

Course Title: Chimica Generale e Inorganica (General and Inorganic Chemistry)
Degree Course: Laurea Triennale in Chimica (First Degree Course in Chemistry)
Classroom site: Room C @ Dipartimento di Chimica "Stanislao Cannizzaro"
Professor: Dario Duca – <http://cccp.unipa.it/>

General and Inorganic Chemistry course for Chemistry Students lasts **two semesters**, being fully carried out by face-to-face lectures. In the **first semester**, bases for the following chemistry courses are given. In the **second semester**, along with the description of the Main-Group Element Chemistry, are furnished tools useful: *i)* for understanding Periodic Table properties; *ii)* for predicting and interpreting structures of molecules – by using elementary (Lewis, VSEPR) as well as advanced models (MO-LCAO) –; *iii)* for utilizing symmetry concepts in the structural and kinetic analyses of simple chemical species – with special emphasis given to acid-base and donor-acceptor systems –; *iv)* for studying and individuating atomistic – energetic and kinetic – properties of the chemical reactivity; *v)* for evaluating equilibrium properties of chemical systems.

I SEMESTER	GENERAL CHEMISTRY (6 CFU)
LECTURE HOURS	FACE TO FACE LECTURES (48 HOURS)
2	Matter – Properties and Measurement
2	Atoms and the Atomic Theory
2	Chemical Compounds
2	Chemical Reactions
3	Introduction to Reactions in Aqueous Solutions
5	Thermochemistry
2	Gases
2	Electrons in Atoms
2	Periodic Table and Atomic Properties
6	Chemical Bonding
1	Chemical Kinetics
2	Principles of Chemical Equilibrium
2	Liquids, Solids, and Intermolecular Forces
2	Solutions and Their Physical Properties
4	Chemical Equilibrium – Acids and Bases
1	Chemical Equilibrium – Solubility and Complex-Ion Equilibria
3	Entropy and Free Energy
3	Electrochemistry
2	Nuclear Chemistry
SUGGESTED BOOKS	CHIMICA GENERALE – Principi e Moderne Applicazioni; Ralph H. Petrucci, William S. Harwood, F. Geoffrey Herring – Piccin 2004. GENERAL CHEMISTRY; Linus Pauling – Dover Publications 1988.
II SEMESTER	INORGANIC CHEMISTRY I (4 CFU)
LECTURE HOURS	FACE TO FACE LECTURES (32 HOURS)
1	Introduction to Inorganic Chemistry
4	Some Details on the Atomic Structure and Bonding Theory
5	Symmetry and Group Theory
6	MO-LCAO Method – Structure and Reactivity
4	Acid-Base and Donor-Acceptor chemistry
12	Chemistry of the Main Group Elements
SUGGESTED BOOKS	CHIMICA INORGANICA; Gary L. Miessler, Donald A. Tarr – Piccin 2011. CHIMICA INORGANICA; Jim E. Huheey, Ellen A. Keiter, Richard L. Keiter – Piccin 1999.