




Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

5 credits

30.0 h + 22.5 h

Q1

Teacher(s)	Filinchuk Yaroslav ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	<p>1 Understanding the basics of general chemistry, structure and properties of matter, chemical reactions and importance of chemistry in many areas.</p> <p>-----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>- The lab works give you a total of 5 points. These are made by half of the questions at the beginning of the laboratory works and the preparation to the Lab works and by another half by laboratory reports. In case the number of absences (justified or not) becomes significant, the professor has the right to use the article of RGEE allowing the jury to forbid the inscription to the exam.</p> <p>- There is a written exam counting for 12 points. These are basically the exercises applied to the theoretical course. These exercises are of the same style as those made in exercise sessions during the year. Theoretical questions also make a part of the examination.</p> <p>- The mid-term examination provides 3 points to the final examination score. The result of the mid-term examination is transferred to the June and August exam sessions but not to the next academic year.</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>The course is taught with the use of PowerPoint slides, available at Moodle. Exercises are provided to facilitate the understanding. The course will be illustrated with examples taken from everyday life in the living world and in industry.</p>
Content	<p>Fundamental concepts of chemistry. Introduction to the periodic table. Stoichiometry, concentration. The gas laws. Quantum numbers, orbitals. Chemical bonds: ionic, covalent, intermolecular. Molecular geometry, hybridization of orbitals. Chemical equilibrium, predicting the direction of a reaction; equilibrium constant. Chemical reactions in solution, strong and weak electrolytes. Acid-base reactions, pH and concentration of hydronium ions; titration. Solubility and precipitation, the solubility product, the common-ion effect. The rate and the mechanism of reactions, influence of catalysts. Energy, heat, thermochemistry; the first law of thermodynamics, enthalpy. Oxidation and reduction, redox equations. Introduction to electrochemistry, electrochemical cells and electrolysis.</p>
Bibliography	<p>1. Principes de chimie, une approche moléculaire, Nivaldo Tro, une adaptation de Eveline Clair, Julie Vézina, Pearson Education, 2015 (ISBN 978-2-7613-7248-0).</p> <p>2. Principes de chimie, Atkins, Jones, Laverman, de Boeck, 4eme édition, 2017.</p>
Faculty or entity in charge	SC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Minor in Scientific Culture	MINCULTS	5		
Bachelor in Physics	PHYS1BA	5		
Bachelor in Mathematics	MATH1BA	5		
Minor in Physics	MINPHYS	5		