

### UE Integrative structural cell biology

ECTS 6 credits



Component UFR Chimie-Biologie

- > Teaching language(s): English
- > Open to exchange students: Yes
- > Code d'export Apogée: YASB9U14

## Presentation

### Description

The course aims at introducing the students to advance and modern methods in structural biology that integrate structural and/ or dynamical information at different levels of resolution.

- Structure of large biomolecular assemblies
- · Obtaining key information on large biomolecular assemblies and systems
- Electron microscopy and tomography
- NMR spectroscopy
- X-ray and neutron diffraction
- · Hybrid approaches (combination of high- and low-resolution structural methods)
- Structure of ribosome, signal recognition particle, viruses,...
- From macromolecules to the cell
- High resolution optical microscopy
- Atomic force microscopy
- Correlative electron microscopy (combination of optical and electron microscopy)
- · Structure and dynamics of the cytoskeleton
- Biology of flower .....
- Dynamics of biomolecular systems
- Dynamics by NMR spectroscopy





- Neutron spectroscopy
- Molecular dynamic simulations
- Intrinsically disordered proteins

#### Course parts

UE Integrative structural cell biology - TP	Practical work (TP)	12h
UE Integrative structural cell biology - CM	Lectures (CM)	21h
UE Integrative structural cell biology - TD	Tutorials (TD)	7h
Period : Semester 9		

#### Skills

Understanding concepts, prospects and current problems of integrative structural biology, integrating results from different methods (EM, high-resolution optical microscopy, X-ray, NMR, SAXS/SANS, molecular dynamics simulation and functional data), expertise in electron microscopy reconstruction and in hybrid structural methods, insight into large macromolecular assemblies and macromolecular dynamics.

# Useful info

#### Contacts

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Place

> Grenoble

#### Campus

Grenoble - University campus

