

Physique statistique

Lecturers

Pierre GASPARD (Coordinator) and Bortolo Matteo MOGNETTI

Course mnemonic

PHYS-F303

ECTS credits

10 credits

Language(s) of instruction

French

Course period

First and second terms

Campus

Plaine

Course content

Statistical description in classical mechanics and quantum mechanics; the equilibrium statistical ensembles (microcanonical, canonical, grand-canonical, isobaric-isothermal); the macroscopic equivalence of ensembles and the fluctuations; the concept of entropy; the ideal gases of atoms and molecules; the ideal quantum gases of bosons and fermions; the quasi-ideal mixtures; the non-ideal systems; introduction to irreversible processes.

Objectives (and/or specific learning outcomes)

The goal of statistical physics is to understand the properties of physical systems with their degrees of freedom statistically distributed according to some probability law.

Pre-requisites and co-requisites

Pre-requisites courses

PHYS-F201 | Thermodynamique | 5 crédits and PHYS-F203 | Introduction à la mécanique quantique | 5 crédits

Teaching method and learning activities

Lectures and exercices.

References, bibliography and recommended reading

cf. lecture notes available on the website "L'Université Virtuelle".

Other information

Place(s) of teaching

Plaine

Contact(s)

Pierre Gaspard

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Evaluation method(s)

Other

Evaluation method(s) (additional information)

Q1: Written examination on theory and exercices.

Q2: Oral examination on theory and written examination on exercices.

Determination of the mark (including the weighting of partial marks)

Q1: Written examination 50%;

Q2: written examination 25%, oral examination 25%.

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the faculty of Sciences

BA-PHYS | Bachelor in Physics | unit 3