

CH-709

**Frontiers in Organic Synthesis. Part III Stereochemistry**

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Cursus	Sem.	Type
Chemistry and Chemical Engineering		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Multiple
Workload	60h
<b>Hours</b>	<b>46</b>
Courses	10
TP	36
<b>Number of positions</b>	<b>9</b>

**Frequency**

Every 3 years

**Remark**

Next time: Spring 2022

**Summary**

The objective of this course is for the student to become aware of the huge progress that have been made recently in the field of stereochemistry, which will allow for the first time complex targets to be synthesized efficiently.

**Content**

Following topics will be examined in this course:- Modern methods for the stereoselective synthesis of polyketides building blocks

- Stereoselective oxidation methods
- Selective introductions of nitrogen into organic molecules
- Stereoselective C-C bond forming reactions
- Synthesis of non-natural alpha and beta amino acids
- Chiral diversity through stereoselective multi-components reactions.

(General Concept of the Lecture Series: A thorough knowledge and understanding of chemical transformations is essential for the synthetic chemist. In this course series, the student will become familiar with the recent methodological developments in organic chemistry. With the tools of modern chemistry, they will be able to design new efficient, economical and environmentally friendly reactions and synthesis. Every student will be assigned a specific topic of research. He will be expected to make a thorough literature research on his subject, including pioneering works, state of the art and most recent developments. He will present his results to the class and the instructor and organize a short exercise session on the topic for the class.)

Part III: Stereochemistry. Many natural bioactive compounds have complicated structure with several well-defined stereocenters. In contrast to this complexity, many drugs have still very simple tridimensional structures. The main reason for this discrepancy is the lack of stereoselective and efficient methods for the synthesis of complexe tridimensional structures. The objective of this course is for the student to become aware of the huge progress that have been made recently in this field, which will allow for the first time complex targets to be synthesized efficiently.

**Keywords**

Stereochemistry, Stereoselective Reaction, Chiral Molecules, Complexe Structures, Cascade Reactions

**Learning Prerequisites****Recommended courses**

Master EPFL or Equivalent