- Course title: **General Chemistry II**.
- Course code: 5269
- Type of course: compulsory
- Level of course: basic
- Year of study: 1
- Semester: 2
- Number of credits allocated: 9
- Names of lecturers: Jesús López, Mª Ángeles García and José María Leal
- Objectives: After completing the course, students will be expected to
  - Describe properties of liquids and solids, understanding phase changes and the energy terms associated with them. Discuss the relationship between enthalpy, entropy and free energy and their relationship to spontaneity.
  - Understand the factors that affect the rates of chemical reactions and determine rate laws.
  - Write equations, equilibrium expressions and carry out calculations for various equilibria.
  - Describe the process of solutions formation and their properties and carry out calculations involving mass and charge balances.
  - Characterize acids, bases and salts by Brønsted-Lowry definitions. Carry out pH calculations. Carry out calculations with solutions of slightly soluble salts, with complexes in solution and with redox systems.
  - Describe voltaic and electrolytic cells. Write equations for oxidation-reduction reactions and calculate cell potentials for these reactions.
- Prerequisites: no prior requirements.
- Course contents: The main topics are:
  - Concepts of enthalpy, entropy and Gibbs energy.
  - Thermodynamics of gases and condensed systems.
  - Thermodynamics of chemical equilibrium.
  - Principles of Chemical Kinetics.
  - Solutions of electrolytes. Equilibria in solutions of acids and bases, complex systems, slightly soluble species and redox systems.
  - Calculations of equilibrium state in solution (mass and charge balance equations).
- Recommended reading:
  - D.A. Skoog; D.M. West; J. Holler, Fundametals of Analytical Chemistry, 6 th Ed.
  - Saunders College Publishing ISBN-13: 9780030972867; ISBN: 0030972868. (Spanish edition: Reverté, Barcelona, 84-291-7554-7)
  - D.C. Harris, (2007) "Quantitative Chemical Analysis", 7th Ed., W.H. Freeman; (May 19, 2006) ISBN-10: 0716770415; ISBN-13: 978-0716770411 (Spanish edition: Reverté, Barcelona, 84-291-7224-6)
  - R.H. Petrucci, W.S. Harwood and F.G. Herring, "General Chemistry: Principles and Modern Applications", 8th Ed, Pearson Prentice Hall (Spanish edition: Prentrice Hall; ISBN: 84-305-3533-8)
- 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:
  - Group or individual work: 30%.
  - Continuous evaluation of theoretical-practical sessions: 20%
  - Written work and exams: 50%.
- Language of instruction: Spanish and/or English