



CHEMISTRY AND PROPEDEUTIC BIOCHEMISTRY

Enrollment year	2020/2021
Academic year	2020/2021
Regulations	DM270
Academic discipline	BIO/10 (BIOCHEMISTRY)
Department	DEPARTMENT OF CLINICAL-SURGICAL, DIAGNOSTIC AND PEDIATRIC SCIENCES
Course	CARDIOCIRCULATORY AND CARDIOVASCULAR PERFUSION TECHNIQUES
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	(01/10/2020 - 22/01/2021)
ECTS	3
Lesson hours	24 lesson hours
Language	Italian
Activity type	WRITTEN TEST
Teacher	VIGLIO SIMONA (titolare) - 3 ECTS
Prerequisites	A basic knowledge on General and Organic Chemistry is required.
Learning outcomes	The aim of the Chemistry course is the knowledge of the chemical structure, the properties and the transformation of the different classes of inorganic and organic compounds to understand the basic chemical properties and transformation of the molecules in living organisms.
Course contents	<p>General Chemistry</p> <p>Elements and compounds. Atoms and molecules. Periodic system of the elements and electronic configuration; element valence and oxidation state. Interatomic bonds: nature and polarity; molecular shape (structural formulas). Nomenclature of inorganic compounds. Stoichiometry.</p>

	<p>Intermolecular bonds. Solutions: solubility; electrolytic dissociation; colligative properties.</p> <p>Chemical equilibrium. Kinetics: reaction rate and order, theory of activated complex; catalysis.</p> <p>Ionic equilibria in aqueous solutions. Acid–base reactions: water dissociation; pH; theories of acids and bases; neutralization and hydrolysis; amphoteric substances; buffers.</p> <p>Organic chemistry</p> <p>Molecular geometry; isomerism. Functional groups: nomenclature, structure and reactions. (Aliphatic and aromatic hydrocarbons, alcohols, aldehydes/ketones, amines; carboxylic acids and acyclic derivatives).</p> <p>Biological Chemistry</p> <p>Structure and function of proteins. Myoglobin and hemoglobin. Collagen. Enzymes. Biological membranes. Bioenergetics. Glycolysis. Beta-oxidations. Krebs' cycle and phosphorylative oxidation. Amino acid metabolism: urea cycle.</p>
Teaching methods	<p>Frontal lectures.</p> <p>Tutoring.</p>
Recommended or required readings	<p>Massimo Stefani, Niccolò Taddei- Chimica, Biochimica e Biologia Applicata- Ed. Zanichelli</p>
Assessment methods	<p>Written exam consisting in a series of:</p> <ul style="list-style-type: none"> -open theoretical questions -multiple choice theoretical questions -practical questions
Further information	<p>Written exam consisting in a series of:</p> <ul style="list-style-type: none"> -open theoretical questions -multiple choice theoretical questions -practical questions
Sustainable development goals - Agenda 2030	<p>\$Ibl legenda sviluppo sostenibile</p>