UCLouvain

lchm1341

2026

Organic chemistry III

4.00 credits	30.0 h + 15.0 h	Q2

Teacher(s)	Robiette Raphaël ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	It is recommended to have acquired the knowledge and skills developed in the teaching units: LCHM1111 Chimie générale LCHM1141 Chimie organique LCHM1244 Chimie organique 2 : approfondissement des concepts de base LCHM1245 Chimie organique 2 : Chimie hétéroatomique
Main themes	Frontier orbital theory. Fukui treatment. Thermal activation and photochemistry. Cycloadditions: regio and stereoselectivity. 1-3 dipolar cycloadditions. Rearrangement of Cope and related reactions. Cationic polycyclisations. Polymerizing cations. Biomimetic reactions. Radical polycyclisation. Polymerizing radicals. Natural antioxydants.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 In the continuity of the organic chemistry II course, this course follows the study of reaction intermediates and reaction mechanisms. A first part is dedicated to pericyclic reactions and to frontier orbital theory. Connections with the physical chemistry course will be highlighted. The second part treats the reactivity of carbocations and radicals. Examples from the biochemistry course will be used to illustrate these concepts. In both parts emphasis is put on all aspects of selectivity while creating new bonds.
Evaluation methods	Written exam
Teaching methods	13 magistral lectures of 2h and 6 classroom exercices sessions.
Content	The chapters covered in this course are : - Theory of molecular orbitals - Electrocyclic reactions - Cycloadditions - [4+2] - [2+2] - (3+2) - Sigmatropic rearrangements - Chemistry of carbenes - Radical chemistry - Carbocations
Inline resources	Slides used for the magistral lectures, review articles covering the different chapters of the course as well as exercices are available on moodle. https://moodleucl.uclouvain.be/course/view.php?id=11010

Bibliography	Les livres de référence suivants sont conseillés - F. Carey & R. Sunberg, *Advanced Organic Chemistry* , 5 ème edition, Parties A & B. Disponible en ebook sur DIAL. - S. Warren & J. Clayden, *Chimie Organique* , seconde édition. Ces livres sont disponibles à la BST Le cours ne fait appel à aucun support particulier qui serait payant et jugé obligatoire --------- The following reference books are recommended - F. Carey & R. Sunberg, Advanced Organic Chemistry, 5th edition, Parts A & B. Available as an ebook on DIAL. - S. Warren & J. Clayden, Organic Chemistry, second edition. These books are available at BST The course does not use any particular material that would be paid for and considered mandatory
Faculty or entity in charge	CHIM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Chemistry	CHIM1BA	4		🔍