

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

4 credits

30.0 h + 22.5 h

Q1

Teacher(s)	Riant Olivier ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Main themes	The thermodynamic and kinetic aspects will be reintroduced and completed by notions of reaction control. The electronic effects will be discussed again and linked to the notions of stabilisation of charges and to acid-basic properties of certain classes of organic functions. The HSAB concept will also be introduced and connected to the concepts of electronegativity and polarization. These principles will be applied to aromatic chemistry and the control of orientation in electrophilic aromatic substitution reactions will be developed and applied to concrete problems of everyday's life (paracetamol, ibuprofen, ..). The chemistry of nitrogen will introduce the main classes of functions carrying these heteroatoms as well as their presence in biological molecules (DNA, peptides, ATP, ...). A deeper understanding of the mechanisms and the notions of orientation and selectivity will be reached by the study of the main classes of reactions involving the chemistry of these heteroatoms. The interconversions between these functional groups will be completed by the notions of organic intermediates carrying heteroatoms. The knowledge of organic synthesis for the construction of molecules will also be used to illustrate the course in different fields of everyday's life. Introduction to the notion of carbanions. Physico-chemistry and structures. Stabilizing effects. Chemistry of enolates and carbanions will be reintroduced and deepened in the aspects of preparation, reactivity and selectivity. Alkylation reactions, aldol condensations and Michael reaction. Chemistry of unstable organometallics. The organomagnesium, organolithium and organocuprates. Duality between base and nucleophile. Applications in the creation of carbon-carbon bonds. Comparison between different organometallic families.
Aims	<i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Bibliography	<ul style="list-style-type: none"> • Chimie organique, P. Bruice – Pearson 2^e Edition • Organic Chemistry, Clayden
Faculty or entity in charge	CHIM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Bioengineering	BIR1BA	4	LCHM1141B	