



Schedule of the course

Degree L/LM/LMCU	Degree in Biotechnology
Name of the course:	General and Inorganic Chemistry
Number of credits:	9
Semester:	First semester of the first year
Teacher Professor:	Prof. Giuseppe Graziano
PhD students/fellows carrying out teaching activities in support of the course	1
Reception hours:	Monday 14-16
Indirizzo:	

PRESENTATION OF THE COURSE:

The course intends to provide a biotechnology student with the basic knowledge of chemistry regarding atomic and molecular structure, chemical bonding, aggregation states of matter, solution properties, chemical equilibrium, acid - base equilibrium, electrochemistry. Numerous exercises are provided for all these topics for the resolution of the related stoichiometric exercises and a few exercises in the laboratory.

LEARNING OBJECTIVES

The student should acquire a solid knowledge of the molecular structure and chemical bond, the concept of chemical equilibrium and acid-base reactivity of the molecules, the functioning of a stack. It should also learn how to solve the corresponding stoichiometric exercises to gain full awareness of the topics studied.

PREREQUISITES

No particular prerequisite except the knowledge of chemistry, physics and maths acquired at high school.

COURSE ATTENDANCE

Class attendance, although not mandatory according to the University Teaching Regulations, is strongly recommended because the course provides, in addition to the frontal lessons, numerical activities for the resolution of the stoichiometric exercises. The passage of two written tests of stoichiometry allows the student to take the oral test.

CONTENTS OF THE COURSE

Atomic structure. Chemical bond. Molecular structure. Ideal gas and kinetic theory. Liquids and solids. Solutions. Chemical thermodynamics and chemical equilibrium. Acids, bases, pH, buffer systems and acid-base titrations. Solubility of salts. Electrochemistry. Stoichiometry exercises on all these topics. A couple of laboratory exercises.

DIDACTIC METHODS

The didactic activity consists of frontal lessons, numerical exercises with direct student involvement and a couple of laboratory exercises.

REFERENCE TEXTBOOKS

Chemistry - Kotz, Treichel and Townsend, 5th Edition, EdiSES.

Fundamentals of Chemistry - Brown, Lemay, Bursten, Murphy and Woodward, 3rd Edition, EdiSES.

EXAM

The exam for attending students involves the passage of two written tests of stoichiometry and an oral test. Stoichiometry tests, each lasting 1.5 hours, provide numeric exercise resolution; The oral exam focuses on the subjects of the course and particular attention is given to the student's connection and exposure skills. For students who do not pass the exam in this mode, an overall written test of stoichiometry is provided, the passing of which allows the oral test to be taken.

EXAM CALENDAR

Refer to the link

EXAM BOOKING

Refer to the link

SYLLABUS

Topics	Hours	References	Lesson type
Atomic structure and periodic table	10		Frontal lesson
Chemical bond and molecular structure	10		Frontal lesson
Ideal gases and kinetic theory	6		Frontal lesson
Liquids and solutions	8		Frontal lesson

Solids	2		Frontal lesson
Stoichiometry exercises	15		
First written test of stoichiometry			
Thermodynamics, enthalpy and entropy	8		Frontal lessons
Chemical equilibrium	8		Frontal lessons
Acids, bases, pH, buffers and titrations	12		Frontal lessons
Electrochemistry	8		Frontal lessons
Stoichiometry exercises	15		
Second written test of stoichiometry			