University of Szeged
Foundation Year

Curriculum (2016-2017)

SUBJECT: CHEMISTRY	
1st semester	
WEEK	**CLASS**
	(5 hrs/week)
1.	Atomic theory. Basic terms and concepts: elements, compounds, isotopes, the mole concept, Avogadro's number. Atomic models. *(*SI units, prefixes, base and derived units.)
2.	Electronic structure of atoms. The periodic table. Periodic properties. *(A*tomic and molecular masses, amount of substance, mole.)
3.	Molecules. Chemical bonding. Octet rule. Covalent, ionic and metallic bonding. (Geometry of molecules.)
4.	Intermolecular forces: hydrogen bonding and van der Waals forces. Chemical nomenclature. Formula writing. (Writing empirical formulas.)
5.	Writing reaction equations. Simple chemical reactions, balancing chemical equations. (Simple calculations concerning chemical reactions I.)
6.	States of matter. Solutions. Concentration of solutions. (Simple calculations concerning chemical reactions II.)
7.	Inorganic chemistry I.: metals. (Composition of solutions I.)
8.	Inorganic chemistry II.: nonmetals. Types of metathesis reactions. (Composition of solutions II.)
9.	Basic terms in thermodynamics: enthalpy, exothermic and endothermic processes. Rate of chemical reactions. Catalysts. (Composition of solutions III.)
10.	Chemical equilibrium. LeChatelier's principle. Electrolytes. (Composition of solutions IV.)
11.	Arrhenius and Bronsted-Lowry acids and bases. Neutralization reactions. (pH problems I.)
12.	Self-ionization of water. The pH of a solution. (pH problems II.)
13.	Oxidation number. Redox reactions. Electrode potential. (Oxidation numbers, balancing simple redox reaction equations.)
14.	Voltaic cells, electromotive force. Electrolysis. (Electromotive force of voltaic cell.)
15.	***Consultation week***
16.	***EXAMINATION PERIOD***