



Bachelor in Bioengineering

Programme mnemonic

BA-IRBI

Studies level

Bachelor

Learning language

french

Schedule

office hours

Studies categories / subcategories

Sciences and technics / Agronomy and bioengineering and / Sciences and technics

Campus

Plaine and Solbosch

Programme objectives

Bioengineers are engineers of living matter and the environment. They are important in today's society to formulate and solve problems related to sustainable development, natural resources, climate change, GMOs, food security and the ethical questions all these problems raise. Bioengineers possess a large action radius in these matters.

The pluridisciplinarity of bioengineering studies allows students to develop the necessary creativity and all-roundness to operate with ease in a wide variety of engineering professions – creation, conception, production, optimization – as well as in biological, agronomical and environmental research.

Programme's added value

At the ULB, the Interfaculty School of Bioengineering depends on both the Faculty of Sciences and the Polytechnics School of Brussels. This hybrid status guarantees a multidisciplinary teaching enabling students to get in touch with a variety of sciences in general and engineering sciences in particular.

Learning by doing, through the implementation of projects in group, with coaching by a dedicated tutor, gets a lot of attention. On top of the help of professors and their assistants, each student can count on the support of a coaching teams organized per

discipline. Stays abroad are offered at the Master's level but the study programs are tailored to the student's profile already at the end of the Bachelor,

Bioengineers of the ULB benefit from an enabling environment that is uniquely hybrid, between sciences and engineering, within a pluridisciplinary university in the heart of the capital of Europe and close to the European institutions. The combination of teachings from the Faculty of Sciences and the Polytechnics School of Brussels gives students a headstart toward the renowned versatility of this degree.

Over the course of the year students:

- > experience team work to carry out projects with the help and advice of a tutor;
- > get help from lecturers and teaching assistants and guidance from a special support unit specialized in a particular area.

Students will be able to make use of:

- > a specific and practical laboratory for most subjects;
- > the different department libraries;
- > the central university libraries and, in particular, the library of sciences and techniques
- > computer rooms.

Teaching methods

From the first year on, the study program alternates between different teaching methods (from ex cathedra theoretical teaching to project development). About half of the study credits are acquired through projects, exercises, personal assignments and laboratory work and the other half consist of theory. Excursions are organized as well.

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

A period of study in foreign country with a programme adapted to each individual profile is organized during the Master.

The principle of this study programme abroad is to attend the courses abroad that are more or less identical to those not attended at the home university during the intended period. Since this exchange programme is reciprocal, foreign students are entitled to attend our courses as well. These exchanges are extremely beneficial for all involved students.

All teaching is organized by and at the ULB

Job opportunities

The Bachelor of Bioengineering gives access to three distinct Masters in Bioengineering: agronomy, chemistry and bio-industry, and environmental technologies. Each one of those Master's degrees gives access to a variety of economic sectors, such as:

- > Industry-related: chemical, agro-food or pharmaceutical industries, biotechnologies, informatics
- > Agronomy, agriculture and agroecology
- > Environmental management
- > Public sector and international organizations and NGOs (regional, national, European, international)
- > Consultancy

- > Development aid
- > Research (universities, public and private)
- > Teaching (secondary and higher education)

If students wish to reorient themselves to other Masters, the Bachelor of Bioengineer gives access to several alternatives.

If the student prolongs the Bachelor's degree in Bioengineering with a Master's degree in Bioengineering, (s)he will thrive in a variety of professions:

- > Bio-industrial engineering (research and development, production, marketing,...)
- > Environmental engineering (consultancy, administrations, research,...)
- > Agricultural engineering, soil and water management (consultancy, administrations, research, development aid (NGOs, administrations, ...))

Contacts

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 <https://bioing.ulb.be/>

Jury Presidents

Cyril GUEYDAN (bloc 1) and Isabelle GEORGE (bloc 2 & 3)

Jury Secretaries

Christian HERMANS (bloc 1) and Axel Coussement (bloc 2 & 3)



Bachelor in Bioengineering


The teaching covers four areas

- > A general background in sciences: mathematics, chemistry, physics, biology (general, zoology and botany), informatics;
- > Engineering sciences: transport phenomena, applied thermodynamics, electricity and electronics, chemical engineering, modeling;
- > Bioengineering sciences: agronomy, biochemistry and molecular biology, earth and soil science, environmental technologies
- > Humanities, in particular languages and an optional course in epistemology and business economics

The courses are taught ex cathedra and through the implementation of concrete projects. About half of the teaching volume consists of projects, exercises and laboratory work. The other half consists of theoretical teaching. Excursions are organized as well.

Bloc 1 | BA-IRBI

























Cours obligatoires

BING-F1001	Sciences de la terre et du bioingénieur, environnement et société Pierre REGNIER (Coordinator), Charles DE CANNIERE, Jean-Michel DECROLY, Christian HERMANS, Frank PATTYN and Alizée Roobaert 5 credits [lecture: 48h, seminars: 12h]  first term  French
BIOL-F105	Biologie générale Martine VERCAUTEREN (Coordinator), Mélanie BOECKSTAENS, Cyril GUEYDAN, Véronique KRUYIS and Karine VAN DONINCK 10 credits [lecture: 94h, tutorial classes: 6h, practical work: 20h]  first and second terms  French
CHIM-F101	Chimie générale Laurence RONGY (Coordinator), François RENIERS and Thierry VISART DE BOCARME 15 credits [lecture: 84h, tutorial classes: 48h, practical work: 52h, project: 40h]  first and second terms  French
CHIM-F102	Chimie organique 1 Cécile MOUCHERON (Coordinator) 5 credits [lecture: 30h, tutorial classes: 18h]  second term  French
MATH-F112	Mathématiques 1 Dimitri LEEMANS (Coordinator), Michele D'ADDERIO and Bruno PREMOSELLI 10 credits [lecture: 60h, tutorial classes: 60h]  first and second terms  French
MATH-F115	Compléments d'analyse et algèbre linéaire Joel FINE (Coordinator), Michele D'ADDERIO and Laurent LA FUENTE-GRAVY 5 credits [lecture: 30h, tutorial classes: 24h]  second term  French
PHYS-H101	Connaissances fondamentales et éléments de physique Yves LOUIS (Coordinator) and Marc HAELTERMAN 10 credits [lecture: 68h, tutorial classes: 40h, practical work: 12h]  first and second terms  French

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Cours obligatoires

- BING-F202** [Agro-écosystèmes et systèmes agraires](#) | Marjolein VISSER (Coordinator) and Amaury Beaugendre
 5 credits [lecture: 36h]  second term  French
- 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
 5 credits [lecture: 60h]  second term  French
- BIOL-F208** [Biochimie et physiologie de la cellule](#) | Vincent RAUSSENS (Coordinator), Véronique KRUYSS and Maud MARTIN
 5 credits [lecture: 60h]  first 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 [practical work: 60h]  second term  French
- CHIM-F201** [Chimie analytique 1](#) | Thomas DONEUX (Coordinator)
 5 credits [lecture: 24h, practical work: 36h]  first term  French
- ELEC-H201** [Electricité et électronique](#) | Frédéric ROBERT (Coordinator) and Johan GYSELINCK
 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 24h]  second term  French
- GEOLOG-F2001** [Introduction à la minéralogie et à la pédologie](#) | Steeve BONNEVILLE (Coordinator) and Thomas DROUET DE LA THIBAUDERIE
 5 credits [lecture: 28h, practical work: 12h, field trips: 12h]  first term  French
- INFO-F206** [Informatique](#) | Olivier MARKOWITZ (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 12h, project: 24h]  first term  French
- LANG-F201** [Anglais scientifique I](#) | Alexander CORNFORD (Coordinator), David Albert BEST and Hugh MURPHY
 5 credits [tutorial classes: 48h]  second term  English
- MATH-F215** [Mécanique](#) | Mélanie BERTELSON (Coordinator)
 5 credits [lecture: 30h, tutorial classes: 30h]  second term  French
- MECA-H301** [Systèmes énergétiques : principes de bases et technologies durables](#) | Axel Coussement (Coordinator) and Alessandro PARENTE
 5 credits [lecture: 30h, tutorial classes: 14h, practical work: 16h]  first term  French

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Bloc 3 | BA-IRBI

Cours obligatoires

- BING-F3004 **Anglais scientifique et épistémologie des sciences** | Céline KERMISCH (Coordinator), Alexander CORNFORD and Hugh MURPHY
 5 credits [lecture: 36h, tutorial classes: 24h] first and second terms English
- BING-F301 **Microbiologie générale et environnementale** | Isabelle GEORGE (Coordinator), Sigrid FLAHAUT and Cécile Thonar
 5 credits [lecture: 36h, practical work: 24h] second term French
- BING-F406 **Gestion de projet et projet de recherche** | Dimitri GILIS (Coordinator), Nathalie GYPENS, Christian HERMANS and Patrick SIMON
 5 credits [lecture: 24h, project: 36h] academic year French
- BIOL-F301 **Physiologie et développement des plantes** | Nathalie VERBRUGGEN (Coordinator)
 5 credits [lecture: 36h, practical work: 24h] first and second terms French
- BIOL-F309 **Ecologie** | Pierre Jacques MEERTS (Coordinator) and Jason VLEMINCKX
 5 credits [lecture: 30h, practical work: 30h] first term French
- BIOL-F323 **Génétique: aspects fondamentaux et appliqués** | Bruno ANDRE (Coordinator) and Benoît VANHOLLEBEKE
 5 credits [lecture: 42h] academic year French
- CHIM-H302 **Pollution du milieu physique** | Michel VERBANCK (Coordinator) and Gilles BRUYLANTS
 5 credits [lecture: 40h, tutorial classes: 8h, practical work: 12h] second term French
- CHIM-H314 **Introduction au génie des procédés** | Benoît HAUT (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 24h, practical work: 12h] second term French
- MATH-F316 **Biogéostatistiques** | Thomas VERDEBOUT (Coordinator)
 5 credits [lecture: 30h, tutorial classes: 24h] second term French
- MATH-H302 **Introduction à l'analyse complexe et au calcul numérique** | Artem NAPOV (Coordinator) and Michel KINNAERT
 5 credits [lecture: 24h, tutorial classes: 30h] first term French
- MECA-H3001 **Fluid mechanics and transfer processes** | Alessandro PARENTE (Coordinator), Frédéric DEBASTE and Richard ESSEX
 5 credits [lecture: 30h, tutorial classes: 24h] first term English

A total of five credits chosen from the following

- BING-F306 (optional) **Travaux pratiques en Biochimie et Biologie Moléculaire** | Guillaume OLDENHOVE (Coordinator) and David PEREZ-MORGA
 5 credits [practical work: 48h] second term French
- ENVI-F454 (optional) **Energie: Société et environnement** | Michel HUART (Coordinator) and Nadine MATTIELLI
 5 credits [lecture: 30h, practical work: 12h, project: 24h] first term French
- ETHI-F201 (optional) **Sciences, éthique, histoire et société** | Grégoire Wallenborn (Coordinator) and Eric MURAILLE
 5 credits [lecture: 48h] second term French
- ETHI-F301 (optional) **Science et Société : analyse de controverses scientifiques** | Patrick MARDULYN (Coordinator) and Grégoire Wallenborn
 5 credits [lecture: 24h, project: 70h] first term French
- PHYS-F517 (optional) **How To Make (almost) Any Experiment Using Digital Fabrication** | Denis TERWAGNE (Coordinator)
 5 credits [lecture: 24h, practical work: 24h] first term French

