UE 3.9F – Nanobiotechnologies – 3 ECTS

Instructors’ names:
D. Marchal (coordinateur), V. Noel, C. Mangeney, M. Giraud, B. Piro

Pedagogical objectives:
This course focuses on the numerous connections between nanosciences and biology and the interest to combine these two disciplines for the development of innovative devices and systems. By the end of the course, students will have a detailed knowledge of the technological and fundamental challenges of nanobiotechnologies.

Course pre-requisites:
Validation du M1

Program:
1. Nanomaterials: Imaging and Therapy
   - Vector-mediated drug delivery
   - Chemical Physics of Colloids applied to Biology.
   - Interaction between nanoparticles and cells
   - Colloidal systems for Imaging and Therapy, Contrast Agents, Hyperthermia.
   - Nano-materials Architectures for Theranostics

2. DNA/Proteins/glycosides chips
   - Functionalization and Sensing strategies,
   - Fields of Application - research, diagnostic, health, agribusiness ,....

3. Contribution of Biology to Nanostructures Building
   - Biomimetic materials,
   - Programmed Supramolecular Architectures based on Biomolecules and Nano-object

Acquired skills:

Evaluation:
Final exam (100%)