

# UE Functional Nanoparticles



Niveau d'étude  
Bac +5



ECTS  
3 crédits



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



Période de  
l'année  
Toute l'année

- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Code d'export Apogée:** PAX9NCAK

## Présentation

### Description

The applications of nanoparticles in research and innovation are multiple and cover large fields. The aim of this course is to present the main areas of application of nanoparticles in current research. In addition, the specific properties of selected types of particles will be discussed as well as surface functionalization strategies required for realizing the presented applications. The course is structured into three modules differentiated by the types of application.

### Objectifs

Optoelectronic and energy applications

- Novel types of semiconductor nanocrystals: ternary quantum dots, carbon/graphene nanodots, metal halide perovskite nanocrystals
  - Photovoltaics and photodetectors
  - Thermoelectricity
  - LEDs, lasing, single-photon emitters
  - Gas sensors
2. Biological applications

- drug delivery - therapy
  - Imaging
  - bio-sensors, chemo-sensors
3. Catalysis applications

- Porous materials
- Metal nanoparticle applications
- Photocatalytic applications
- Hybrid materials

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## Heures d'enseignement

UE Functional Nanoparticles - CM-TD

Cours magistral - Travaux dirigés

24h

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## Pré-requis recommandés

Basically, the prerequisites are the contents of the corresponding courses in M1 Nanochemistry

**Période** : Semestre 9

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## Infos pratiques

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### Contacts

Co-responsable pédagogique

Fabien Dubois

✉ [Fabien.Dubois1@univ-grenoble-alpes.fr](mailto:Fabien.Dubois1@univ-grenoble-alpes.fr)

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### Lieu(x) ville

› Grenoble

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### Campus

› Grenoble - Domaine universitaire