

Thermodynamique chimique

Lecturers

Geneviève DUPONT (Coordinator) and Yannick DE DECKER

Course mnemonic

CHIM-F205

ECTS credits

5 credits

Language(s) of instruction

French

Course period

Second term

Course content

I. CHEMICAL THERMODYNAMICS : introduction, first principle, second principle, Nernst-Planck theorem, thermodynamics of perfect and real gases, chemical equilibrium, heterogeneous equilibria, thermodynamics of interfaces II. INTRODUCTION TO STATISTICAL MECHANICS : Boltzmann distribution and molecular partition function, canonical partition function, statistical expressions for U, S, F, p, H and G, derivation of the perfect gas equation and the Van der Waals equation, relationship between the equilibrium constant and the partition functions

Objectives (and/or specific learning outcomes)

The aim of the course is to provide a rigorous description of the basic principles of chemical thermodynamics and their statistical foundation. These principles are illustrated with typical chemical reactions and phase transition phenomena.

Pre-requisites and co-requisites

Pre-requisites courses

CHIM-F101 | Chimie générale | 10 crédits, CHIM-F101 | Chimie générale | 15 crédits, CHIM-F101 | Chimie générale | 20 crédits and CHIM-F101 | Chimie générale | 5 crédits

Course having this one as co-requisite

CHIM-F321 | Thermodynamique statistique | 5 crédits

Teaching method and learning activities

Ex-cathedra teaching. Supervised seminars for the resolution of problems.

Other information

Contact(s)

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Evaluation method(s)

Other

Evaluation method(s) (additional information)

One written examination about problems, and one oral examination.

Programmes

Programmes proposing this course at the faculty of Sciences

BA-CHIM | Bachelor in Chemistry | unit 2