UE Nanosciences I

Level
Baccalaureate +4

ECTS
3 credits

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

Semester
Printemps

- **Teaching language(s):** English
- **Open to exchange students:** Yes
- **Code d'export Apogée:** PAX8NCAA

Presentation

Description

- To address multidisciplinary approaches in nanosciences through a set of practical work.
- To train on high-tech platforms in nanosciences and in nanotechnology.
- To understand chemical methods of nanomaterials synthesis by a bottom-up approach.
- To learn the physical principles and practice of nanomaterials characterization techniques

Objectives

The Nanosciences course offers high level experimental training and labwork performed in the nano-facilities and technology centers of UGA: CIME-Nanotech, CUBE, Chemistry platform.

Content

This course addresses the pluridisciplinar aspect of nanosciences and in nanotechnologies. The goal is to train students at the interface between the different sciences: chemistry and physics (Part I), physics and biology (Part II), and show the importance of a collaborative approach to the production and the characterization of nanoscale objects. Courses are in support for understand the great principles of the bottom-up approach in nanochemistry, the physical principle of different methods of characterization in nanosciences (AFM, SEM, TEM) and the elementary principles in biophysics. The pedagogical team is composed of teachers working in the field of nanochemistry, nanophysics and biophysics. The different practical work taking place on various practical teachings platforms located in Grenoble allowing the use of characterizations equipment at the forefront of nanoscience research.

Nanoparticules

This course is devoted to the Chemical Synthesis of metallic nano-particules and their morphological characterization by UV, Diffusive Light Scattering, Scanning Tunneling Microscope, and Atomic Force Microscopy. It consists of 15h of lectures and 11h of Labwork taking place at the Chemical platform and CIME-Nanotech. Students study the theory of state-of-the-art nano-characterization techniques, synthesize nanoparticules, and characterize them with high-tech equipments.

Course parts

CM	Lectures (CM)	17h
TP	Practical work (TP)	8h

Period : Semester 8

Useful info

Campus

- Grenoble - Saint-Martin d'Hères
- Grenoble - University campus