



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Chimica

2425-1-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 McGrawHil

## **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 32 multiple choice questions to check your preparation on the exam programme. Possible oral (at the request of the teacher or student) with discussion of the written text.

## **Office hours**

By appointment required by mail

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION

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