

UE Nanostructured materials



Niveau d'étude
Bac +5



ECTS
3 crédits



Composante
UFR de Chimie
et de biologie



Période de
l'année
Toute l'année

Diplômes intégrant cet élément

- Master Chimie

- › Langue(s) d'enseignement: Anglais
- › Ouvert aux étudiants en échange: Oui
- › Code d'export Apogée: YAFP9U12

Présentation

Description

The main goal of this lecture is to provide the students with basic and sound knowledge of the structure/properties relationships in polymers and composites. A deep introduction is first given to understand the characteristic temperatures of polymeric materials, before studying heterogeneous structure. Polymer-polymer blends are explained through statistical thermodynamics, blends miscibility and phase diagrams, phase separation, interface between two immiscible polymers, copolymers and surfactants. The most common modelling methods are described for phase diagram calculation as well as homogenization, practical examples are treated by the students. The scaling effect and the practical improvement in properties that can be obtained from micro- and nanocomposites are also critically reviewed. The prominent ways to add values in polymers through functional properties are described both with practical illustrations and more conceptual description.

Objectifs

Skills:

Knowledge of basic structure properties with polymers and composites. Both structural and functional properties are described. The concept of appropriate scale is developed.

Heures d'enseignement

CM	CM	15h
TD	TD	9h

Pré-requis recommandés

Prerequisites:

Polymers 1 & 2 (M1 Master Program)

Période : Semestre 9

Infos pratiques

Contacts

Responsable pédagogique

Pr Lionel Flandin

✉ lionel.flandin@univ-savoie.fr

Lieu(x) ville

➤ Grenoble

Campus

➤ Grenoble - Domaine universitaire