

# UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

### **SYLLABUS DEL CORSO**

# Chimica Bioinorganica

2122-1-F5401Q023

#### **Aims**

The aim of the course is to illustrate properties, structures, reactivity, biological functions and methods of characterization of compounds of bioinorganic relevance.

#### **Contents**

Introduction to bioinorganic chemistry

Physical and spectroscopic methods for the characterization and study of bioinorganic systems

Fundamentals of electron transfer theory (Marcus theory and quantum tunneling);

Structure and function of metal proteins for electron transfer

Electron transport: the case of cytochrome c oxidase

Photosynthesis and PSII

Detoxification and activation of O2

Role of metals in diseases: the case of copper in neurodegenerative diseases

Activation and catalysis of small molecules (CO2, CH4, CO, H2, N2)
Detailed program
Prerequisites
Basic knowledge of biochemistry (proteins, DNA and RNA, metabolic pathways, etc.) and of the chemical-physical properties of metal ions and coordination compounds
Teaching form
lessons regarding the concenptual aspects and monographic seminars
Textbook and teaching resource
I. Bertini, H.B. Gray, E.I. Stiefel, E.S. valentine "Biological Inorganic Chemistry: Structure and Reactivity" University Science Books, Sausalito, California
Course slides and scientific papers
Semester

First year LM - Second Semester

# **Assessment method**

Oral examination

## Office hours

Write to luca.bertini@unimib.it