



BA-INFO | 2024-2025

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 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...)

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).

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

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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Jury President Thierry MASSART

Jury Secretary Gwenaël JORET



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

Programmation et structure de données 1

- INFO-F103
 Algorithmique 1 Olivier MARKOWITCH (Coordinator) and Bernard FORTZ

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Autres disciplines et compétences générales 1

MATH-F117 Mathématiques O 10 credits [lecture: 60h, tutorial classes: 60h] Cardemic year

 PHYS-F103
 Physique | Alain JORISSEN (Coordinator)

 ③ 5 credits [lecture: 36h, tutorial classes: 24h]
 🗎 second term
 \bigcirc French

Cours optionnels

A total of five credits chosen from the following

BIOL-F102	Biologie générale Patrick MARDULYN (Coordinator) and Etienne MEYLAN
(optional)	② 5 credits [lecture: 48h] 🖞 second term 🜻 French
ENVI-F1001	Sciences de la Terre, Environnement et Société Pierre REGNIER (Coordinator), Jean-Michel DECROLY and Frank PATTYN
(optional)	Ø 5 credits [lecture: 48h] 📋 first and second terms 🔎 French
PHYS-F105 (optional)	La structure de l'univers Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ



Bachelor in Computer science

Bloc 2 | BA-INFO

Cours obligatoires

	Méthodes, systèmes et projets 2
INFO-F201	Systèmes d'exploitation Joël GOOSSENS (Coordinator) and Olivier MARKOWITCH ② 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 12h, project: 30h] 🛗 first term 📿 French
INFO-F204	Analyse et méthodes Christian HERNALSTEEN (Coordinator) ② 5 credits [lecture: 36h, tutorial classes: 12h, practical work: 12h] ⁽¹⁾ first term ⁽²⁾ French
INFO-F209	Projets d'informatique 2 Joël GOOSSENS (Coordinator) and Christian HERNALSTEEN ◎ 10 credits [practical work: 12h, project: 270h]
	Programmation et structure de données 2
INFO-F202	Langages de programmation 2 John IACONO (Coordinator) ② 5 credits [lecture: 24h, practical work: 24h, project: 30h]
INFO-F203	Algorithmique 2 Jean CARDINAL (Coordinator) ② 5 credits [lecture: 24h, tutorial classes: 24h, project: 30h]
INFO-H303	Bases de données Esteban ZIMANYI (Coordinator) ② 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) ② 5 credits [lecture: 24h, tutorial classes: 24h, project: 30h] 🛗 second term 🔎 French
MATH-F307	Mathématiques discrètes Samuel FIORINI (Coordinator) ③ 5 credits [lecture: 36h, tutorial classes: 24h]
MATH-F315	Probabilités et statistiques Jennifer ALONSO GARCIA (Coordinator) and Thomas VERDEBOUT ② 5 credits [lecture: 30h, tutorial classes: 30h]
	Autres disciplines et compétences générales 2
ETHI-F201	Sciences, éthique, histoire et société Grégoire Wallenborn (Coordinator) and Eric MURAILLE ② 5 credits [lecture: 48h] 🛗 second term 🔎 French
LANG-F201	O 5 credits [tutorial classes: 48h]



Bachelor in Computer science

Bloc 3 | BA-INFO

Cours obligatoires

	Systèmes distribués
INFO-F303	Réseaux, information et communications Guy LEDUC (Coordinator) and Jean CARDINAL ③ 5 credits [lecture: 42h, tutorial classes: 16h]
	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) ③ 5 credits [lecture: 24h, tutorial classes: 24h, project: 80h]
	Outils formels et numériques 2
INFO-F302	Informatique fondamentale Emmanuel FILIOT (Coordinator) 5 credits [lecture: 36h, tutorial classes: 12h, project: 30h] first term
INFO-F305	Modélisation et simulation Gianluca BONTEMPI (Coordinator) ③ 5 credits [lecture: 30h, tutorial classes: 24h, project: 6h]
INFO-F310	Algorithmique et recherche opérationnelle Bernard FORTZ (Coordinator) ③ 5 credits [lecture: 24h, tutorial classes: 24h, project: 30h]
	Autres disciplines et compétences générales 3
INFO-F308	Projets d'informatique 3 transdisciplinaire Matthieu DEFRANCE (Coordinator) ③ 10 credits [practical work: 24h, project: 240h] first and second terms French
LANG_E301	Applais scientifique II Hugh MURDHY (Coordinator) and Alexander CODMEORD

ANG-F301Anglais scientifique II | Hugh MURPHY (Coordinator) and Alexander CORNFORDImage: Original Scientific Science (Latorial classes: 48h]Image: Science (Latorial classes: 48h]Image: Original Science (Latorial classes: 48h]Image: Science (Latorial classes: 48h]Image: Original Science (Latorial classes: 48h]Image: Science (Latorial classes: 48h]

Cours optionnels

- A total of ten credits chosen from the following	
CHIM-F208 (optional)	Biochimie 1 Cyril GUEYDAN (Coordinator) and Véronique KRUYS ② 5 credits [lecture: 60h]
ECON-S1001 (optional)	Introduction à la microéconomie et à la macroéconomie PGuillaume MEON (Coordinator), Renaud FOUCART and Julien RAVET ② 15 credits [lecture: 72h, tutorial classes: 48h] 📋 academic year 🜻 French
ELEC-H201 (optional)	Electricité et électronique Frédéric ROBERT (Coordinator) and Johan GYSELINCK ③ 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 24h]
ELEC-H310 (optional)	Digital electronics Dragomir MILOJEVIC (Coordinator)

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ETHI-F301 (optional)	Science et Société : analyse de controverses scientifiques Patrick MARDULYN (Coordinator) and Grégoire Wallenborn ② 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]
GEST-S101 (optional)	Comptabilité financière Laurent GHEERAERT (Coordinator) and Gilles GEVERS ② 5 credits [lecture: 36h, tutorial classes: 8h] 📋 second term 📿 French
One course cho	sen from the following
HULB-0000 (optional)	O 5 credits Image: Course a l'Université
HULB-0000 (optional)	Cours externe à l'Université ⊙ 10 credits
INFO-F309 (optional)	Administration de systèmes Sébastien COLLETTE (Coordinator) ③ 5 credits [lecture: 24h, practical work: 24h, project: 30h]
PHYS-F317 (optional)	How To Make (almost) Any Experiment Using Digital Fabrication Denis TERWAGNE (Coordinator) ③ 5 credits [lecture: 24h, practical work: 36h] 👚 first term 🔎 French
One course cho	sen from the following
TEMP-0000 (optional)	Cours extérieurs au programme ∅ 5 credits ⁽¹⁾ academic year
TEMP-0000 (optional)	Cours extérieurs au programme ② 10 credits
TRAN-F201	Introduction aux enjeux de la durabilité Wouter ACHTEN (Coordinator) and Chiara ARMENI

 Introduction aux enjeux de la durabilité | Wouter ACHTEN (Con

 ② 5 credits [lecture: 24h, project: 24h]

 ☐ second term
 ○ French