





## SINF1BA - Teaching profile

### Learning outcomes

---

#### General objectives

This bachelor's programme offers a general approach to computer science in the context of basic university training. The bachelor's programme leads to the title of "Bachelor of Computer Science" and upon completion of this first cycle of studies, the student will be granted access to the master's programme in Computer Science.

This university-level training in computer science prepare future specialists capable of creating and elaborating complex and efficient computing systems that satisfy the numerous and ever-increasing needs in our society. It thus trains "software creators" rather than pure programmers. More specifically, the bachelor's programme in computer science aims at the acquisition of the following technical competences and skills :

- Gaining an in-depth understanding of the basic essentials needed to design and implement simple software systems;
- Mastering the underlying foundations of computer science;
- Developing the reasoning and abstraction abilities necessary for the creation of such systems;
- Mastering the mathematical skills needed to carry out such reasoning;
- Acquisition of the knowledge and skills necessary for the future " master's in computer science" which will be orientated towards the engineering of more complex software system;
- Acquisition of a lasting 'know-how', readily adaptable to the continuously evolving field of computer science; learning how to learn.

Computer science comprises the theoretical knowledge and practical skills needed to develop and understand complex software systems. In addition to this technical and more applied knowledge, to become a professional computer scientist, the student has to develop some extra skills such as a creative ability and critical mindset. These studies also train students to become responsible young professionals, capable of apprehending the complex socio-economic world into which computing science is embedded, and to take

4. communicate effectively in French orally and in writing to carry out the projects, use cleverly technical documents in English and understand the information transmitted orally in English

- Identify the needs of the customer who has a basic computer science culture: questioning, listening and understanding the client, keeping in mind the existence of non-technical dimensions;
- Argue and convince while adapting his communication to the language of the interlocutors: colleagues, clients, superiors;
- Communicate in graphical and schematic form, interpret a diagram, present the results of a task, structuring information;
- Read, analyse and use technical documentation (diagrams, tutorials, ...);
- Prepare written documents taking into account contextual requirements and social conventions (manual, documentation, project report);
- Make a persuasive oral presentation using modern communication techniques.

5. demonstrate both rigorous, open and critical mind in his work

- Apply the standards of its discipline (terminology, quality standards in terms of documentation and programming methods, ...);
- Demonstrate critical attitude with respect to a technical solution, checking robustness and relevance in its context of use;
- Develop autonomously learning to remain competent in his field.

## Programme structure

---

The student who enrolls in the bachelor's programme in Computer Science will follow a programme of 180 credits, usually spread over 3 years. This programme includes a major of 150 credits and a minor of 30 credits.

- The major consists of a set of polyvalent courses of 79 credits in total and a set of Computer Science courses of 71 credits. The general polyvalent formation comprises a solid training in Economics, Management and Human Sciences (28 credits) as well as in Mathematics (32 credits).
- Regarding the minor, UCL university proposes a large variety of minors in sciences (statistics, scientific culture,...) as well as in human sciences (philosophy, economy,...). For more details, please consult the following web-page : <https://uclouvain.be/programme-mineures.html>. Whereas, some minors are freely accessible by any student, some others are subject to certain accessibility conditions. When a student would like to access a minor but encounters certain problems, he or she is advised to contact his or her student counsellor.





				Year		
				1	2	3
○ LINFO1115	Reasoning about a highly connected world: graph theory, game theory and networks 📄	Peter Van Roy	EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly			x
○ LINFO1101	Introduction to programming	Kim Mens Siegfried Nijssen Charles Pecheur	EN [q1] [30h+30h] [5 Credits] 🌐	x		
○ LINFO1103	Introduction to algorithms	Guillaume Derval (compensates Pierre Dupont)	EN [q2] [30h+30h] [5 Credits] 🌐	x		
○ LINFO1104	Programming language concepts 📄	Peter Van Roy	EN [q2] [30h+30h] [5 Credits] 🌐			

## List of available minors

---

Besides the core study, students will choose:

- the Additional module in Computer Science
- or one of the minors in the list below.

- > [Minor in Law \(access\)](#) [*en-prog-2023-minadroi*]
- > [Minor in Urban Architecture](#) [*en-prog-2023-minarch*]
- > [Minor in Information and Communication](#) [*en-prog-2023-mincomu*]
- > [Minor in Culture and Creation](#) [*en-prog-2023-mincucrea*]
- > [Minor in Scientific Culture](#) [*en-prog-2023-mincults*]



## Course prerequisites

---

The **table** below lists the activities (course units, or CUs) for which there are one or more prerequisites within the programme, i.e. the programme CU for which the learning outcomes must be certified and the corresponding credits awarded by the jury before registering for that CU.

These activities are also identified **in the detailed programme**: their title is followed by a yellow square.

### Prerequisites and student's annual programme

As the prerequisite is for CU registration purposes only, there are no prerequisites within a programme year. Prerequisites are defined between CUs of different years and therefore influence the order in which the student will be able to register for the programme's CUs.

In addition, when the jury validates a student's individual programme at the beginning of the year, it ensures its coherence, meaning that it may:

- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.
- transform a prerequisite into a corequisite if the student is in the final year of a degree course.

For more information, please consult the [Academic Regulations and Procedures](https://uclouvain.be/fr/decouvrir/rgee.html) (<https://uclouvain.be/fr/decouvrir/rgee.html>).

---

### # Prerequisites list

**LANGL1282** "Anglais pour informaticiens II" has prerequisite(s) LANGL1181

- LANGL1181 - English for Computer Scientists I

**LBIR1212** "Probabilities and statistics (I)" has prerequisite(s)



⌘ LALLE1101	German beginner's level 1st part (0-A1)	Fanny Desterbecq (compensates Ann Rinder)	⌘ [q1 or q2] [45h] [2 Credits] 🌐
⌘ LALLE1102	German beginner's level 2nd part (A1 - A2)	Caroline Klein (coord.)	⌘ [q2] [45h] [2 Credits] 🌐

**⌘ Spanish Courses**

⌘ LESPA1101	
-------------	--





**SINF1BA - 3RD ANNUAL UNIT**

- Mandatory
- ✘ Optional
- △ Not offered in 2023-2024
- ⊖ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

Click on the course title to see detailed informations (objectives, methods, evaluation...)

**o Core study****o General and training****o Mathematics**

● LEPL1109	<a href="#">Statistics and data sciences</a>	Donatien Hainaut Laurent Jacques	[FR] [q1] [30h +30h] [5 Credits] 🌐
------------	--	-------------------------------------	---

**o Scientific and technical Courses**

● LELEC1930	<a href="#">Intoduction to telecommunication</a> ■	Jérôme Louveaux	[FR] [q2] [30h +15h] [5 Credits] 🌐
-------------	--	-----------------	---

**o Human Sciences, Economy, and Managment Courses**

● LEPL1805	<a href="#">People management</a>	Bauduin Auquier Philippe Henrotaux Renaud Ronsse	[FR] [q1] [22.5h +15h] [3 Credits] 🌐
------------	-----------------------------------	--	---

**o Cours de langues****o English Courses**

● LANGL1383	<a href="#">h1 0 9.35700035 T9forScience</a>
-------------	--

⌘ LSST1001

## SINF1BA - Information

### Access Requirements

Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.

The admission requirements must be met prior to enrolment in the University.

**In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.**

#### SUMMARY

- [General access requirements](#)
- [Specific access requirements](#)
- [Access based on validation of professional experience](#)
- [Special requirements to access some programmes](#)

### General access requirements

Except as otherwise provided by other specific legal provisions, admission to undergraduate courses leading to the award of a Bachelor's degree will be granted to students with one of the following qualifications :

1. A Certificate of Upper Secondary Education issued during or after the 1993-1994 academic year by an establishment offering full-time secondary education or an adult education centre in the French Community of Belgium and, as the case may be, approved if it was issued by an educational institution before 1 January 2008 or affixed with the seal of the French Community if it was issued after this date, or an equivalent certificate awarded by the Examination Board of the French Community during or after 1994;
2. A Certificate of Upper Secondary Education issued no later than the end of the 1992-1993 academic year, along with official documentation attesting to the student's ability to pursue higher education for students applying for a full-length undergraduate degree programme;
3. A diploma awarded by a higher education institution within the French Community that confers an academic degree issued under the above-mentioned Decree, or a diploma awarded by a university or institution dispensing full-time higher education in accordance with earlier legislation;
4. A higher education certificate or diploma awarded by an adult education centre;
5. A pass certificate for one of the [entrance examinations](https://uclouvain.be/fr/etudier/inscriptions/examens-admission.html) (https://uclouvain.be/fr/etudier/inscriptions/examens-admission.html) organized by higher education institutions or by an examination board of the French Community; this document gives admission to studies in the sectors, fields or programmes indicated therein;
6. A diploma, certificate of studies or other qualification similar to those mentioned above, issued by the Flemish Community of Belgium, the German Community of Belgium or the Royal Military Academy;
7. A diploma, certificate of studies or other qualification obtained abroad and deemed equivalent to the first four mentioned above by virtue of a law, decree, European directive or international convention;

#### Note:

Requests for equivalence must be submitted to the Equivalence department ([Service des équivalences](#)) of the Ministry of Higher Education and Scientific Research of the French Community of Belgium in compliance with the official deadline.

The following two qualifications are automatically deemed equivalent to the Certificate of Upper Secondary Education (Certificat d'enseignement secondaire supérieur – CESS):

- European Baccalaureate issued by the Board of Governors of a European School,
- International Baccalaureate issued by the International Baccalaureate Office in Geneva.

8. Official documentation attesting to a student's ability to pursue higher education (diplôme d'aptitude à accéder à l'enseignement supérieur - DAES), issued by the Examination Board of the French Community.

### Specific access requirements

- Access to bachelor programmes for candidates of nationality outside the European Union who are not assimilated to Belgian nationals is subject to the following criteria:
  - not have obtained a secondary education diploma for more than 3 years maximum. Example: for an admission application for the academic year 2023-2024, you must have obtained your diploma during the academic years 2020-2021, 2021-2022 ou 2022-2023. In the French Community of Belgium, the academic year runs from September 14 to September 13
  - not already hold an undergraduate degree
- Candidates, whatever their nationality, with a secondary school diploma **from a country outside the European Union**, must have obtained an average of 13/20 minimum or, failing that, have obtained this average, have passed one year of study in Belgium (for example special Maths / sciences). A non-successful year will not be taken into consideration.



- For any secondary school diploma **from a European Union country**, the admission request must contain the equivalence of your diploma or, at the very least, proof of the filing of the equivalence request with the Wallonia-Brussels Federation (French Community of Belgium). For any information relating to obtaining an equivalence, please refer to [the following site](#).
- For any secondary school diploma **from a country outside the European Union**, the admission application must contain the [equivalence of your diploma](#)





