UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Chemistry

2021-1-I0301D002-I0301D005M

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 McGrawHil

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