UCLouvain

# lchm1112

*2018*

# General Chemistry

| 5 credits | 30.0 h + 22.5 h | Q1 |
|---|---|---|

| | |
|---|---|
| Teacher(s) | Filinchuk Yaroslav ; |
| Language : | French |
| Place of the course | Louvain-la-Neuve |
| Aims | 1 Understanding the basics of general chemistry, structure and properties of matter, chemical reactions and importance of chemistry in many areas.<br>- - - -<br>*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".* |
| Evaluation methods | - 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.<br>- There is a written exam counting for 15 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.<br>- The mid-term examination allows you to get an additional (bonus) point to the final exam. |
| Teaching methods | 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. |
| Content | Fundamental concepts of chemistry. Introduction to the periodic table. Stoichiometry, concentration. The gas laws. Quantum numbers, orbitals. Chemical bonds: ionic, covalent, intermolecular. Molecullar 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. |
| Bibliography | 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).<br>2. Principes de chimie, Atkins, Jones, Laverman, de Boeck, 4eme édition, 2017. |
| Faculty or entity in charge | SC |

## Programmes containing this learning unit (UE)

| Program title | Acronym | Credits | Prerequisite | Aims |
|---|---|---|---|---|
| Bachelor in Physics | PHYS1BA | 5 | | |
| Bachelor in Mathematics | MATH1BA | 5 | | |
| Minor in Physics | LPHYS100I | 5 | | |
| Minor in Scientific Culture | LCUSC100I | 5 | | |