**Summary**

Complex polycyclic natural products are chosen to illustrate the evolution of the state-of-the-art of the field, the interplay between strategy and new reactions as well as the importance of implementing multi-bond forming processes in a synthesis.

**Content**

Retro-synthesis and synthesis of different classes of natural products important for their structure and/or bioactivity.

**Keywords**

Retro-synthetic analysis, Synergism between strategy and new reactions, Domino reactions, multicomponent reactions, Oxidative coupling, Pattern Recognition, Hidden Symmetry, C-H Functionalization, Asymmetric organocatalysis

**Learning Prerequisites**

**Recommended courses**

General knowledge of organic reactions. Basic knowledge of retro-synthesis. EPFL lectures fonctions et réactions organiques I and II, synthèse asymétrique, target synthesis, structure and reactivity or equivalent courses.

**Learning Outcomes**

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

- Draw reaction mechanism
- Analyze synthetic route
- Elaborate synthetic scheme
- Design synthetic strategy

**Supervision**

- Office hours: Yes
- Assistants: Yes
- Forum: Yes

**Resources**

Ressources en bibliothèque
• Classics in Total Synthesis II / Nicolaou
• Workbook for Organic Synthesis / Warren
• Classics in Total Synthesis: Targets, Strategies, Methods / Nicolaou
• Organic Synthesis: The Disconnection Approach / Wyatt
• Classics in Total Synthesis III / Nicolaou

Websites
• http://scgc.epfl.ch/telechargement_cours_chimie