

- Course title: **Physical Chemistry III: Thermodynamic Chemistry.**
- Course code: 5280
- Type of course: compulsory
- Level of course: fundamental
- Year of study: 2
- Semester: 2
- Number of credits allocated: 6
- Names of lecturers: Rafael Alcalde and Santiago Aparicio.
- Objective of the course:
 - To acquire the foundations and terminology which characterize the thermodynamic chemistry of material balances in terms of state functions.
 - To apply thermodynamic chemistry to the resolution of significant problems such as energy changes in chemical reactions, phase changes, solutions, chemical and electrochemical balance and superficial phenomena.
 - To plan, to design and to execute practices to study simple thermodynamic states; to relate experimental and theoretical subject matter.
- Prerequisites: It is recommended that students should have attended Chemistry General II and Mechanics and Thermodynamics before following this course.
- Course contents:
 - The Language of Thermodynamics.
 - Thermodynamic Relationships and Applications.
 - Chemical Potential and Equilibrium.
 - The Thermodynamic Properties of Solutions.
 - Applications of Thermodynamics to Nonelectrolyte Solutions.
 - Applications of Thermodynamics to Solutions Containing Electrolyte Solutes.
- Recommended reading:
 - Thomas Engel and Philip Reid. *Introducción a la fisicoquímica: Termodinámica*. Ed. Pearson Education, 2007.
 - Juan A. Rodríguez Renuncio, Juan J. Ruiz Sánchez and José S. Urieta Navarro. *Termodinámica Química*. Ed. Síntesis, 1999.
 - Peter Atkins, Julio de Paula, *Physical Chemistry*, W. H. Freeman; 7th Ed., 2001.
 - Charles Trapp, Marshall Cady, Carmen Guinta, Peter Atkins, Julio de Paula. *Student's Solutions Manual for Physical Chemistry*, 7th Ed. W. H. Freeman, 2001.
 - Ira Levine, *Physical Chemistry*, McGraw-Hill; 6th Ed., 2008.
- 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 and individual work: 20%
 - Resolution of problems, issues and other proposals: 30%
 - Group and individual analysis, presentation and discussion of practices and problems: 10%
 - Written work and exams: 40%
- Language of instruction: Spanish and/or English