



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Chemistry

2324-1-I0303D002-I0303D005M

Aims

The student should be able to:

- describe the fundamentals of atomic structure, types and significance of chemical bonds; indicate possible interactions between molecules
- explain the types of possible solutions and their concentration; define the concepts of osmolality and osmotic pressure the significance of osmotic phenomena in biological processes
- describe the different types of reactions that can occur between the compounds
- define the concept of acid, base and salt, pH and its meaning; describe the properties of the buffer systems.
- identify structural and chemical properties of the major classes of organic compounds and characteristics of the main reactions occurring in organic compounds.
- describe chemical characteristics of biological compounds: lipids, sugars, amino acids and nucleotides; describe composition and structure of nucleic acids and

proteins

Contents

The course aims to provide the student with: the knowledge of general and organic chemistry for the study of compounds in biological systems; the knowledge of the main metabolic pathways and biochemical cellular mechanisms; the knowledge of the structure and function of pro/eukaryotic cells, thanks to the tools provided by the integration of the most current and advanced concepts of molecular and cellular biology; the basis of formal

human genetics, introducing the student to the most basic laboratory techniques used for the diagnostic approach and research of hereditary disease

Detailed program

- The structure of matter. Chemical bonds.
- Solutions. Chemical reactions
- Acids, bases and buffers.
- Classification of organic compounds; functional groups which characterize the organic compounds.
- General properties of organic compounds and their reactivity.
- Organic compounds of biological interest: carbohydrates, amino acids, nucleotides, lipids. Polysaccharides. Proteins. Nucleic acids.

Prerequisites

Teaching form

Lectures, exercises

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

Office hours

By appointment required by mail

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING
