h</td>
<td>12h</td>
<td></td>
<td>academic year</td>
<td>French</td>
</tr>
<tr>
<td>CHIM-F101</td>
<td><strong>Chimie générale</strong></td>
<td>Laurence RONGY (Coordinator), François RENIERS and Thierry VISART DE BOCARME</td>
<td>15</td>
<td>84h</td>
<td>48h</td>
<td>48h</td>
<td>40h</td>
<td>first and second terms</td>
<td>French</td>
</tr>
<tr>
<td>CHIM-F102</td>
<td><strong>Chimie organique 1</strong></td>
<td>Cécile MOUCHERON (Coordinator)</td>
<td>5</td>
<td>30h</td>
<td>18h</td>
<td></td>
<td></td>
<td>second term</td>
<td>French</td>
</tr>
<tr>
<td>ENVI-F1001</td>
<td><strong>Sciences de la Terre, Environnement et Société</strong></td>
<td>Pierre REGNIER (Coordinator), Jean-Michel DECROLY and Frank PATTYN</td>
<td>5</td>
<td>48h</td>
<td>12h</td>
<td></td>
<td></td>
<td>first and second terms</td>
<td>French</td>
</tr>
<tr>
<td>MATH-F112</td>
<td><strong>Mathématiques 1</strong></td>
<td>Dimitri LEEMANS (Coordinator), Michele D'ADDERIO and Bruno PREMOSELLI</td>
<td>10</td>
<td>60h</td>
<td>60h</td>
<td></td>
<td></td>
<td>first and second terms</td>
<td>French</td>
</tr>
<tr>
<td>PHYS-F104</td>
<td><strong>Physique 1</strong></td>
<td>Barbara CLERBAUX (Coordinator), Sébastien CLESSE and Michele SFERRAZZA</td>
<td>5</td>
<td>40h</td>
<td>20h</td>
<td></td>
<td></td>
<td>first term</td>
<td>French</td>
</tr>
</tbody>
</table>
Cours obligatoires

- **BIOL-F201**  
  *Evolution et diversité des eucaryotes : botanique*  
  Pierre Jacques MEERTS (Coordinator) and Jason VLEMINCKX  
  5 credits  
  1st and 2nd terms  
  French

- **BIOL-F202**  
  *Evolution et diversité des eucaryotes : métazoaires*  
  Jean-Christophe DE BISEAU D’HAUTEVILLE (Coordinator) and Jean-François FLOT  
  5 credits  
  2nd term  
  French

- **BIOL-F204**  
  *Microbiologie moléculaire et cellulaire*  
  Laurence VAN MELDEREN (Coordinator) and Anne OP DE BEECK  
  5 credits  
  2nd term  
  French

- **BIOL-F208**  
  *Biochimie et physiologie de la cellule*  
  Vincent RAUSSENS (Coordinator), Véronique KRUYS and Maud MARTIN  
  5 credits  
  2nd term  
  French

- **BIOL-F209**  
  *Travaux pratiques de botanique et zoologie*  
  Jean-Christophe DE BISEAU D’HAUTEVILLE (Coordinator), Jean-François FLOT, Pierre Jacques MEERTS and Jason VLEMINCKX  
  5 credits  
  2nd term  
  French

- **BIOL-F210**  
  *Evolution et diversité des bactéries et archées*  
  Isabelle GEORGE (Coordinator) and Jean-François FLOT  
  5 credits  
  1st term  
  French

- **BIOL-F211**  
  *Travaux pratiques de biochimie*  
  Guillaume OLDENHOVE (Coordinator) and David PEREZ-MORGA  
  5 credits  
  1st term  
  French

- **CHIM-F201**  
  *Chimie analytique 1*  
  Thomas DONEUX (Coordinator)  
  5 credits  
  1st term  
  French

- **LANG-F201**  
  *Anglais scientifique I*  
  Alexander CORNFORD (Coordinator), David Albert BEST and Hugh MURPHY  
  5 credits  
  2nd term  
  English

- **MATH-F116**  
  *Mathématiques 2*  
  Michele D’ADDERIO (Coordinator), Jennifer ALONSO GARCIA, Julie DE SAEDELEER and Joel FINE  
  5 credits  
  Academic year  
  French

- **PHYS-F205**  
  *Physique 2*  
  Michel TYTGAT (Coordinator) and Michele SFERRAZZA  
  5 credits  
  First term  
  French

Cours optionnels

- **BIOL-F303**  
  *Laboratoires de biologie moléculaire*  
  David PEREZ-MORGA (Coordinator) and Guillaume OLDENHOVE  
  5 credits  
  2nd term  
  French

- **BIOL-F304**  
  *Evolution et diversité des arthropodes et des vertébrés*  
  Yves ROISIN (Coordinator)  
  5 credits  
  2nd term  
  French

- **BIOL-F305**  
  *Botanique, phytogéographie et ethnoécologie*  
  Farid DAHDOUH-GUEBAS (Coordinator)  
  5 credits  
  2nd term  
  English/French

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)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Coordinator(s)</th>
<th>Credits [lectures, practical work, project]</th>
<th>Term</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL-F314</td>
<td>Projet de recherche et communication scientifique</td>
<td>Denis FOURNIER (Coordinator) and Louis DROOGMANS</td>
<td>5 credits [project: 60h]</td>
<td>academic year</td>
<td>French</td>
</tr>
<tr>
<td>BIOL-F321</td>
<td>Spécificités du développement végétal</td>
<td>Mondher EL JAZIRI (Coordinator) and Marie BAUCHER</td>
<td>5 credits [lecture: 24h, practical work: 24h]</td>
<td>first term</td>
<td>French</td>
</tr>
<tr>
<td>ETHI-F201</td>
<td>Sciences, éthique, histoire et société</td>
<td>Grégoire Wallenborn (Coordinator) and Eric MURAILLE</td>
<td>5 credits [lecture: 48h]</td>
<td>second term</td>
<td>French</td>
</tr>
<tr>
<td>ETHI-F301</td>
<td>Science et Société : analyse de controverses scientifiques</td>
<td>Patrick MARDULYN (Coordinator) and Grégoire Wallenborn</td>
<td>5 credits [lecture: 24h, project: 70h]</td>
<td>first term</td>
<td>French</td>
</tr>
<tr>
<td>INFO-F206</td>
<td>Informatique</td>
<td>Olivier MARKOWITCH (Coordinator)</td>
<td>5 credits [lecture: 24h, tutorial classes: 12h, project: 24h]</td>
<td>first term</td>
<td>French</td>
</tr>
<tr>
<td>PHYS-F105</td>
<td>La structure de l’univers</td>
<td>Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ</td>
<td>5 credits [lecture: 48h]</td>
<td>first term</td>
<td>French</td>
</tr>
<tr>
<td>PHYS-F517</td>
<td>How To Make (almost) Any Experiment Using Digital Fabrication</td>
<td>Denis TERWAGNE (Coordinator)</td>
<td>5 credits [lecture: 24h, practical work: 24h]</td>
<td>first term</td>
<td>French</td>
</tr>
<tr>
<td>TRAN-F201</td>
<td>Introduction aux enjeux de la durabilité</td>
<td>Wouter ACHTEN (Coordinator) and Chiara ARMENI</td>
<td>5 credits [lecture: 24h]</td>
<td>second term</td>
<td>French</td>
</tr>
</tbody>
</table>
**Cours obligatoires**

**BIOL-F301**  
Physiologie et développement des plantes | Nathalie VERBRUGGEN (Coordinator)  
5 credits [lecture: 36h; practical work: 24h]  
first and second terms  
French

**BIOL-F302**  
Génétique | Bruno ANDRE (Coordinator)  
5 credits [lecture: 30h; practical work: 24h]  
first term  
French

**BIOL-F308**  
Mécanismes de l'évolution biologique | Patrick MARDULYN (Coordinator) and Karine VAN DONINCK  
5 credits [lecture: 48h, tutorial classes: 12h]  
French

**BIOL-F309**  
Ecologie | Pierre Jacques MEERTS (Coordinator) and Jason VLEMINCKX  
5 credits [lecture: 30h, practical work: 30h]  
French

**BIOL-F310**  
Biodiversité et conservation | Bruno DANIS (Coordinator), Pierre Jacques MEERTS and Sonia VANDERHOEVEN  
5 credits [lecture: 18h, field trips: 24h]  
French

**BIOL-F318**  
Histolophysiologie et développement animal | Jacob SOUOPGUI (Coordinator), Eric BELLEFROID and Anna Maria MARINI  
5 credits [lecture: 60h]  
second term  
French

**BIOL-F322**  
Biotechnologies | Benoît VANHOLLEBEKE (Coordinator) and Nathalie VERBRUGGEN  
5 credits [lecture: 48h]  
second term  
French

**BIOL-F324**  
Physique bioinspirée | Denis TERWAGNE (Coordinator)  
5 credits [lecture: 30h, practical work: 30h]  
French

**LANG-F301**  
Anglais scientifique II | Hugh MURPHY (Coordinator), David Albert BEST and Alexander CORNFORD  
5 credits [tutorial classes: 48h]  
first term  
English

**MATH-F316**  
Biogéostatistiques | Thomas VERDEBOUT (Coordinator)  
5 credits [lecture: 30h, tutorial classes: 24h]  
second term  
French

**Cours optionnels**

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** (optional)  
Laboratoires de biologie moléculaire | David PEREZ-MORGÀ (Coordinator) and Guillaume OLDENHOVE  
5 credits [lecture: 48h]  
second term  
French

**BIOL-F304** (optional)  
Evolution et diversité des arthropodes et des vertébrés | Yves ROISIN (Coordinator)  
5 credits [lecture: 28h, practical work: 28h, seminars: 4h]  
second term  
French

**BIOL-F305** (optional)  
Botanique, phytogéographie et ethnoécologie | Farid DAHDOUH-GUEBAS (Coordinator)  
5 credits [lecture: 24h, practical work: 15h, field trips: 12h]  
second term  
English/French

**BIOL-F314** (optional)  
Projet de recherche et communication scientifique | Denis FOURNIER (Coordinator) and Louis DROOGMANS  
5 credits [project: 60h]  
academic year  
French

**BIOL-F320** (optional)  
Travaux pratiques d'histophysiole et développement animal | Eric BELLEFROID (Coordinator), Anna Maria MARINI and Jacob SOUOPGUI  
5 credits [practical work: 48h]  
second term  
French
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Coordinator(s)</th>
<th>Credits</th>
<th>Terms</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL-F321</td>
<td>Spécificités du développement végétal</td>
<td>Mondher EL JAZIRI (Coordinator) and Marie BAUCHER</td>
<td>5</td>
<td>first</td>
<td>French</td>
</tr>
<tr>
<td>ETHI-F201</td>
<td>Sciences, éthique, histoire et société</td>
<td>Grégoire Wallenborn (Coordinator) and Eric MURAILLE</td>
<td>5</td>
<td></td>
<td>French</td>
</tr>
<tr>
<td>ETHI-F301</td>
<td>Science et Société : analyse de controverses scientifiques</td>
<td>Patrick MARDULYN (Coordinator) and Grégoire Wallenborn</td>
<td>5</td>
<td>first</td>
<td>French</td>
</tr>
<tr>
<td>INFO-F206</td>
<td>Informatique</td>
<td>Olivier MARKOWITCH (Coordinator)</td>
<td>5</td>
<td>first</td>
<td>French</td>
</tr>
<tr>
<td>PHYS-F105</td>
<td>La structure de l'univers</td>
<td>Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ</td>
<td>5</td>
<td>first</td>
<td>French</td>
</tr>
<tr>
<td>PHYS-F517</td>
<td>How To Make (almost) Any Experiment Using Digital Fabrication</td>
<td>Denis TERWAGNE (Coordinator)</td>
<td>5</td>
<td>first</td>
<td>French</td>
</tr>
<tr>
<td>TRAN-F201</td>
<td>Introduction aux enjeux de la durabilité</td>
<td>Wouter ACHTEN (Coordinator) and Chiara ARMENI</td>
<td>5</td>
<td>second</td>
<td>French</td>
</tr>
</tbody>
</table>