UCL Université catholique de Louvain

LCHM1112

2013-2014

General Chemistry

3.0 credits	22.5 h + 22.5 h	1q

Teacher(s) :	Riant Olivier ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	- Structure of matter - Structure of atoms- The periodic table - Nomenclature of inorganic compounds. Chemical equations, reaction stoichiometry - Important reactions in inorganic chemistry - Atomic structure of many-electron atoms - Chemical bonds - Lewis structures, resonance, hybridization and molecular geometry. - Thermochemistry - The rates of reactions - Illustrations will be taken from daily life, from industrial applications and from the living world.
Aims :	Understanding the fundamental concepts of general chemistry. Structure and properties of matter, chemical reactions, and importance of chemistry in many fields. *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".*
Content :	Fundamental concepts of chemistry. Introduction to the periodic table. Elements of nomenclature. Stoichiometry, concentration. The gas laws, introduction to the kinetic model of gases. Energy, heat, thermochemistry; the first law of thermodynamics, enthalpy. Quantal description of atomic and molecular structure, orbitals. Chemical bonds: ionic bonds, covalent bonds, intermolecular bonds. Molecullar geometry, hybridization of orbitals. Chemical kinetics, the rate and the mechanism of reactions, influence of catalysis. Chemical equilibrium, predicting the direction of reaction; equilibrium constant and the law of mass action. Chemical reactions in solution, strong and weak electrolytes. Acid-base reactions, pH and concentration of hydronium ions; titrations. Solubility and precipitation, the solubility product, the common-ion effect, the effect of pH on solubility, selective precipitation. Oxidation and reduction, redox equations. Introduction to electrochemistry, electrochemical cells and electrolysis.
Other infos :	Support: syllabus supplied by DUC (Diffusion Universitaire Ciaco).
Cycle and year of study :	> Bachelor in Physics > Bachelor in Mathematics > Bachelor in Information and Communication > Bachelor in Philosophy > Bachelor in Pharmacy > Bachelor in Economics and Management > Bachelor in Motor skills : General > Bachelor in Human and Social Sciences > Bachelor in Sociology and Anthropology > Bachelor in Political Sciences: General > Bachelor in History of Art and Archaeology : General > Bachelor in History > Bachelor in Biomedicine > Bachelor in Religious Studies
Faculty or entity in charge:	SC