General Information	
Academic subject	Chemistry
Degree course	Safeguard and management of agroforest environment and landscape
Curriculum	
ECTS credits	9
Compulsory attendance	No
Language	Italiano

Subject teacher	Name Surname	Mail address	SSD
	Maria Rosaria Provenzano	mariarosaria.provenzano@uniba.it	Agr13

ECTS credits details		
Basic teaching activities		

Class schedule	
Period	
Year	2017/2018
Type of class	Lecture- workshops

Time management	
Hours	
In-class study hours	87
Out-of-class study hours	

Academic calendar	
Class begins	09/10/2017
Class ends	26/01/2018

Prerequisites/requirements Knowledge of basic concepts of matematics and fisics	Syllabus	
	Prerequisites/requirements	Knowledge of basic concepts of matematics and fisics
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)Knowledge and understandingBasic knowledge of atomic and molecular structure and of chemical and physico-chemical laws ruling transformation processes of materials in inorganic and organic fieldA4c tables of the SUA-CdS)Applying knowledge and understandingCapacity to utilizing basic chemistry notions to understand phenomena related to soil and environmentMaking informed judgements and choicesAwareness and autonomy of judgment in order to use the acquired knowledge and understanding	Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	 Knowledge and understanding Basic knowledge of atomic and molecular structure and of chemical and physico-chemical laws ruling transformation processes of materials in inorganic and organic field Applying knowledge and understanding Capacity to utilizing basic chemistry notions to understand phenomena related to soil and environment Making informed judgements and choices Awareness and autonomy of judgment in order to use the acquired knowledge in the following classes Communicating knowledge and understanding

	Ability to describing the constituents of matter and chemical
	phenomena
	Capacities to continue learning
	Ability to better understanding and improving knowledge of
	chemical and phisico-chemical processes
	enermear and prisico enermear processes
Contents	General atomic architecture. Electronic structure of atoms. Atomic models: Bohrn and wave-mechanical models. Orbital symbolism. Periodic table and periodic properties. Atomic sizes. Ionization energy, electron affinity and electronegativity. Atomic weight and related quantities. Formula and molecular weight. Avogadro number and mole concept.
	Chemical bonding: electrovalent, covalent and donor-acceptor covalent bonding. Lewis, VB and MO theory. Hybridization. Molecular orbitals. The structure of molecules. Dipole bonding and van der Waals Forces. Hydrogen bond.
	Chemical formulas and equations. Stoichiometry. Weight relations in chemical equations. Oxidation-Reduction reactions.
	Gases, solids, liquids and solutions. Properties. Ideal gases and related equations. Partial pressures of gases. Structural concepts in solids. Types of solids: crystalline and amorphous solids. Vaporization of a liquid equilibrium diagram. Change of states for water.
	Thermodynamic: state functions and form of energy and their equivalence. Thermochemistry. The concept of equilibrium and LeChatelier principle. The driving force in chemical reactions. Thermodynamics and chemical changes.
	Nature of solutions and determination of concentration. Colligative properties of solutions.
	Ionic equilibrium: solution of ions. Acids and bases following Arrhenius, Bronsted e Lewis definitions. Weak acids and bases, ionisation of water. pH and pOH. Indicators. Hydrolysis and neutralization. Solubility and slightly soluble salts.
	Electrochemistry: Galvanic cells and electrolysis. Faraday's laws. Oxidation-reduction potentials. Nernst's equation. pH-meter.
	Chemical kinetics: Arrenius equation. Activation energy and catalysis.
	The chemistry of carbon

	Different his defenden heren in Grand hereiter Chinelite and
	Different kind of carbon isomerism. Stereochemistry. Chirality and
	enantiomers. R, S convention. Optical activity.
	The ILIPAC nomenclature system Nomenclature properties and
	The for AC nonnenciature system. Nonnenciature, properties and
	reactivity of alkanes, alkenes, alconois, phenois, ethers, haloalkanes,
	aldehydes and ketones, carboxylic acids and functional derivatives,
	amines.
	Aromatic compounds. Benzene: structure, aromaticity and resonance
	energy. Nomenclature of substituted benzenes .
	Main monosaccharide.
	Aminoacide: main asports classification proportion Nucleotide bases
	Animodelas. Indin aspects, classification, properties. Nucleotide bases.
Course program	
Bibliography	• A.M. Manotti Lanfredi e A. Tiripicchio Fondamenti di
517	Chimica. Ambrosiana. Milano
	I. Bertini, C. Luchinat, F. Mani Chimica , Ambrosiana, Milano
	 S. Schiavello, L.Palmisano, Fondamenti di Chimica, Edises.
	Napoli
	 Lausarot, Vaglio, Stechiometria per la Chimica Generale.
	Piccin, Bologna
	• A.Caselli, S.Rizzato, F. Tessore, Stechiometria del testo di
	Freni e Sacco. Edises. Napoli
	P.W. Atkins, General Chemistry, United State By Scientific
	American Book.
	• K.W. Whitten et al. General Chemistry, seventh edition,
	Brooks/Cole Inc.
Notes	
Teaching methods	Class contents will be presented with the aid of PC assisted
	tools (PowerPoint) Slides are available on the website.
Assessment methods (indicate at	Students of the current academic year will deal with two written
least the type written, oral, other)	partial exams related to topics carried out up to the exam time.
	Students who pass both partial exams do not make an oral exam.
	Final grade will be the average of both partial exams. Students
	who will pass the first and will not pass the second partial exam
	will make the second partial even within a year Students who
	will make the second partial exam within a year. Students who
	will not pass the first partial exam cannot make the second
	partial. Exam will be composed of a written and an oral part.
Evaluation criteria (Explain for each	Students must acquire the basic knowledge of atoms and
expected learning outcome what a	molecules structures and of chemical and physico-chemical laws
student has to know or is able to	ruling transformation processes of materials in inorganic and
do, and how many levels of	organic field
achievement there are.	g
Visiting hours	All week previous telephonic or e-mail appointment