UCLouvain

lphy1203

2025

Physics 3

The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

3.00 credits	50.0 h + 10.0 h	Q1

Language :	French
Place of the course	Louvain-la-Neuve
Main themes	Macroscopic properties of gases, kinetic theory of gases, changes of state, quantum mechanics, special relativity and nuclear physics.
Learning outcomes	
Evaluation methods	The files produced by the students will constitute 20% of the final mark. The scientific quality of the dossiers will be taken into account. However, transversal qualities (solidarity, information sharing, etc.) will also be valued. The final exam will be oral and will be organised by groups of three (or four) students. After some preparation time, they will present a paper in relation to a previously set thematic question.
Teaching methods	Students will be invited to take an active part in the course in the form of personal research which will be carried out by groups of students. We have opted for an active methodology in which the students will be co-constructors of the course. The students, in groups of 4 or 5, will produce documents related to the themes addressed. The students will follow the methodology of Jean-Charles Cailliez's "reverse course". At the beginning of the year, research topics (the themes of the course) will be proposed to the students. These topics cannot be changed or exchanged afterwards. A session will be organised towards the middle of the term to allow students to present the state of progress of their file in order to get feedback from the teachers. The students will be offered two practical tasks related to the topics studied (the study of emission spectra and the determination of absolute and relative humidity). Due to the active participation of the students, attendance is **mandatory**.
Content	The disciplinary content is divided into six themes: macroscopic properties of gases, kinetic theory of gases, changes of state, quantum mechanics, special relativity and nuclear physics. To give more coherence to the disciplinary content, we propose to present the course in the following way: • One third of the course will be devoted to the part dedicated to **changes of state**, the **second principle**, **free energy** and **phase changes**. • A second third of the course will be devoted to **quantum physics** through the study of atomic spectra. • The remainder of the course will be devoted to an introduction to **nuclear physics** and **relativistic physics** through the study of the lifetimes of particles produced in the upper atmosphere. The students will have a reading portfolio made up of extracts from books and seminal articles related to the theme covered during the course. This reading portfolio will be made available to students via the course website.
Other infos	Documents produced by students will be uploaded to the course Moodle platform.
Faculty or entity in charge	SC

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Geography : General	GEOG1BA	4		