

At Louvain-la-Neuve - 180 credits - 3 years - Day schedule - In French

Dissertation/Graduation Project : **NO** - Internship : **NO**

Activities in English: **YES** - Activities in other languages : **NO**

Activities on other sites : **NO**

Main study domain : **Sciences**

Organized by: **Faculty of Science (SC)**

Programme acronym: **PHYS1BA** - Francophone Certification Framework: 6

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PHYS1BA - Introduction

Introduction

Introduction

The physicist possesses great capacities of reasoning and abstraction. He/she continually asks questions about the physical world around him/her in order to understand how it works. He/she observes, makes assumptions, formalizes concepts, and writes and solves the equations governing them in order to confront them with observations and experience. Thanks to his/her thorough and versatile scientific training, he/she contributes to the great challenges of the Society of today and tomorrow. He/she is involved in cutting-edge research and the resolution of important questions related to the genesis and evolution of the Universe, the fundamental interactions between elementary particles, quantum optics, statistical physics, origins of the Earth, global climate change, sustainable development, energy choices, etc.

The skills developed by the physicist as part of his/her training, including his/her ability to model and characterize large data sets, can be valued in many professions specific to the realms of today's physics, such as the supraconductivity, instrumentation and metrology,

PHYS1BA - Teaching profile

Learning outcomes

Understanding, explaining and applying the foundations of the scientific method and the fundamental laws of physics are the challenges that the student enrolled in the Bachelor in physics is preparing to meet in order to mobilize his/her knowledge and skills to follow the Master [120] in physics.

At the end of this programme, the student will have acquired a basic knowledge of the fundamental laws of physics and the basic concepts of mathematics necessary for the study of physics. He/she will be able to solve physics problems using mathematical and

Communicate in French and English as part of his academic training.

6.1 Read and understand scientific texts in French and English (C1 CEFR level).

6.2 Follow a scientific presentation in English (level B2 CEFR).

6.3 Orally present a topic in a structured way in French and / or English.

6.4 Write scientific reports in a structured way and cite the sources correctly.

6.5 Use a variety of media and computer tools to communicate and explain scientific concepts and results.

Programme structure

The programme leading to the Bachelor degree in physics consists of (1) a general training called major in physics (150 credits) and (2) either an additional module in physics (30 credits) or a minor or additional module in another discipline (30 credits). It is spread over three annual units of 60 credits each and allows you to address the main topics of today's physics and acquire the knowledge and skills necessary to start a Master [120] in physics. It includes many practicals (exercises, laboratories and personal or group projects) and gives you the opportunity to carry out a research work.

The programme of the major in physics includes:

- a basic training in physics (34 credits);
- an advanced training in physics (35 credits);
- a specialized training in physics (12 credits);
- a training in mathematics (38 credits);
- a training in digital and instrumental techniques, data science and computer science (15 credits);
- a training in chemistry (5 credits);
- a training in languages (English) and human sciences (11 credits).

				Year		
				1	2	3
○ LPHYS1221	Electromagnetism 1	Gwenhaël de Wasseige Vincent Lemaitre	PR [q1] [52.5h+52.5h] [10 Credits]		x	

○ Advanced training in physics (31 credits)

○ LPHYS1213	Physics of fluids	Eric Deleersnijder Vincent Legat	PR [q2] [37.5h+30h] [5 Credits]		x	
○ LPHYS1231						

● LANG1863	English for Students in Sciences (Upper-Intermediate level)	Ahmed Adriouèche
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List of available minors

In addition to the major in physics, the student has three possibilities :

- opting for the additional module in physics ;
- opting for a minor or additional module offered by
 - the Faculty of Sciences :
 - Minor in mathematics
 - Minor in geography
 - Minor in scientific culture
 - Additional module in statistics and data sciences

- the Louvain School of Engineering :

NB : The choice of such a minor must be done in concertation with the study advisers of the School of Physics and Louvain School of Engineering

- • Minor in computer sciences
 - Minor in engineering sciences : applied mathematics
 - Minor in engineering sciences : mechanics
 - Minor in engineering sciences : applied chemistry and physics
 - Minor in engineering sciences : electricity
 - Minor in engineering sciences : biomedical
 - Minor in engineering sciences: construction
- opting for one of the following minors proposed by the Sector of Human Sciences :
 - Minor in culture and creation
 - Minor in sustainable development (*this program is subject to access criteria*)
 - Minor in the study of the kind

- > [Minor in Culture and Creation](#) [en-prog-2024-mincucrea]
- > [Minor in Scientific Culture](#) [en-prog-2024-mincults]
- > [Minor : Issues of Transition and Sustainable Development \(*\)](#) [en-prog-2024-mindd]
- > [Minor in Gender Studies](#) [en-prog-2024-mingenre]
- > [Minor in Geography](#) [en-prog-2024-mingeog]
- > [Minor in Computer Sciences](#) [en-prog-2024-minsinf]
- > [Additionnal module in Physics](#) [en-prog-2024-apphys]
- > [Approfondissement en statistique et sciences des données](#) [en-prog-2024-appstat]
- > [Minor in numerical technologies and society](#) [en-prog-2024-minstic]
- > [Minor in Mechanics](#) [en-prog-2024-lminomeca]
- > [Minor in Construction](#) [en-prog-2024-lminogce]
- > [Minor in Electricity](#) [en-prog-2024-lminoelec]
- > [Minor in Applied Chemistry and Physics](#) [en-prog-2024-minofyki]
- > [Minor in Applied Mathematics](#) [en-prog-2024-lminomap]
- > [Minor in Mathematics](#) [en-prog-2024-minmath]
- > [Mineure Polytechnique](#) [en-prog-2024-minpoly]

(*) *This programme is the subject of access criteria*

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.

o Training in mathematics

o LMAT1121

PHYS1BA - 2ND ANNUAL UNIT

- Mandatory
- ✂ Optional
- △ Not offered in 2024-2025
- ⊖ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 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 Majeure

○ LANG1862	English: reading and listening comprehension of scientific texts 📄	Ahmed Adriouche (coord.) Catherine Avery Ariane Halleux (coord.) Adrien Kefer (compensates) Amandine Dumont	ES [q1] [30h] [2 Credits] 🌐
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○ Religious sciences

The student chooses one teaching unit among

⌘ LTECO2100	Sociétés, cultures, religions : Biblical readings	Hans Ausloos	ES [q1] [15h] [2 Credits] 🌐
⌘ LTECO2200	Societies-cultures-religions : Human Questions	Pedro Dusabamahoro Valinho Gomes	ES [q1] [15h] [2 Credits] 🌐
⌘ LTECO2300	Societies, cultures, religions : Ethical questions	Marcela Lobo Bustamante	ES [q1] [15h] [2 Credits] 🌐

○ Minor or additional module

The student completes his/her training by choosing either the annual module in physics, or a minor or additional module in the list proposed for the Bachelor in physics, for a total of 30 credits. He/she distributes the teaching units according to the following model: 10 credits during the second semester of the second annual unit, 10 or 15 credits during the first semester of the third annual unit and 10 or 5 credits during the second semester of the third annual unit. Maximum 1 element(s)

PHYS1BA - 3RD ANNUAL UNIT

- Mandatory
- ✂ Optional
- △ Not offered in 2024-2025
- ⊖ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 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 Majeure

● LANG1863	English for Students in Sciences (Upper-Intermediate level)	Ahmed Adriouche (coord.) Catherine Avery (coord.) Amandine Dumont (coord.) Sandrine Jacob (coord.) Adrien Kefer (compensates) Amandine Dumont Nevin Serbest Florence Simon (coord.) Françoise Stas Marine Volpe	EN [q1 or q2] [30h] [2]
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- 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](#) issued by the Wallonia-Brussels Federation (French Community of Belgium). If you have a restrictive equivalence for the programme of your choice, in addition of it, you **must** have either the [DAES](#) or a certificate of successful completion of the [examination giving access to 1st cycle studies](#) when you submit your application

Access based on validation of professional experience

Admission to undergraduate studies on the basis of accreditation of knowledge and skills obtained through professional or personal experience (Accreditation of Prior Experience)

Subject to the general requirements laid down by the authorities of the higher education institution, with the aim of admission to the undergraduate programme, the examination boards accredit the knowledge and skills that students have obtained through their professional or personal experience.

This experience must correspond to at least five years of documented activity, with years spent in higher education being partially taken into account: 60 credits are deemed equivalent to one year of experience, with a maximum of two years being counted. At the end of an assessment procedure organized by the authorities of the higher education institution, the Examination Board will decide whether a student has sufficient skills and knowledge to successfully pursue undergraduate studies.

After this assessment, the Examination Board will determine the additional courses and possible exemptions constituting the supplementary requirements for the student's admission.

Special requirements to access some programmes

- Admission to **undergraduate studies in engineering: civil engineering and architect**

Pass certificate for the [special entrance examination for undergraduate studies in engineering: civil engineering and architect](#).

Admission to these courses is always subject to students passing the special entrance examination. Contact the faculty office for the programme content and the examination arrangements.

- Admission to **undergraduate studies in veterinary medicine**

[Admission to undergraduate studies in veterinary medicine is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses \(non-residents\)](#).

- Admission to **undergraduate studies in physiotherapy and rehabilitation**

[Admission to undergraduate studies in physiotherapy and rehabilitation is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses \(non-residents\)](#).

- Admission to **undergraduate studies in psychology and education: speech and language therapy**

[Admission to undergraduate studies in psychology and education: speech and language therapy is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses \(non-residents\)](#).

- Admission to **undergraduate studies in medicine and dental science**

[Admission to undergraduate studies in medicine and dental science is governed by the Decree of 16 June 2006 regulating the number of students in certain higher education undergraduate courses \(non-residents\)](#).

Note: students wishing to enrol for a **Bachelor's degree in Medicine** or a **Bachelor's degree in dental science** must first sit an [aptitude test \(fr\)](#).

- Access to **Bachelor of Science in Business Engineering**

The Bachelor of Science in Business Engineering is a joint program organised by KU Leuven and UCLouvain Saint-Louis Bruxelles. In order to register, all candidate must first submit an application via the [KU Leuven admission platform](#). The [conditions of access](#) to this programme are specific.

Teaching method

During the first annual unit :

- Sessions are organized around working method issues such as how to approach different subjects and time management.
- Tutorials allow students to take stock of the subjects presented at the courses: teachers in each discipline answer questions and explain the less understood concepts.
- Compulsory tests are organized one month after the start of classes in the first semester.

During the three annual units :

- Exercise and laboratory sessions are organized in small groups and supervised by assistants. Some practicals are subject to knowledge checks at the beginning of the session and reports to be written at the end of the session.
- Personal and / or group work is planned for certain activities.
- Websites are associated with most teaching units : useful information for the student is deposited there.

Evaluation

The evaluation methods comply with the [regulations concerning studies and exams](#). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

Different modalities are implemented for the assessment of the knowledge and skills acquired during the training; they are adapted to the types of services: continuous evaluation, notably for the practicals, evaluation of the personal and group work, and global evaluation (written and / or oral) during the exam sessions.

Acronym

PHYS

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<https://uclouvain.be/fr/facultes/sc/phys>

Academic supervisor: [Vincent Lemaître](#)

Jury

- President: [Christian Walmsley Hagendorf](#)
- Secretary: [Christophe Delaere](#)
- Study advisor: [Clément Lauzin](#)

Useful Contact(s)

- Administrative manager for the student's annual program: [Nathalie Micha](#)

