CH-412

Chemical biology

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Cursus	Sem.	Type
Chimiste	MA2	Opt.
Neuroscience		Opt.

Language of teaching	English
Credits	3
Session	Summer
Semester	Spring
Exam	Oral
Workload	90h
Weeks	14
Hours	**2 weekly**
Courses	2 weekly
Number of positions	

Summary

The class will discuss how the tools of chemistry can be utilized to address important problems in biology. Through the discussion of landmark papers in chemical biology the students will be introduced into research at the interface of chemistry and biology.

Content

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Keywords

chemical biology, protein chemistry, chemical probes, protein engineering, chemical genetics

Learning Outcomes

By the end of the course, the student must be able to:

- Characterize the main concepts in chemical biology
- Design an experiment to engineer an autofluorescent protein
- Describe how proteins can be chemically modified in live cells
- Develop an experiment to exploit unnatural amino acids
- Describe a strategy to generate allele-specific kinase inhibitors
- Categorize different strategies to derivatize proteins for mechanistic studies
- Contrast forward and reverse chemical genetics
- Develop a strategy for determining the protein target of a bioactive molecule

Transversal skills

- Access and evaluate appropriate sources of information.

Teaching methods

Ex cathedera and discussions

Expected student activities

Read papers to be discussed before the class

Assessment methods

100% Oral exam

Supervision

Office hours	No
Assistants	No
Forum	No
Others	Students are welcomed to contact Kai Johnsson via email or after the class to schedule appointments

Resources

Ressources en bibliothèque

- Structure and Mechanism in Protein Science / Fersht

Notes/Handbook

Papers and slides will be distributed via the the website of the teaching section or by email before the class.

Websites

- http://scgc.epfl.ch/telechargement_cours_chimie