








**This learning unit is not open to incoming exchange students!**

Teacher(s)	Dias de Carvalho Junior Gabriel ;Plumat Jim ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<ul style="list-style-type: none"> <li>• The course LSCI2320 taught in Q1 (S1 to S4) must have been taken.</li> <li>• The knowledge of the discipline(s) to be taught, i.e., the knowledge of physics related to the 2nd and 3rd grades of secondary education in general science.</li> <li>• Clear and correct communication in the language of instruction both orally and in writing.</li> <li>• The interpersonal skills and professional postures normally expected of a teacher.</li> </ul>
Main themes	<ol style="list-style-type: none"> <li>1. The didactic specificities of a teaching sequence in physics at the 2nd level (D2) and the 3rd level (D3)</li> <li>2. Experimentation, the scientific approach and the investigative approach in D2 and D3</li> <li>3. Problematization and modeling in D2 and D3</li> <li>4. The importance of epistemology; the major epistemological currents</li> <li>5. Evaluation</li> <li>6. Difficult concepts to teach in physics at D2 and D3</li> </ol>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p><b>Contribution of the teaching unit to the AA reference framework of the program</b></p> <p>With regard to the competency framework of the physics program, this teaching unit contributes to the development and acquisition of the following competencies: AA1.1 / AA2.2 / AA2.3 / AA2.4 / AA2.6 / AA2.7 / AA2.8 / AA3.1 / AA3.2 / AA3.3</p> <p><b>Learning outcomes at the end of the course</b></p> <ol style="list-style-type: none"> <li>1. <ul style="list-style-type: none"> <li>• Exploit disciplinary didactics and epistemology that guide pedagogical action in D2 and D3 physics courses,</li> <li>• Transpose scholarly knowledge into academic knowledge in physics at D2 and D3,</li> <li>• Design and plan teaching-learning (TL) situations in physics according to the cognitive abilities of the students and the intentions pursued,</li> <li>• Identify difficult concepts to learn in physics and remove these barriers to learning,</li> <li>• Evaluate student learning in terms of knowledge and skills,</li> <li>• Demonstrate mastery of new disciplinary and interdisciplinary knowledge to be taught in D2 and D3,</li> <li>• Explore new disciplinary, interdisciplinary and technological pedagogical approaches and tools,</li> <li>• Design, conduct and evaluate an experimental sequence, an investigative approach,</li> <li>• Adopt a reflective attitude on one's teaching practices based on didactic and pedagogical principles as well as on educational research,</li> <li>• Encourage students to take a critical look at the construction of science (via, for example, the construction of models and problematization).</li> </ul> </li> </ol>
Evaluation methods	Students enrolled in the Biology, Chemistry, and Physics (LPHYS2471 C and LPHYS2471 D) aggregation are assessed as follows: ... Students enrolled only in the LPHYS2471 C module are assessed as follows: ...
Teaching methods	The teaching activities are those recommended in secondary education: group work, lectures, flipped classes, MOOC... mainly in co-construction with the students.
Content	This teaching unit consists in "equipping" students to become future physics teachers at D2 and D3. The aim is not only to present the elements of didactics related to the teaching of physics but also to ensure the transfer and appropriation of these tools by the future teachers.
Inline resources	on MoodleUCL, acronym LPHYS2471. The site contains the documents presented and used during the courses and allows the deposit of the students' productions.

Bibliography	Des ouvrages en relation avec les disciplines enseignées et avec la didactique seront présentés lors des cours. Books related to the subjects taught and to the teaching practice will be presented during the lectures.
Other infos	<p>LPHYS2471 C and D is a required didactic course for students enrolled in the physics program and an elective for students enrolled in the biology program. It can only be taken if LSCI2320 has been previously taken.</p> <p>LPHYS2471 C is an elective course for students registered for the agrégation in Geography or Mathematics. It can only be taken if LSCI2320 has been taken previously.</p> <p>LPHYS2471 C is taken in Q1 during S8 to 14 for 2 hours per week (15 hours equivalent to 2 credits)</p> <p>LPHYS2471 D is given in Q2 for 2 hours per week (22.5 hours equivalent to 2 credits)</p>
Faculty or entity in charge	CAFC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Teacher Training Certificate (upper secondary education) - Physics	PHYS2A	4		
Master [120] in Biology of Organisms and Ecology	BOE2M	4		
Master [120] in Biochemistry and Molecular and Cell Biology	BBMC2M	4		
Teacher Training Certificate (upper secondary education) - Biology	BIOL2A	4		
Master [120] in Chemistry	CHIM2M	4		
Master [120] in Physics	PHYS2M	4		
Teacher Training Certificate (upper secondary education) - Chemistry	CHIM2A	4		