CH-412  Chemical biology
Heinis Christian

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 cathedra 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 website of the teaching section or by email before the class.

**Websites**

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