- Course title: **Instrumental Analysis**.
- Course code: 5278
- Type of course: compulsory
- Level of course: fundamental
- Year of study: 2
- Semester: 2
- Number of credits allocated: 6
- Names of lecturers: Olga Domínguez, Asunción Alonso and Álvaro Colina
- Objective of the course: to impart knowledge of different instrumental techniques, so that students are aware of their advantages and limitations and can apply their theoretical and operative principles. Students will be familiar with standard instrumentation in the analytical chemistry laboratory and will learn how to select suitable instrumental techniques for sample analysis.
- Prerequisites: It is recommended that students should have attended Physical Chemistry II: Spectroscopy and Statistical Thermodynamics and Analytical Chemistry before following this course.
- Course contents:
    - Modern methods of chemical instrumental analysis including spectroscopic methods and electroanalytical techniques.
    - Spectroscopic methods: fundamentals and instrumentation; methods based on: molecular absorption, molecular emission and dispersion; atomic absorption spectroscopy; atomic emission spectroscopy.
    - Electroanalytical techniques: introduction to electrochemistry; pathway of the general electrode reaction; techniques based on the stationary state and bulk electrolysis methods; controlled-potential techniques; controlled-current techniques; stripping analysis; special electrodes and techniques in electroanalysis.
- Recommended reading:
    - A.J. Bard, L.R. Faulkner (2001) Electrochemical methods: fundamentals and applications, John Wiley, New York
    - D.A. Skoog, D. M. West, F. J. Holler, S.R. Crouch (2004) Fundamentals of Chemical Analysis. Thomson-Brooks/Cole, Australia.
    - D.A. Skoog, F.J. Holler, S.R. Crouch (2007) Principles of Instrumental Analysis, 6th Ed, Thomson, USA
    - D.C. Harris (2003) Quantitative Chemical Analysis, W.H. Freeman. New York.
    - J. Wang (1994) Analytical Electrochemistry, VCH, New York
    - R.D. Braun (1987) Introduction to Instrumental Analysis, McGraw-Hill, New York.
- Teaching methods:
    - Lectures: teachers explain the contents of the lessons.
    - Seminars: students and teacher discuss the problems and other points raised in class.
    - Practicals: students apply their knowledge to solve laboratory experiments.
- Assessment methods:
    - Participation and attitude in the laboratory and seminars: 15 %
    - Work in the laboratory: 20 %
    - Group and individual work: 10 %
    - Group and individual analysis, presentation and discussion of practices and problems: 5 %
    - Written work and exams: 50 %
- Language of instruction: Spanish and/or English