



Bachelor in Computer science

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

Programme mnemonic

BA-INFO

Studies level

Bachelor

Learning language

french

Schedule

office hours

Studies category / subcategory

Sciences and technics / Sciences

Campus

Plaine and Solbosch

Programme's added value

Learning activities are illustrated by lots of examples and case studies **directly related to the research areas of the teaching staff**, effectively preparing the student for the 2nd cycle of study.

Every block includes **individual and group projects** and a **transversal project** developing the student's the capacity to **exploit the skills and knowledge** and to **present his/her results with appropriate arguments**.

Each academic year, the student has to follow elective courses in **other scientific disciplines**.

Teaching methods

The Bachelor programme alternates between **lectures, practicals, and projects** (individual or group).

Programme objectives

At the end of the study cycle, the student will so have acquired:

- The capacity to **develop an IT project**, thanks to the various lectures in **programming, algorithmics and software engineering**
- The mastery of **major computing topics**, in particular operating systems and computers architecture, algorithmics, databases, software engineering, networking, programming languages and the bio-informatics
- The capacity to **search information** and to inquire and to **express himself/herself** both in French and in English, thanks to the language courses and to the various essays, homeworks and projects
- The capacity to develop **auto-learning** strategies and **adapt** in order to **maintain a high level** of knowledge and the ability to **use computing tools**
- Open-mindedness to other disciplines, according to personal tastes or the desire to begin **further studies** (biology and biochemistry related to bioinformatics, electronics, economics and management, systems administration...)

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

If you so wish, you may spend one or more terms at universities abroad.

Job opportunities

The main objective of the programme is to provide general and specific skills in the field of computer science, as described in the learning outcomes, with the aim of allowing **direct continuation to graduated studies**, mainly **the Master's degree in computing sciences**, even if the Bachelor's degree can also lead to other paths of study or be valued in a professional career.

In particular, depending on their choice of elective courses, the graduates have direct access to the **Master's degree in bioinformatics and modelling** or the **Master degree in Cybersecurity**.

For university IT graduates, most career opportunities will open after completing a **Master's degree** in the domain.

Contacts

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Bachelor in Computer science

The programme helps students acquire the **technical know-how** and **fundamental scientific knowledge** in computer science, as well as **general skills**, in particular technical English language and an introduction to **other scientific disciplines**.

The studies are organized around two main focuses:

- > A basic training in **fundamental and theoretical computer science**, as well as in the **related scientific and mathematical matters**
- > A **project-based learning** leading to the acquisition of the practical and technical skills in computing

Bloc 1 | BA-INFO

Cours obligatoires

Méthodes, systèmes et projets 1

INFO-F102 **Fonctionnement des ordinateurs** | Gilles GEERAERTS (Coordinator)
⌚ 5 credits [lecture: 36h, practical work: 12h] 📅 first term 🗨️ French

INFO-F106 **Projets d'informatique 1** | Gwenaël JORET (Coordinator) and Tom LENAERTS
⌚ 5 credits [practical work: 12h, project: 120h] 📅 academic year 🗨️ French

Programmation et structure de données 1

INFO-F101 **Programmation** | Thierry MASSART (Coordinator)
⌚ 10 credits [lecture: 36h, tutorial classes: 36h, practical work: 24h, project: 60h] 📅 first term 🗨️ French

INFO-F103 **Algorithmique 1** | Olivier MARKOWITCH (Coordinator) and Bernard FORTZ
⌚ 10 credits [lecture: 36h, tutorial classes: 36h, practical work: 24h, project: 60h] 📅 second term 🗨️ French

INFO-F105 **Langages de programmation 1** | Christophe PETIT (Coordinator)
⌚ 5 credits [lecture: 24h, practical work: 24h, project: 30h] 📅 second term 🗨️ French

Autres disciplines et compétences générales 1

MATH-F114 **Algèbre linéaire et arithmétique** | Michele D'ADDERIO
⌚ 5 credits [lecture: 30h, tutorial classes: 24h] 📅 second term 🗨️ French

MATH-F117 **Mathématiques**
⌚ 10 credits [lecture: 60h, tutorial classes: 60h] 📅 academic year 🗨️ French

PHYS-F103 **Physique** | Alain JORISSEN (Coordinator)
⌚ 5 credits [lecture: 36h, tutorial classes: 24h] 📅 second term 🗨️ French

Cours optionnels

A total of five credits chosen from the following

BIOL-F102 (optional) **Biologie générale** | Patrick MARDULYN (Coordinator) and Etienne MEYLAN
⌚ 5 credits [lecture: 48h] 📅 second term 🗨️ French

ENVI-F1001 (optional) **Sciences de la Terre, Environnement et Société** | Pierre REGNIER (Coordinator), Jean-Michel DECROLY and Frank PATTYN
⌚ 5 credits [lecture: 48h] 📅 first and second terms 🗨️ French







PHYS-F105 (optional) **La structure de l'univers** | Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ
⌚ 5 credits [lecture: 48h] 📅 first term 🗨️ French

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Bloc 2 | BA-INFO

Cours obligatoires



Méthodes, systèmes et projets 2

- INFO-F201 **Systèmes d'exploitation** | Joël GOOSSENS (Coordinator) and Olivier MARKOWITCH
 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 12h, project: 30h]  first term  French
- INFO-F204 **Analyse et méthodes** | Christian HERNALSTEEN (Coordinator)
 5 credits [lecture: 36h, tutorial classes: 12h, practical work: 12h]  first term  French
- INFO-F209 **Projets d'informatique 2** | Joël GOOSSENS (Coordinator) and Christian HERNALSTEEN
 10 credits [practical work: 12h, project: 270h]  first and second terms  French





Programmation et structure de données 2

- INFO-F202 **Langages de programmation 2** | John IACONO (Coordinator)
 5 credits [lecture: 24h, practical work: 24h, project: 30h]  first term  French
- INFO-F203 **Algorithmique 2** | Jean CARDINAL (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 24h, project: 30h]  second term  French
- INFO-H303 **Bases de données** | Esteban ZIMANYI (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 24h, practical work: 12h]  second term  French

Outils formels et numériques 2

- INFO-F205 **Calcul formel et numérique** | Maarten JANSEN (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 24h, project: 30h]  second term  French
- MATH-F307 **Mathématiques discrètes** | Samuel FIORINI (Coordinator)
 5 credits [lecture: 36h, tutorial classes: 24h]  first term  French
- MATH-F315 **Probabilités et statistiques** | Jennifer ALONSO GARCIA (Coordinator) and Thomas VERDEBOUT
 5 credits [lecture: 30h, tutorial classes: 30h]  first term  French

Autres disciplines et compétences générales 2

- ETHI-F201 **Sciences, éthique, histoire et société** | Grégoire Wallenborn (Coordinator) and Eric MURAILLE
 5 credits [lecture: 48h]  second term  French
- LANG-F201 **Anglais scientifique I** | Alexander CORNFORD (Coordinator)
 5 credits [tutorial classes: 48h]  second term  English

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Bloc 3 | BA-INFO


Cours obligatoires

Systèmes distribués



INFO-F303 **Réseaux, information et communications** | Guy LEDUC (Coordinator) and Christophe PETIT
 5 credits [lecture: 42h, tutorial classes: 16h]  first term  French



Gestion des données et des projets logiciels



INFO-F307 **Génie logiciel et gestion de projets** | Frédéric PLUQUET (Coordinator)
 10 credits [lecture: 24h, practical work: 7h, project: 89h]  second term  French

INFO-F311 **Intelligence artificielle** | Tom LENAERTS (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 12h, project: 60h]  first term  French



Outils formels et numériques 2

INFO-F302 **Informatique fondamentale** | Emmanuel FILIOT (Coordinator)
 5 credits [lecture: 36h, tutorial classes: 12h, project: 30h]  first term  French

INFO-F305 **Modélisation et simulation** | Gianluca BONTEMPI (Coordinator)
 5 credits [lecture: 30h, tutorial classes: 24h, project: 6h]  first term  French

INFO-F310 **Algorithmique et recherche opérationnelle** | Bernard FORTZ (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 24h, project: 30h]  second term  French

Autres disciplines et compétences générales 3



INFO-F308 **Projets d'informatique 3 transdisciplinaire** | Matthieu DEFRANCE (Coordinator)
 10 credits [practical work: 24h, project: 240h]  first and second terms  French


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


Cours optionnels

A total of ten credits chosen from the following

CHIM-F208 **Biochimie 1** | Cyril GUEYDAN (Coordinator) and Véronique KRUYSS
 5 credits [lecture: 60h]  first term  French

ECON-S1001 **Introduction à la microéconomie et à la macroéconomie** | P.-Guillaume MEON (Coordinator), Renaud FOUCART and Julien RAVET
 15 credits [lecture: 72h, tutorial classes: 48h]  academic year  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

ELEC-H310 **Digital electronics** | Dragomir MILOJEVIC (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 24h]  second term  English

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

GEST-D447 (optional) **Principes généraux d'organisation et de gestion** | Philippe SCIEUR (Coordinator)
⌚ 5 credits [lecture: 24h] 📅 first term 🗨️ French

GEST-S101 (optional) **Comptabilité financière** | Laurent GHEERAERT (Coordinator) and Gilles GEVERS
⌚ 5 credits [lecture: 36h, tutorial classes: 8h] 📅 second term 🗨️ French

One course chosen from the following

HULB-0000 (optional) **Cours externe à l'Université**
⌚ 5 credits 📅 academic year

HULB-0000 (optional) **Cours externe à l'Université**
⌚ 10 credits 📅 academic year

INFO-F309 (optional) **Administration de systèmes** | Sébastien COLLETTE (Coordinator)
⌚ 5 credits [lecture: 24h, practical work: 24h, project: 30h] 📅 second term 🗨️ French

PHYS-F317 (optional) **How To Make (almost) Any Experiment Using Digital Fabrication** | Denis TERWAGNE (Coordinator)
⌚ 5 credits [lecture: 24h, practical work: 36h] 📅 first term 🗨️ French

One course chosen from the following

TEMP-0000 (optional) **Cours extérieurs au programme**
⌚ 5 credits 📅 academic year 🗨️ French

TEMP-0000 (optional) **Cours extérieurs au programme**
⌚ 10 credits 📅 academic year 🗨️ French

TRAN-F201 (optional) **Introduction aux enjeux de la durabilité** | Wouter ACHTEN (Coordinator) and Chiara ARMENI
⌚ 5 credits [lecture: 24h, project: 24h] 📅 second term 🗨️ French

