UCLouvain

UCL Study programme 2026 - 2027

Minor in Physics

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MINPHYS - Introduction

Introduction

Introduction

The minor in physics offers additional training in physics that facilitates access to the Master [120] in Physics and the Master [60] in Physics

MINPHYS - Teaching profile

Learning outcomes

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 numerical tools, to analyze physical phenomena using experimental techniques, to model simple physical systems, to apply a scientific approach and to argument with rigor. He.she will have developed skills in self-reliance, communication and teamwork.

On successful completion of this programme, each student is able to :

1. Demonstrate a thorough knowledge of the fundamental laws of physics and master and use the basic concepts of mathematics.

1.1 Explain the basic concepts of general physics, microscopic physics, statistical physics, macroscopic physics, theoretical and mathematical physics, experimental physics, and numerical simulation in physics.
1.2 Use the basic tools of mathematical analysis, algebra, geometry and statistics.
1.3 Recognize the fundamental concepts of scientific theories.
1.4 Apply physical and mathematical theories to solve a problem.
1.5 Adequately employ the basic principles of experimental physics: measurements and their uncertainties, measuring instruments, basic data processing by computer tools.
1.6 Explain a measurement method.
1.7 Model simple systems and predict their evolution using numerical methods, including computer simulations.
1.8 Reconstitute the historical evolution of the basic concepts of physics.

2. Demonstrate methodological, technical, and practical skills for problem solving in physics.

2.1 Justify the choice of methods and tools used to solve known problems in physics.
2.2 Properly use instruments to perform a measurement or study a physical system.
2.3 Correctly handle computer tools to help solve problems in physics.
2.4 Apply basic tools to model simple physical systems and solve known problems in the fundamental areas of physics.

3. Describe and evaluate a scientific approach and reasoning.

3.1 Evaluate the simplicity, clarity and rigor of a scientific reasoning.
3.2 Build physical reasoning and formalize it.
3.3 Argue the validity of a scientific result.
3.4 Calculate the orders of magnitude of a problem in physics.
3.5 Recognize the analogies between different problems in physics.
3.6 Judge the relevance of a scientific approach and the interest of a physical theory.

Programme

DETAILED PROGRAMME BY SUBJECT

- O Mandatory
- ⊠ Optional
- △ Not offered in 2026-2027
- ⊘ Not offered in 2026-2027 but offered the following year
- ⊕ Offered in 2026-2027 but not the following year
- △ ⊕ Not offered in 2026-2027 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...)

30 crédits

The student chooses 30 credits among :

				Year 2	Year 3
O *Content:*					
⊠ LCHM1112	General Chemistry	Yaroslav Filinchuk	[FR] [q1] [30h+22.5h] [5 Credits]	x	
⊠ LPHYS1113	Mechanics 2	Vincent Lemaitre	[FR] [q2] [30h+25h] [5 Credits]	x	

				Year 2	3
⊠ LPHYS1114	Thermodynamics	Thierry Fichefet	FR [q2] [22.5h+20h] [5 Credits]	x	
⊠ LPHYS1213	Physics of fluids	Michel Crucifix Eric Deleersnijder	FR [q2] [37.5h+30h] [5 Credits]	x	
⊠ LPHYS1214	Astronomy and geophysics	Gwenhaël de Wasseige Jérémy Rekier	FR [q2] [22.5h+15h] [5 Credits]	x	
⊠ LPHYS1221	Electromagnetism 1	Gwenhaël de Wasseige Vincent Lemaitre	FR [q1] [52.5h+52.5h] [10 Credits]	x	
⊠ LPHYS1221A	Electromagnetism 1	Gwenhaël de Wasseige Vincent Lemaitre	FR [q1] [40h+40h] [7 Credits]	x	
⊠ LPHYS1231	Special Relativity	Marco Drewes	FR [q2] [30h+15h] [5 Credits]	x	
⊠ LPHYS1241	Quantum Physics 1	Agni Bethani Matthieu Génévriez	FR [q2] [30h+30h] [5 Credits]	x	
⊠ LPHYS1303	Numerical Simulation in Physics	Justin Janquart	FR [q1] [22.5h+30h] [5 Credits] *> English-friendly*		x
⊠ LPHYS2211	Group theory	Philippe Ruelle	EN [q2] [22.5h+22.5h] [5 Credits] *> French-friendly*		x
⊠ LPHYS1322	Electromagnetism 2	Céline Degrande	FR [q1] [37.5h+22.5h] [5 Credits] *> English-friendly*		x
⊠ LPHYS2124	General Relativity	Christophe Ringeval	FR [q1] [30h+22.5h] [5 Credits] *> English-friendly*		x
⊠ LPHYS1342	Quantum Physics 2	Christophe Ringeval	FR [q1] [45h+22.5h] [5 Credits] *> English-friendly*		x
⊠ LPHYS1343	Statistical physics	Christian Walmsley Hagendorf	FR [q2] [45h+30h] [6 Credits] *> English-friendly*		x
⊠ LPHYS1345	Solid state physics	Eduardo Cortina Gil	FR [q2] [26h+26h] [5 Credits] *> English-friendly*		x
⊠ LPHYS1346	Physique subatomique	Christophe Delaere	FR [q2] [26h+26h] [5 Credits]		x
⊠ LPHYS1347	Physique atomique et moléculaire	Matthieu Génévriez Clément Lauzin	FR [q2] [26h+26h] [5 Credits]		x

THE PROGRAMME'S COURSES AND LEARNING OUTCOMES

For each UCLouvain training programme, a reference framework of learning outcomes specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

MINPHYS - Information

Bachelors offering this minor

> Bachelor in Mathematics *[en-prog-2026-math1ba]*
> Bachelor in Geography : General *[en-prog-2026-geog1ba]*
> Bachelor in Engineering *[en-prog-2026-fsa1ba]*

Access Requirements

The minor in physics is offered to Bachelor's students in mathematics, geography, general orientation, and engineering, civil engineering orientation. It is also accessible, on the advice of the study advisor, to students who have received sufficient training in physics and mathematics.

Evaluation

The evaluation methods comply with the Academic regulations and procedures . More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

Possible trainings at the end of the programme

Bachelor's students in mathematics, geography, general orientation, and engineering, civil engineering orientation, who have followed this minor will be admitted to the Master [120] in physics and the Master [60] in physics. Their programme will usually include some of the teaching units of the Bachelor in physics that they have not followed. The same rule applies to other students who have followed this minor, with possible restrictions depending on their training. However, the student wishing to make such a change is invited to contact as soon as possible the study advisors of his school and the School of Physics.

Contacts

Curriculum Management

Entity

Structure entity	SST/SC/PHYS
Denomination	(PHYS)
Faculty	Faculty of Science (SC)
Sector	Sciences and Technology (SST)
Acronym	PHYS
Postal address	Chemin du Cyclotron 2 - bte L7.01.04 1348 Louvain-la-Neuve Tel: +32 (0) 10 47 32 94 - Fax: +32 (0) 10 47 30 68
Website	https://uclouvain.be/fr/facultes/sc/phys

Academic supervisor: vincent.lemaitre@uclouvain.be

Useful Contact(s)

- Study advisor for physics: dimitri.maquet@uclouvain.be
- Administrative manager for the annual program of the student registred in the Faculty of sciences: nathalie.micha@uclouvain.be

Practical informations

Registration for the minor

A registration for the 2nd annual unit via the web allows you to register for a minor (the student who wishes to change his.her choice of additional module or minor must contact the secretariat of his.her faculty). The student may defer his.her registration to a minor and proceed with this operation when he.she registers on line for the teaching units of his.her major.

When the student re-enrolls via the web the following year, he.she is automatically re-enrolled in the same minor as the previous year. At this stage, any request for change is subject to the approval of the study advisor.

Registration for the teaching units of the minor

The registration for the teaching units of a minor is done at the same time as the registration to the teaching units of the major. The same goes for exam registration.

Timetable of courses and examinations

https://uclouvain.be/fr/facultes/sc/horaires-ti.html