UE Organic chemistry 1

ECTS
6 credits

Component
UFR Chimie-Biologie

- **Teaching language(s):** English
- **Open to exchange students:** Yes
- **Code d'export Apogée:** YACH7U12

Presentation

Description

During this course a non-exhaustive way the various classes of protective group as well as their selective deprotection will be presented. Their use in chemistry of sugars, peptides and in total synthesis will be particularly exposed. The main reactions of oxidation, reduction and olefination will then be detailed through their mechanisms and selectivities.

Course parts

UE Organic chemistry 1 - CM	Lectures (CM)	30h
UE Organic chemistry 1 - TD	Tutorials (TD)	20h

Recommended prerequisites

Organic chemistry (Bachelor program).

Period : Semester 7

Skills

Approaches towards selectivity in organic chemistry (chemio-, regio-selectivities, protection of functional groups), redox organic chemistry, olefination methods.

Bibliography

Details:
I. Redox Organic Chemistry
- oxidations of alcohols into carbonyl compounds and into carboxylic derivatives.
- syn et anti-dihydroxylations and oxidative cleavages of 1,2-diols.
- epoxidations and subsequent transformations of epoxides
- addition of oxygen (singlet and triplet) to alkenes, ozonolysis .
- oxydations of alkanes and other heteroatoms (S, Se, N) .
- catalytic hydrogenation: heterogeneous or homogeneous.
- reductions involving hydride donors: conformational effects, stereoselectivity models, chemioselectivities.
- reduction methods involving dissolved metals.

II. Chemioselectivity and orthogonal protecting groups . Protections of functional groups: alcohols/thiols, diols, carbonyl compounds, carboxylic acids, amines, phosphorus-containing groups, non innocent PG's ; Specific protection of sugars; anomeric effect, coupling of two sugars.

III. Olefination methods:
- metathesis
- olefination methods involving phosphorus ylides (Wittig and related reactions including HWE).
- olefination methods involving anions stabilised by a-effect of sulfur (Julia) or of silicon (Peterson)

Useful info

Contacts

Program director

Jean Francois Poisson
Jean-Francois.Poisson@univ-grenoble-alpes.fr

Place

Grenoble

Campus

- Grenoble - University campus