

## Faculty of Biological, Agronomic and Environmental Engineering



### BIR1317 Organic chemistry (part II)

[30h+15h exercises] 3.5 credits

This course is taught in the 1st semester

**Teacher(s):** Jacqueline Marchand  
**Language:** French  
**Level:** First cycle

#### Aims

Acquiring of knowledge and know-how in organic chemistry by the systematic study of reaction mechanisms and of the factors which have an influence on the course of these mechanisms.

#### Main themes

Acquiring of fundamental reasonings in chemical reactivity of organic molecules.

The mechanisms are discussed in terms of :

- acid-base interactions, nucleophiles and electrophiles, hard and soft reagents.
- substituents effect, solvents effect, effect of catalysts on reactivity and selectivity.
- notions of selectivity concern the chemoselectivity (functional groups compatibility), the regioselectivity (ambident reagents), and the stereoselectivity (stereoelectronic control).

#### Content and teaching methods

Content and methods : mastering of the scientific meaning in organic chemistry by the systematic study of reaction mechanisms. Recall of fundamental notions : structure and reactivity, acids and bases, carbanions and carbocations, kinetic and energetic aspects of reactions. Mechanisms of heterolytic reactions : substitution, elimination, addition, reactions of carbonyls and aromatic nuclei. Free radicals and homolytic reactions. Oxidations and reductions. Pericyclic reactions (Woodward - Hoffmann's rules). Photochemical reactions.

#### Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

- Pre-requisite CHIM 1151 "General chemistry, first part"; CHIM 1251 "General chemistry, second part"; CHIM 1170 "organic chemistry, first part".
- Evaluation : final examination.

#### Programmes in which this activity is taught

**BIR2** Bio-ingénieur

#### Other credits in programs

<b>BIR21/C</b>	Première année du programme conduisant au grade de bio-ingénieur (Chimie)	(3.5 credits)	Mandatory
----------------	---------------------------------------------------------------------------	---------------	-----------