



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Fisica e Chimica - Emilio Segrè		
ACADEMIC YEAR	2016/2017		
MASTER'S DEGREE (MSC)	CULTURAL HERITAGE CONSERVATION AND RESTORATION		
SUBJECT	GENERAL AND INORGANIC CHEMISTRY		
TYPE OF EDUCATIONAL ACTIVITY	A		
AMBIT	50681-Formazione scientifica		
CODE	01900		
SCIENTIFIC SECTOR(S)	CHIM/03		
HEAD PROFESSOR(S)	PELLERITO CLAUDIA	Ricercatore	Univ. di PALERMO
OTHER PROFESSOR(S)			
CREDITS	6		
INDIVIDUAL STUDY (Hrs)	102		
COURSE ACTIVITY (Hrs)	48		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	PELLERITO CLAUDIA Thursday 14:00 15:00 studio Pellerito presso edificio 17 , Dipartimento Fisica e Chimica, Viale delle Scienze		

DOCENTE: Prof.ssa CLAUDIA PELLERITO

PREREQUISITES	Basics of mathematics: calculations, powers, logarithms, equivalences, proportions, calculating percentages. Chemical compounds nomenclature. The metric system
LEARNING OUTCOMES	Knowledge and ability of understanding Acquisition of the tools: a) to rationalize the structure and behavior of matter at macroscopic and microscopic level, with particular reference to the intermolecular interactions, chemical equilibrium in solution b) to recognize functional groups, of the various classes of compounds and their reactivity ; c) to apply issues and contents in professional field. Capacity 'to apply knowledge and understanding Ability 'to Recognize the matter, chemical compounds and to rationalize and predict the reactivity. Making judgments Capacity 'to rationalize and predict the possible transformations of inorganic compounds due their possible applications in the field of conservation and restoration of cultural heritage. communication skills Ability 'to use the specific language of their own discipline. Capacity 'Learning Capacity 'understanding of reaction mechanisms and their application.
ASSESSMENT METHODS	oral exam. The interview will help to evaluate either by questions posed to simulate real-world applications of teaching content , capacity student to develop the knowledge gained by using them to overcome problems that are placed , and the ability 'to speak with a technically correct language on teaching content. The assessment is expressed in thirtieths . The maximum score is achieved if verification ensures the full possession of the following three aspects : a capacity of judgment emerging chemistry issues ; a strong capacity ' to represent the impact of the subject of the course content within the sector / discipline of the chemistry fields ; the ability ' to represent ideas and / or to formulate solutions in the professional technological or socio-cultural context . As regards the verification of the ability ' exhibition , it has a minimum rating in case of ' a property ' proper language to professional context reference but this is not sufficiently articulated , while the maximum rating would be achieved by demonstrating full technical language .
EDUCATIONAL OBJECTIVES	Provide the basic concepts of general and inorganic chemistry of elements necessary for understand the issues related to the restoration as the degradation and diagnostics
TEACHING METHODS	lessons
SUGGESTED BIBLIOGRAPHY	JC Kotz, P Treichel: Chimica, EdiSES; G Bandoli, A Dolmella, G Natile: Chimica di base, EdiSES; F Nobile, P Mastroianni: La Chimica di base, Casa Editrice Ambrosiana; AM Manotti Lanfredi, A Tiripicchio: Fondamenti di Chimica, Casa Editrice Ambrosiana; F Cacace, M Schiavello: Stechiometria, Ed Libreria ricerche; P Giannoccaro, S Doronzo: Elementi di stechiometria; EdiSES. R.Chang, K.Goldsby Fondamenti di chimica generale , ed Mc Graw Hill; M.S. Silberberg Chimica, Ed. Mc Graw Hill

SYLLABUS

Hrs	Frontal teaching
3	Atom structure: electronic arrangements in atoms; shell; subshell; atomic orbitals,
2	Periodic law and table. Property trends within the periodic table. Electronic configurations
2	electronegativity, bonding
4	Lewis structures, polarity, isomers, resonance, VSEPR Model, hybridization
4	Molecule structure and interactions, bulk properties of materials. gases, liquids and solids. Phase diagrams
7	solutions and their properties. Colligative properties. Concentration units and calculations. Dilution
10	Chemical equilibrium. Le Chatelier's principle, the ion product of water; Arrhenius, Bronsted, Lewis definition of acids and bases; acid-base neutralization; conjugate acid-base pairs, pH; the strengths of acids and bases; ionization constants, salts, amphoteric ions, buffer solution, titrations
4	redox reactions
2	chemical kinetics
3	dissolution process, solubility product
3	electrochemical cells, electrolysis
4	Practice exercises