

BIO-643

Integrative structural biology for Life sciences

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Cursus	Sem.	Type
Molecular Life Sciences		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Oral presentation
Workload	60h
Hours	28
Courses	10
Exercises	14
TP	4
Number of positions	12

Frequency

Every 2 years

Summary

Theoretical and Hands-on course in biomolecular integrative structural Biology by SV specialists in the field of X-ray crystallography, Electron Microscopy, Bio-NMR and Mass Spectrometry. No previous knowledge in Structural Biology or Bioinformatic needed.

Content

This course will teach how to interpret data from major structural biology techniques and connect experimental approaches to computational modeling. You will have sessions that are tutorial based on main structural biology software as an introduction to data processing workflow.

Topics discussed in class are expected to include:

- Macromolecular X-ray crystallography
- Modeling and molecular dynamics of proteins
- Single Particle Cryo-Electron Microscopy
- Bio-NMR
- Mass Spectrometry applied to Structural Biology

Other topics may be included as needed. Lectures will be presented by the instructors and other experts at the EPFL and in the Lemanic region. Doctoral students will present in duo a 15-min. talk on a specific subject within the field at the end of the course.

Visit of structural Biology Core Facilities within EPFL will be proposed.

Note

Do not register by yourself but please contact edms@epfl.ch.

The course is open to max. 12 students and it will take place during the spring 2022.

Keywords

Macromolecular X-ray crystallography, Modeling and molecular dynamic of proteins, Single Particle Cryo-Electron Microscopy, Bio-NMR, Mass Spectrometry applied to Structural Biology.

Learning Prerequisites**Required courses**

Basic molecular Biology

Bring your own laptop

Assessment methods

Oral presentation