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

Program director

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Place

Grenoble

Campus

Grenoble - University campus