UNIVERSITÀ DI PAVIA

Anno Accademico 2020/2021

BIOINORGANIC CHEMISTRY

Enrollment year	2019/2020
Academic year	2020/2021
Regulations	DM270
Academic discipline	CHIM/03 (GENERAL AND INORGANIC CHEMISTRY)
Department	DEPARTMENT OF CHEMESTRY
Course	CHEMISTRY
Curriculum	PERCORSO COMUNE
Year of study	2°
Period	2nd semester (01/03/2021 - 18/06/2021)
ECTS	6
Lesson hours	48 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	NICOLIS STEFANIA (titolare) - 6 ECTS
Prerequisites	=
Learning outcomes	The course aims to study the role of metals in biological systems. In particular, starting from the deepening of topics of inorganic chemistry partially introduced in previous courses, with particular regard to the chemistry of metal compounds, students are given the tools to understand the interaction of metal ions with biological macromolecules and the mechanisms of action of some classes of metal proteins and metal enzymes of greatest biological interest.
Course contents	The topics covered in the course are as follows: electrons, elements of quantum mechanics; atoms, atomic orbitals and periodic properties; molecules, chemical bond and molecular orbitals; chemistry of coordination compounds: stability, isomerism, ligand field stabilization energy, magnetic properties, kinetics and reaction mechanisms; binding of oxygen and other small molecules to metals;biogeochemical cycles of

	metals and nitrogen; interaction of metal ions with nucleic bases/nucleotides/DNA, antitumor activity of platinum compounds; proteins: structure and function; metalloproteins and metalloenzymes, classification and functions; electron spectroscopy and natural chromophores, complexes with macrocyclic ligands (vitamin B12, chlorophyll, heme group); electron transport proteins; oxygen transport proteins; enzymes containing heme iron, not-heme iron and copper centers.
Teaching methods	=
Reccomended or required readings	=
Assessment methods	=
Further information	=
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile