

## 27206 - Analytical Chemistry I

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 27206 - Analytical Chemistry I

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 452 - Degree in Chemistry

**ECTS:** 9.0

**Year:** 2

**Semester:** Annual

**Subject type:** Compulsory

**Module:**

### 1. General information

The subject Analytical Chemistry I provides the fundamental principles of the discipline, as well as the criteria that allow to characterize and compare the different techniques and methods of analysis, focusing on methods based on the use of gravimetric, volumetric and electroanalytical techniques, together with the different strategies to calculate the results and evaluate their quality.

Sustainable Development Goals (SDGs) (<https://www.un.org/sustainabledevelopment/es/>)

- Goal 3: Health and wellness.
- Goal 4: Quality Education.
- Goal 5: Gender Equality.
- Goal 6: Clean water and sanitation.
- Goal 9: Industry, Innovation and Infrastructure.
- Goal 12: Responsible Production and Consumption
- Goal 13: Climate action.

### 2. Learning results

The student, in order to pass this subject, must demonstrate the following results:

- Understands and uses the terminology of analytical chemistry and the basic requirements for the development of analytical procedures.
- Correctly interprets the different stages and operations of an analytical procedure, with special emphasis on procedures based on the use of gravimetric, volumetric and electroanalytical methods.
- Evaluates and selects analytical procedures according to the analyte, the sample and the type and quality of analytical information required.
- Correctly performs the necessary calculations for calibration and obtaining the final results of an analytical determination, including its uncertainty

### 3. Syllabus

**Block I:** Objective, method and purpose of Analytical Chemistry (Introduction, Analytical Process, Quality, Analytical Reactions)

**Block II:** Chemical methods of analysis (Gravimetries and Volumetries)

**Block III:** General operations of the analytical process (Sample collection, Preliminary operations, Dissolution, Calibration, Processing of results)

**Block IV:** Instrumental Methods of Electroanalysis (Basic Concepts, Potentiometry, Voltammetry, Other Methods)

### 4. Academic activities

- 60 hours of participative master classes.
- 30 hours of problem/seminar classes. The group will be divided into two subgroups and they will discuss and solve problems and case studies.
- 20 hours of supervised work.

### 5. Assessment system

- Evaluation of the learning process through the completion of activities throughout the term (up to 40% of the final grade)

- A theoretical-practical written test, corresponding to the first semester, to be taken during the official evaluation period at the end of the semester.
- A theoretical-practical written test, which will be carried out in each of the two periods of global evaluation after the end of the term (first and second calls).

The final grade will be the best of the two grades listed below.

- **Final grade 1 = 50 % (written test 1st semester) + 50 % (written test 2nd semester)** **Final grade 2 = 30 % (written test 1st semester) + 30 % (written test 2nd semester) + 40 % (written test 2nd semester) + 40 % (written test 2nd semester) + 40 %**

**(Subject activities)**

For students who take the full global test the grade will be the best of:

- **Final grade 1 = 100 % (overall written test)**
- **Final grade 2 = 60 % (overall written test) + 40 % (subject activities)**

In no case will the subject be considered passed if in each of the WRITTEN TESTS the 40% of the evaluation has not been reached.