

# UE Statistical physics I: Theory



Level  
Baccalaureate  
+4



ECTS  
3 credits



Component  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)



Semester  
Automne

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX7NFAJ

## Presentation

### Description

*Goal:* Introduce the basic statistical physics concepts to address the equilibrium and evolution properties of nano-scale systems.

### Objectives

*Content:*

- Statistical entropy
- Boltzmann factor, statistics in the canonical ensemble, mean values and fluctuations
- classical and quantum oscillators, applications
- chemical potential, grand canonical ensemble, applications: adsorption isotherms, quantum statistics
- fluctuations dynamics, linear response
- Monte-Carlo notions

### Course parts

UE Statistical physics - CMTD

Lectures (CM) & Teaching Unit (UE)

24h

**Period** : Semester 7

# Useful info

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## Campus

› [Grenoble - Saint-Martin d'Hères](#)