

**Chemistry**

Code: 101957  
ECTS Credits: 6

Degree	Type	Year	Semester
2500890 Genetics	FB	1	1

**Contact**

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**Use of languages**

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

**Prerequisites**

Although no official prerequisites are mandatory, it is highly recommended to have coursed the subjects of Chemistry and Physics in the high school.

As far as the lab sessions are concerned, students have the obligation to pass the tests of security and biosecurity available in Campus Virtual, as well as to read and accept the standard operating rules of the laboratories of the Faculty of Biosciences

**Objectives and Contextualisation**

Overall objective of the subject:

To understand and interpret a biological system from a chemical point of view

Intermediate goals

- 1) To acquire a fundamental chemical language.
- 2) To recognize a covalent chemical bond and to derive from it structural and physico-chemical properties
- 3) To assimilate the concept of equilibrium
- 4) To know the difference of several chemical reaction types: acid-base, redox, organic
- 5) To know the main functional organic groups and their chemical reactivity.
- 6) To know how to manipulate properly materials and products in a chemical laboratory

**Content**

**Structure of the Atom**

- Quantum Numbers
- Atomic Orbitals

- Electronic Configurations
- Periodic Table
- Periodic Properties

### **Chemical Bond**

- Models of Chemical Bond
- Covalent Bond
- Lewis Structures
- Resonance
- Molecular Geometry
- Hybrid Orbitals
- Intermolecular Forces

### **Acid-Base Reactions**

- Brønsted-Lowry Acids and Bases.
- Acidity Constant.
- The pH Concept
- Calculation of Concentration in Equilibrium
- Determining the Dominant Species in Solution
- Buffer Solutions.
- Acid-Base Titrations

### **Redox Processes**

- Concepts of Oxidation and Reduction.
- Balancing Redox Equations.
- Chemical and Biochemical Standard Reduction Potentials
- Nernst equation

### **Organic Chemistry**

- the Carbon Atom
- Organic Functional Groups.
- Concepts of Isomerism, Structural Isomerism and Stereoisomerism
- Types of Organic Reactions.
- Fundamental Organic Reactions.