



UNIVERSITÀ DEGLI STUDI DI PALERMO

SCHOOL	SCHOOL OF BASIC AND APPLIED SCIENCES
ACADEMIC YEAR	2016/2017
FIRST CYCLE COURSE	AGRICULTURAL SCIENCE AND TECHNOLOGIES
SUBJECT	GENERAL AND INORGANIC CHEMISTRY
TYPE OF EDUCATIONAL ACTIVITY	A
AMBIT	50126-Discipline chimiche
CODE	01900
SCIENTIFIC SECTOR(S)	CHIM/03
HEAD PROFESSOR(S)	DE PASQUALE CLAUDIO Ricercatore a tempo determinato (B) Study University of PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	90
COURSE ACTIVITY (Hrs)	60
PROPAEDEUTICAL SUBJECTS	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	DE PASQUALE CLAUDIO Friday 9:00 10:00 Room 120

TEACHING METHODS	Lecturer and laboratory
ASSESSMENT METHODS	Oral and written examination
LEARNING OUTCOMES	Knowledge concerns proper chemistry language and physical chemical properties of organic and inorganic matter. Chemical and physical transformation of molecules and their reaction in controlled environmental conditions are also investigated. Definition and expectation of qualitative and quantitative principles of inorganic chemistry.
EDUCATIONAL OBJECTIVES	The educational objectives of teaching are modulate in order to obtain a proper use of chemistry with a specific concern about language and laws of physical chemical transformation to explain the interactions between organic and inorganic row material that are an important concern about biochemistry, soil chemistry environmental chemistry and plant physiology.
PREREQUISITES	
SUGGESTED BIBLIOGRAPHY	Palmisano L., Schiavello M – ELEMENTI DI CHIMICA, Ed. EDISES Bandoli ed altri - CHIMICA DI BASE, Ed. EDISES Stoker – PRINCIPI DI CHIMICA, Ed EDISES

Frontal teaching	
5	Scientific method and experimental data treatment. Energy and physical chemical properties of matter. Aggregation state. Homogeneity and heterogeneity of complex systems . Chemical and physical transformation. Volume, density and Mass concept. Atomic theory. Electron atoms and periodic table. Nomenclature and redox reactions
8	Atoms, electron, proton and neutron. Bohr theory . Mathematical foundations of quantum mechanics. Wave particle dualism. Electron pair repulsion and periodic table. Energy role and ionization affinity e repulsion of electrons
5	Chemical bonds and their geometry
5	The gas state
2	Solid state. Ionic, molecular and covalent. X ray diffraction and structural determinations of crystalline statement grade.
5	Liquid and solution. Le Chatelier . Temperature, pressure and colligative properties of solutions.
10	The reaction equilibrium state. Temperature and reactions. Enthalpy and entropy concept. Spectroscopy e other common analytical determinations. Titration. Buffer solutions. pH. Equilibrium constant determination and their proper use in quantitative determinations
Hrs	Practice
5	the calculation of relative quantities of reactants and products in chemical reactions by using stoichiometry
Workshops	
5	Numerical evolution of Stoichiometry quantity and laboratory experiment. Volumetric flaks and laboratory practice
5	Solution; titration; pH
5	Buffer solutions and their use