UCLouvain

PHYS2M

2025 - 2026

Master [120] in Physics

The version you're consulting is not definitive. This programme still may change. The final version will be published on 1th June.

At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In English
Dissertation/Graduation Project : **YES** - Internship : **NO**
Activities in English: **YES** - Activities in other languages : **NO**
Activities on other sites : **optional**
Main study domain : **Sciences**
Organized by: **Faculty of Science (SC)**
Programme acronym: **PHYS2M** - Francophone Certification Framework: 7

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PHYS2M - 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 advanced 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, 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 superconductivity, instrumentation and metrology, laser physics, nuclear physics, nonlinear physics, cosmology, astrophysics, astronomy, planetology, geophysics, meteorology, climatology, oceanography and glaciology, or fields as diverse as medical sciences, space sciences and signal processing, but also actuarial sciences, finance, consultancy, banking and all areas where statistical methods, IT and tools related to artificial intelligence are important. Through his.her teamwork skills, the physicist also develops skills in communication, scientific popularization and management. His.her various skills enables him.her to contribute to the creation of tomorrow's jobs.

The Master [120] in Physics constitutes the logical continuation of the Bachelor in Physics. Its purpose is to enable you (1) to completely master the fundamental laws and essential tools of today's physics, (2) to specialize in a field of physics, (3) to acquire disciplinary skills and cross-cutting essential to exercise a professional activity related to physics.

Your profile

You hold a Bachelor's degree in physics or in a discipline related to physics. You want to develop advanced knowledge and skills in physics. You want to deepen the fundamental theories of physics and gain a solid background in experimental and modeling techniques as well as in data analysis. You want to conduct research in universities, public research institutes or industrial laboratories. You plan to perform a PhD in science. You then have the profile to begin a Master [120] in Physics. You will have the chance to receive a personalized training with internationally recognized teachers.

Your future job

The training in physics aims at mastering advanced physical and mathematical tools. It develops skills such as curiosity and scientific rigor, the capacity for abstraction, the modeling of complex physical problems, the sense of precision and experimental measurement as well as the ability to work in a team and to communicate.

Thanks to this versatile training, there are many career opportunities.

One main track is to start a career in research (university laboratories, private laboratories, European Organization for Nuclear Research - CERN, Atomic Energy Commission, Institute for Space Aeronomy of Belgium, Royal Meteorological Institute of Belgium, Royal Observatory of Belgium, etc.) or in secondary or higher education with subsequent training as a teacher.

Physicists also find jobs in the private or financial sector. Some of them work in the high technology industry (telecommunications, optics, aeronautics, space industry, medical equipment, etc.), in the field of energy, in the area of information technology (big data processing, design of calculation programmes, etc.), for banks and insurance companies, in the field of environmental consultancy and in the sector of scientific communication and popularization.

Your programme

The programme of the Master [120] in Physics, which can be completed in two years, offers :

- an advanced and specialized training in physics that prepares you for the job of researcher,
- a deepening of the fundamental theories of physics,
- a learning of the most advanced experimental and modeling techniques of today's physics,
- teaching units taught, for most of them, in English,
- a lot of practical works (exercises, laboratories, and personal or group projects),
- the possibility to conduct research within the Master's thesis in one of the research institutes of UCLouvain, one of the federal scientific institutes in which academic members of the School of Physics work or a private company,
- the possibility to follow part your studies in a foreign university.

PHYS2M - Teaching profile

Learning outcomes

Observe and understand the physical reality of the world around him.her, understand it, explain it and model it, these are the challenges that the student enroled in the Master [120] in Physics is preparing to meet. This programme aims to develop mastery of the fundamental laws and essential tools of today's physics, with a focus that allows entering the world of research or industry. It leads to the acquisition of skills such as the ability to analyze a physical problem, the ability of abstraction and modeling, the rigor in reasoning and expression, the autonomy and the ability to communicate, including in English.

At the end of his.her training at the Faculty of Sciences, the student will have acquired the disciplinary and cross-disciplinary knowledge, and skills needed to perform numerous professional activities. His.her modeling and in-depth understanding of phenomena, his.her liking for research and his.her scientific rigor will be sought not only in scientific professions (research, development, teaching, etc.), but also more generally in the current and future Society.

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

1. Master and use in depth the specialized knowledges of physics.

1.1 Formulate the fundamental concepts of current physical theories, highlighting their main ideas, and link these theories together.

1.2 Identify and apply physical theories to solve a problem.

1.3 Know and use adequately the principles of experimental physics : measurements, their uncertainties, measuring instruments and their calibration, the processing of data by computer tools.

1.4 Explain and design a measurement method and implement it.

1.5 Model complex systems and predict their evolution using numerical methods, including computer simulations.

1.6 Retrace the historical evolution of physical concepts and recognize the role of physics in various parts of the body of knowledge and culture.

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

2.1 Choose, knowing their limitations, a method and tools to solve a novel problem in physics.

2.2 Design and use instruments to measure or study a physical system.

2.3 Properly handle computer tools to help solve problems in physics, while knowing the limitations of these tools.

2.4 Design algorithms adapted to the problems addressed and translate them into computer programmes.

2.5 Apply adequate tools, both basic and more advanced, to model complex physical systems and solve specific problems in physics application fields.

3. Apply a scientific approach and reasoning, and identify, using an inductive or deductive approach, the unifying aspects of different situations and experiences.

3.1 Evaluate the simplicity, clarity, rigor, originality of a scientific reasoning, and identify any flaws.

3.2 Develop or adapt a physical reasoning and formalize it.

3.3 Argue the validity of a scientific result and adapt its argumentation to various audiences.

3.4 Show the analogies between different problems in physics, in order to apply known solutions to new problems.

4. Build new knowledge and research related to issues in one or more areas of current physics.

4.1 Develop an autonomous physical intuition by anticipating expected results and verifying consistency with existing results.

4.2 Analyze a research problem and select the appropriate tools to study it in a thorough and original way.

5. Learn and act autonomously to continue training in an independent way.

5.1 Search in the physical literature for sources and assess their relevance.

5.2 Read and interpret an advanced physics text and relate it to acquired knowledge.

5.3 Acquire new scientific and technical skills.

5.4 Judge autonomously the relevance of a scientific approach and the interest of a physical theory

6. Work in a team and collaborate with students and professionals in other disciplinary fields to achieve common goals and produce results.

6.1 Share knowledge and methods.

6.2 Identify individual and collective goals and responsibilities, and work in accordance with these roles.

6.3 Manage, individually and as a team, a major project in all its aspects.

6.4 Evaluate your performance as an individual and team member, and evaluate the performance of others.

6.5 Recognize and respect the views and opinions of team members.

7. Communicate effectively in French and English (C1 CEFR level), orally or in writing, for the intended audience.

7.5 Use a variety of media and computer tools to communicate (explain, write, publish) concepts and physical results.

7.6 Discuss with colleagues from other disciplines.

8. Actively address a research theme.

8.1 Achieve a level of expertise in a chosen field of contemporary physics.

8.2 Deepen a subject beyond current knowledge.

Programme structure

The programme leading to the Master's [120] degree in physics includes a core curriculum, which consists of :

- 30 credits of specialized training in physics, to be chosen from a list of teaching units organized into subject blocks and to be followed during the first semester of the first annual unit,
- 5 credits of physics seminar, to be followed during the second annual unit,
- 2 credits of training in human sciences, to be chosen from a list of teaching units and to be followed during the first or second annual unit,
- 28 credits of activities related to the Master's thesis, which include the Master's thesis itself (26 credits) and the thesis tutorial (2 credits), to be carried out during the second annual unit.

The programme also includes 30 credits of research focus, to be followed during the first or second annual unit, as well as 25 credits of elective teaching units, to be selected from a list of teaching units organized into subject blocks and to be followed mainly during the second annual unit.

PHYS2M Programme

Detailed programme by subject

CORE COURSES [65.0]

Mandatory
Optional
Not offered in 2025-2026
Not offered in 2025-2026 but offered the following year
Offered in 2025-2026 but not the following year
Not offered in 2025-2026 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...)

Year
1 2

Formation spécialisée en physique (30 credits)

NB : Des programmes types en fonction des orientations de la recherche en sciences physiques à l'UCLouvain sont proposés sur le site Web de l'école de physique. L'étudiant·e choisit 30 crédits parmi les UE ci-dessous :

Physique statistique et mathématique

LPHYS2112	Mathematical physics		EN [q1] [30h] [5 Credits] > *French-friendly*	X	
LPHYS2113	Critical phenomena		EN [q1] [22.5h+7.5h] [5 Credits] > *French-friendly*	X	
LPHYS2114	Nonlinear dynamics		EN [q1] [22.5h+22.5h] [5 Credits] > *French-friendly*	X	

Gravitation, cosmologie et astroparticules

				Year 1	2
⊠ LPHYS2122	Cosmology		EN [q2] [30h] [5 Credits] > *French-friendly*	x	

⊠ Physique des particules

⊠ LPHYS2131	Fundamental interactions and elementary particles		EN [q1] [52.5h+7.5h] [10 Credits] > *French-friendly*	x	
⊠ LPHYS2132	Quantum field theory 1		EN [q1] [52.5h+7.5h] [10 Credits] > *French-friendly*	x	

⊠ Physique atomique, moléculaire et optique

⊠ LPHYS2141	Introduction to quantum optics		EN [q1] [22.5h+7.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2143	Optics and lasers		EN [q1] [22.5h+22.5h] [5 Credits] > *French-friendly*	x	

⊠ Physique de la Terre, des planètes et du climat

⊠ LPHYS2161	Internal geophysics of the Earth and planets		EN [q1] [22.5h+7.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2162	Introduction to the physics of the climate system and its modelling		EN [q1] [22.5h+22.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2163	Atmosphere and ocean : physics and dynamics		EN [q1] [52.5h+7.5h] [10 Credits] > *French-friendly*	x	

⊠ Instrumentation et méthodes numériques

⊠ LPHYS2102	Ionizing Radiation Detection and Nuclear Instrumentation		EN [q1+q2] [26h+26h] [5 Credits]	x	
⊠ LPHYS2103	Analog electronics [C]		EN [q1] [22.5h+22.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2104	Data acquisition, digital electronics and microelectronics [C]		EN [q1] [22.5h+22.5h] [5 Credits] > *French-friendly*	x	

⊠ Cours obligatoires s'ils n'ont pas été suivis en bachelier

○ LPHYS1332	General Relativity		FR [q1] [30h+22.5h] [5 Credits] > *English-friendly*	x	

○ Séminaire de physique (5 credits)

○ LPHYS2191	Physics seminar		EN [q1+q2] [0h+30h] [5 Credits] > *French-friendly*		x

○ Activités liées au mémoire (28 credits)

○ LPHYS2197	Thesis tutorial		EN [q1] [15h] [2 Credits] > *French-friendly*		x
○ LPHYS2199	Master's thesis		EN [q1+q2] [] [26 Credits] > *French-friendly*		x

○ Formation en sciences humaines (2 credits)

L'étudiant·e choisit une UE parmi :

⊠ LSC2001	Introduction to contemporary philosophy	Charles Pence Peter Verdée	FR [q2] [30h] [2 Credits]	x	x
⊠ LSC2220	Philosophy of science	Alexandre Guay	EN [q2] [30h] [2 Credits]	x	x
⊠ LFILO2003E	Ethics in the Sciences and technics (sem)		FR [q2] [15h+15h] [2 Credits]	x	x
⊠ LTHEO2840	Science and Christian faith	Benoît Bourgine	FR [q1] [15h] [2 Credits]	x	x

⊠ Formation facultative

These credits are not counted within the 120 required credits.

⊠ LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin	FR [q1+q2] [15h+45h] [5 Credits]	x	x
⊠ LSST1002M	Information and critical thinking - MOOC		FR [q2] [30h+15h] [3 Credits]	x	x

RESEARCH FOCUS [30.0]

- Mandatory
- Optional
- Not offered in 2025-2026
- Not offered in 2025-2026 but offered the following year
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- 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...)

Content:

				Year 1	Year 2
Physique statistique et mathématique					
LPHYS2211	Group theory		EN [q2] [22.5h+22.5h] [5 Credits] > French-friendly	x	
LPHYS2215	Statistical field theory		EN [q2] [30h] [5 Credits] > French-friendly	x	x
Gravitation, cosmologie et astroparticules					
LPHYS2221	Astrophysics and astroparticles		EN [q2] [30h] [5 Credits] > French-friendly	x	
LPHYS2223	utrino physics and dark matter		EN [q2] [30h] [5 Credits] > French-friendly	x	
LPHYS2224	Advanced cosmology and general relativity		EN [q1] [30h] [5 Credits] > French-friendly		x
Physique des particules					
LPHYS2234	Quantum field theory 2		EN [q2] [30h] [5 Credits] > French-friendly	x	x
LPHYS2235	Advance detection and simulation method in HEP experiments [C]		EN [q2] [25h+5h] [5 Credits] > French-friendly	x	
LPHYS2236	Advance data analyses method in particle physics experiments [C]		EN [q2] [27.5h+2.5h] [5 Credits] > French-friendly	x	
Physique atomique, moléculaire et optique					
LPHYS2242	Fundamentals of quantum information		EN [q2] [30h] [5 Credits] > French-friendly	x	x
LPHYS2244	Molecular physics		EN [q2] [22.5h+7.5h] [5 Credits] > French-friendly	x	
LPHYS2245	Lasers physics		EN [q2] [22.5h+7.5h] [5 Credits] > French-friendly	x	
LPHYS2246	Experimental methods in atomic and molecular physics		EN [q2] [30h] [5 Credits] > French-friendly	x	
LPHYS2247	Special topics in quantum optics		EN [q2] [30h] [5 Credits] > French-friendly	x	
LPHYS2248	Ultra-fast laser physics		EN [q2] [22.5h+7.5h] [5 Credits] > French-friendly	x	x
Physique de la matière condensée et des milieux continus					
LMAPR2451	Atomistic and nanoscopic simulations		EN [q2] [30h+30h] [5 Credits] > French-friendly	x	
Physique de la Terre, des planètes et du climat					
LPHYS2260	Geodesy and GNSS (Global Navigation Satellite System)		EN [q2] [30h] [5 Credits] > French-friendly	x	x
LPHYS2264	Oscillations and instabilities in the climate system		EN [q2] [30h] [5 Credits] > French-friendly	x	x

				Year 1	2
⊠ LPHYS2265	Sea ice-ocean-atmosphere interactions in polar regions		EN [q2] [30h] [5 Credits] ⊘ > *French-friendly*	x	x
⊠ LPHYS2266	Physics of the upper atmosphere and space		EN [q2] [22.5h+7.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2267	Paleoclimate dynamics and modelling		EN [q2] [22.5h+7.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2268	Forecast, prediction and projection in climate science		EN [q2] [22.5h+7.5h] [5 Credits] > *French-friendly*	x	
⊠ LPHYS2269	Remote sensing of climate change		EN [q2] [30h] [5 Credits] ⊘ > *French-friendly*	x	x

⊠ Compléments de mathématique

⊠ LMAT2130	Partial differential equations		EN [q1] [30h+15h] [5 Credits]	x	x
⊠ LMAT2160	Training seminar for mathematical researchers		EN [q1] [15h] [5 Credits] > *English-friendly*	x	x
⊠ LMAT2250	Calculus of variations	Augusto Ponce	EN [q2] [30h+15h] [5 Credits] ⊘ > *English-friendly*	x	x
⊠ LMAT2420	Complex analysis		EN [q2] [30h+15h] [5 Credits] > *French-friendly*	x	x
⊠ LINMA2470	Stochastic modelling		EN [q2] [30h+22.5h] [5 Credits] > *French-friendly*	x	

UE au choix [25.0]

UE AU CHOIX [25.0]

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

Year 1 2

Content:

Physique statistique et mathématique

LPHYS2316	Advanced mathematical physics		EN [q1] [30h] [5 Credits] *> French-friendly*		x

Physique des particules

LPHYS2336 C to H cannot be taken if the full course LPHYS2336 is selected .

LPHYS2335	Standard model and beyond		EN [q1] [52.5h+7.5h] [10 Credits] *> French-friendly*		x
LPHYS2336	Astroparticle and gravitational wave physics [M]		EN [q1] [52.5h+7.5h] [10 Credits] *> French-friendly*		x
LPHYS2336C	Astroparticle and gravitational wave physics - Neutrino physics and Astroparticles		EN [q1] [27h+3h] [5 Credits]		x
LPHYS2336D	Astroparticle and gravitational wave physics - Neutrino physics and Gravitatinal wave physics		EN [q1] [27h+3h] [5 Credits]		x
LPHYS2336E	Astroparticle and gravitational wave physics - Neutrino physics and Advanced data analyses method in astrophysics		EN [q1] [27h+3h] [5 Credits]		x
LPHYS2336F	Astroparticle and gravitational wave physics - Astroparticles and Gravitatinal wave physics		EN [q1] [27h+3h] [5 Credits]		x
LPHYS2336G	Astroparticle and gravitational wave physics - Astroparticles and Advanced data analyses method in astrophysics		EN [q1] [27h+3h] [5 Credits]		x
LPHYS2336H	Astroparticle and gravitational wave physics - Gravitatinal wave physics and Advanced data analyses method in astrophysics		EN [q1] [27h+3h] [5 Credits]		x

Physique de la matière condensée et des milieux continus

LMAPR2014	Physics of Functional Materials		EN [q1] [37.5h+22.5h] [5 Credits] *> French-friendly*		x
LMAPR2015	Physics of Nanostructures		EN [q1] [37.5h+22.5h] [5 Credits] *> French-friendly*		x
LMAPR2018	Rheology		EN [q2] [30h+30h] [5 Credits] *> French-friendly*		x
LMECA2854	Heat and mass transfer II	Yann Bartosiewicz Matthieu Duponcheel	EN [q2] [30h+30h] [5 Credits] *> French-friendly*		x
LMECA2771	Thermodynamics of irreversible phenomena.	Miltiadis Papalexandris	EN [q2] [30h+30h] [5 Credits] *> French-friendly*		x
LPHYS2351	Superconductivity		EN [q1] [22.5h+7.5h] [5 Credits] *> French-friendly*		x

Physique de la Terre, des planètes et du climat

LGCIV2056	Marine Hydrodynamics	Eric Deleersnijder	EN [q1] [30h+15h] [5 Credits] *> French-friendly*		x
LGEO1343	Earth observation by satellite	Eric Lambin	EN [q1] [30h+30h] [5 Credits]		x
LINMA2510	Mathematical ecology		EN [q2] [30h+22.5h] [5 Credits] *> French-friendly*	x	x

				Year 1	Year 2

Instrumentation et méthodes numériques

LEPL1106	Signals and systems	Julien Hendrickx Luc Vandendorpe	FR [q2] [30h+30h] [5 Credits]	x	
LEPL1110	Finished elements		FR [q2] [30h+30h] [5 Credits]	x	x
LPHYS2303	Cryophysics and vacuum physics		EN [q1] [30h+15h] [5 Credits] *> French-friendly*		x

Compléments de mathématique

NB : l'UE LMAT1271 est vivement conseillée.

LINMA2361	Nonlinear dynamical systems	Pierre-Antoine Absil Estelle Massart	EN [q1] [30h+22.5h] [5 Credits] *> French-friendly*		x
LMAT1271	Calculation of probability and statistical analysis		FR [q2] [30h+30h] [6 Credits] *> English-friendly*	x	
LMAT2240	Low-dimensional topology [M]		EN [q2] [30h+15h] [5 Credits]	x	x
LMAT2430	Lie's therory elements and differential geometry	Pierre Bieliavsky	FR [q2] [30h+15h] [5 Credits]	x	x

Optional courses :

These credits are not counted within the 120 required credits.

LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin	FR [q1+q2] [15h+45h] [5 Credits]	x	x
LSST1002M	Information and critical thinking - MOOC		EN [q2] [30h+15h] [3 Credits]	x	x

Supplementary classes

To access this Master, students must have a good command of certain subjects. If this is not the case, in the first annual block of their Masters programme, students must take supplementary classes chosen by the faculty to satisfy course prerequisites.

These additional teaching units (maximum 60 credits) will be selected in the programme of the second and third annual units of the Bachelor's degree in physics, in consultation with the Study advisor, depending on the previous teaching units followed by the student and his.her training project, and will be submitted to the approval of the School of Physics.

- Mandatory
- Optional
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- Activity with requisites
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Enseignements supplémentaires

LPHYS1202	Mathematical methods for physics		FR [q1] [30h+30h] [5 Credits]
LPHYS1213	Physics of fluids		FR [q2] [37.5h+30h] [5 Credits]
LPHYS1342	Quantum Physics 2		FR [q1] [45h+22.5h] [5 Credits] > *English-friendly*

Course prerequisites

There are no prerequisites between course units (CUs) for this programme, i.e. the programme activity (course unit, CU) whose learning outcomes are to be certified and the corresponding credits awarded by the jury before registration in another CU.

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.

PHYS2M - Information

Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

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

SUMMARY

Specific access requirements

Since this program is taught in English, no prior proof of French language proficiency is required, except for students wishing to access the didactic program who must provide proof of a CEFR level C1 proficiency.

Students who wish to be admitted on the basis of a dossier (see tables below) are invited to consult the criteria for the evaluation of application.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Physics		Direct access	
Bachelor in Mathematics	Si l'étudiant a suivi la Titre inconnu:lminphys	Access based on application	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/ school.
Bachelor in Engineering	Si l'étudiant a suivi la Titre inconnu:lminphys	Access based on application	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/ school.
Bachelor in Geography : General	Crédits de la Minor in Physics acquis	Access based on application	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/ school.

Others Bachelors of the French speaking Community of Belgium	
	Direct access
Bachelier en sciences de l'ingénieur, orientation ingénieur civil	Access based on application
Bachelors of the Dutch speaking Community of Belgium	
Bachelor in physics	Direct access
Foreign Bachelors	
Bachelor in physics	Access based on application

Non university Bachelors

> Find out more about links to the university

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			
		Direct access	
Masters			
		Direct access	

Holders of a non-University 2nd cycle degree

Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about Validation of priori experience.

Access based on application

Access based on application : access may be granted either directly or on the condition of completing additional courses of a maximum of 60 ECTS credits, or refused.

The first step in the procedure is to submit a file online (see https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html).

Students who wish to be admitted on the basis of a dossier are invited to consult the criteria for the evaluation of application.

Admission and Enrolment Procedures for general registration

Teaching method

Most teaching units are given by default in English.

Various teaching methods are used : lectures, flipped classroom, project-based learning, etc. Exercise and practical lab sessions are organized for certain teaching units. Individual or group projects are planned for most of the teaching units. These projects play a significant role (around 20%) in the final grade.

Almost all teaching units have a website on the MoodleUCL platform. Useful information is provided, as well as syllabi and other documents essential to student's work.

The Master's thesis is a formative activity that must lead students to demonstrate their ability to (1) deal in depth with a physical problem in all its real complexity, by conducting a personal research, under the direction of a promoter, and (2) write a summary of his.her work and defend it in public in a rigorous and educational way, while being able to answer relatively specific questions. The various stages are: constitution of a relevant bibliography on the subject, reading and understanding of the selected articles, implementation and execution of the project, analysis and interpretation of the results obtained, writing of a synthesis manuscript and oral presentation of the latter. To carry out this project, the student is embedded in a research group with which he.she can interact.

A "thesis tutorial" introduces the student to scientific communication and, in particular, to the oral presentation of a scientific subject in English.

The physics seminar is composed of three series of presentations to which students must attend : lectures of general interest, more specific seminars dealing with physics research carried out in UCLouvain research institutes and testimonials from former students on their professional background.

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".

The evaluation methods are in accordance with the regulations for studies and examinations. More details on the terms and conditions specific to each teaching unit are available in their fact sheet under the heading "Assessment of student achievement".

The student is evaluated on the basis of the personal work that he.she will have accomplished (readings, consultation of databases and bibliographical references, writing of monographs and reports, presentation of seminars, dissertation, etc.). When the training requires it, the student is also evaluated regarding his.her ability to assimilate the masterly taught subject. The evaluation of the Master's thesis is based on the work performed during the year and its written and oral presentation.

To obtain the average, the marks obtained for the different teaching units are weighted by their respective credits.

If a student enroled in an exam at the January session has not been able to present the examination for reasons of force majeure which are duly justified, he.she may ask the President of the Jury for permission to present the examination at the June session. The President of the Jury judges the relevance of the application and, if the course owner agrees, may authorize the student to present the examination at the June session.

Mobility and/or Internationalisation outlook

Most teaching units are given by default in English.

Students are encouraged to study abroad outside the Wallonia-Brussels Federation within the framework of a Socrates/Erasmus agreement or equivalent (Mercator, Erasmus Belgica), preferably during the second semester of the first annual unit or the first semester of the second annual unit. This study stay will consist of following several teaching units proposed by the host university, for a maximum of 30 credits, and/or preparing the Master's thesis. For a list of Belgian and foreign universities

Possible trainings at the end of the programme

The Master's [120] degree gives direct access to the PhD in Science.

In addition, a particularly adapted programme allows obtaining a specific diploma: an additional year of study at Mol, after the Master's [120] degree, allows to follow the English-speaking interuniversity programme giving the title of "Master in Nuclear Engineering" managed by BNEN (Belgian Nuclear Higher Education Network). Intensive courses are given in English by professors from different Belgian universities at the Mol Nuclear Research Center.

The Master [60] of Education, Section 5 : Physics is directely accessible for teaching education.

UCLouvain Master's degrees (among which several on 60 credits) are also widely available to UCLouvain Masters' graduates. For example :

- the different Masters [60] in management science
- Master [60] in Information and Communication in Louvain-la-Neuve or Master [60] in Information and Communication in Mons.

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

Jury

- President: Christophe Ringeval
- Secretary: Christophe Delaere
- Study advisor: François Massonnet
- Study advisor: Gauthier Durieux

Useful Contact(s)

- Administrative manager for the student's annual program: Catherine De Roy