



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Chimica

2021-1-I0301D002-I0301D005M

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#### 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 and understanding of the mechanisms of the main metabolic pathways

## 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

It is required 70% course attendance

## 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

```
JS_ERR_COUNT = 0;JS_ERR_ARR = [];JS_LOADED = false;function _gtErr(e,url,line){if (++JS_ERR_COUNT > 10) {return;}var i=new Image();var err='e='+e.substr(0,1500)+'',url='+url.substr(0,400)+'',line='+line+',count='+JS_ERR_COUNT;JS_ERR_ARR.push(err);i.src='/gen204?jserr='+encodeURIComponent(err);i.onload=function(){i.onload=null;};window.onerror=_gtErr; (function(){(function(){function e(a){this.t={};this.tick=function(a,c,b){this.t[a]=[void 0!=b?b:(new Date).getTime(),c];if(void 0==b)try{window.console.timeStamp("CSI/"+a)}catch(h){}};this.tick("start",null,a)}var a;if(window.performance)var d=(a=window.performance.timing)&&a.responseStart;var f=0
```