

CH-313

Biochemistry II

Aye Yimon, Fierz Beat

Cursus	Sem.	Type
Chemistry	BA5	Obl.
HES - CGC	H	Opt.

Language of teaching	English
Credits	2
Session	Winter
Semester	Fall
Exam	Written
Workload	60h
Weeks	14
Hours	2 weekly
Lecture	2 weekly
Number of positions	

Summary

The goal of this class is an introduction into the organic chemistry of biological pathways. Students will learn the common mechanisms in biological chemistry as they are found in primary and secondary metabolism.

Content

This class discusses the organic chemistry of biological pathways. Students will learn the common mechanisms in biological chemistry as they are found in primary and secondary metabolism. First, basic concepts of enzyme catalysis and the mechanisms of the main biological cofactors will be discussed. Subsequently, specific pathways from the fields of carbohydrate metabolism, lipid metabolism, amino acid metabolism, nucleotide metabolism and the biosynthesis of some natural products will be discussed.

Keywords

biological pathways, metabolism, cofactors, enzyme catalysis, biosynthesis of natural products.

Learning Prerequisites**Required courses**

Biochemistry I and introductory classes into organic chemistry.

Learning Outcomes

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

- Classify the different biological cofactors used by enzymes
- Define the main metabolic pathways
- Sketch a reaction mechanism for a biological transformation
- Hypothesize which cofactors will be used in a given biological transformation
- Propose experiments to investigate reaction mechanisms
- Describe the main features of carbohydrate metabolism
- Explain the main features of polyketide biosynthesis
- Design mechanism-based inhibitors for selected enzymes

Transversal skills

- Access and evaluate appropriate sources of information.

Teaching methods

Ex cathedra. The blackboard will be used as well as power-point presentations.

Expected student activities

Students are expected to take detailed notes and work on problems distributed in the class.

Assessment methods

Written exam

Supervision

Others Students are welcomed to contact Kai Johnsson via email to fix appointments.

Resources

Bibliography

"Principles of Biochemistry" by Lehninger Albert, Cox Michael and Nelson David. W.H. Freeman & Company, 5th ed. (not mandatory).

Ressources en bibliothèque

- [Principles of biochemistry / Lehninger](#)

Notes/Handbook

Powerpoint slides shown during the class will be made available on the web.