



MINPHYS - Introduction

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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 argue 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



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>

