



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Chimica

2526-1-I0303D002-I0303D005M

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#### Aims

The student should be able to:

- describe the fundamentals of the structure of the atom, types and meaning of chemical bonds; indicate the possible interactions between molecules
- illustrate the possible types of solutions and explain how the concentration of a solution can be expressed;
- define the concepts of osmolarity and osmotic pressure and describe the meaning of osmotic phenomena in biological processes
- describe the different types of reactions that can occur between inorganic compounds
- define the concept of acid, base and salt, the concept of pH and its meaning and describe the properties of buffer systems
- indicate the structural and chemical properties of the main classes of organic compounds and the characteristics of the main reactions that occur in organic compounds
- describe the chemical characteristics of organic compounds of biological interest: lipids, sugars, amino acids and nucleotides; describe the composition and structure of nucleic acids and proteins

#### Contents

The course provides the student with the knowledge of general and organic chemistry necessary for the study of compounds present in biological systems.

#### Detailed program

- Structure of matter. Chemical bonds.
- Solutions. Colligative properties. Chemical reactions

- Acids and bases and buffer solutions.
- Classification of organic substances and functional groups that characterize them
- General properties of organic compounds and their reactivity.
- Organic compounds of biological interest: structure of sugars, amino acids, nucleotides, lipids. Proteins. Polysaccharides. Nucleic acids.

## **Prerequisites**

None

## **Teaching form**

5 lessons (2 hours) held in presence mode;

5 exercise activities (2 hours) carried out in face-to-face delivery mode.

## **Textbook and teaching resource**

M. Stefani, N. Taddei: Chimica Biochimica e Biologia Applicata Zanichelli.

R. Roberti, G. Alunni Bistocchi: Elementi di Chimica e Biochimica McGrawHill

## **Semester**

First semester

## **Assessment method**

### **Monza**

The written Chemistry test will consist of 10 questions (multiple choice) and open questions to check preparation on the exam program.

### **Bergamo**

The written Chemistry test will consist of 30 multiple choice questions to check the preparation on the exam programme.

## **Office hours**

By appointment required by mail

## Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION

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