

3 credits

22.5 h + 7.5 h

Q1

Teacher(s)	Gohy Jean-François ;Jonas Alain ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	<p>After recalling the basics of chain polymerization methods, the different synthetic strategies existing today will be studied (anionic, cationic, standard radical, controlled radical and coordinative polymerization methods). The scope and limitations of each method will be systematically discussed. Mechanistic and kinetic features will be then studied for each polymerization method. Special emphasis will be finally put on the control of macromolecular architectures.</p> <p>The course is in flipped classroom, project-based format.</p> <p>All these topics will not be necessarily covered each year.</p>
Aims	<p>This course aims at providing a deep understanding of chain polymerization methods.</p> <p>At this end of the course, the students are expected to deeply understand and explain the following items:</p> <ul style="list-style-type: none"> <li>- The state of the art in chain polymerization methods.</li> <li>- The concepts of controlled and living polymerizations as well as their impact on the polymer characteristic features (molar mass, dispersity index, architecture)</li> <li>1 - The technological issues related to chain polymerization.</li> <li>- Furthermore, the students will be able to use the above mentioned concepts to propose relevant synthetic methodologies for case studies.</li> </ul> <p>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'.</p> <p>-----</p> <p><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></p>
Content	<ol style="list-style-type: none"> <li>1. Introduction: Living and controlled chain polymerizations</li> <li>2. Atom-transfer radical polymerizations (ATRP)</li> <li>3. Nitroxide-mediated radical polymerizations (NMP)</li> <li>4. Reversible addition-fragmentation chain-transfer polymerization (RAFT)</li> <li>5. Anionic polymerizations</li> <li>6. Living ring-opening polymerizations (LROP)</li> <li>7. Organocatalytic ring-opening polymerizations</li> <li>8. Control of macromolecular architectures</li> <li>9. Mechanistic transformations</li> <li>10. Supramolecular polymerizations</li> </ol>
Other infos	Documents: Written notes and reference books will be made available for the students.
Faculty or entity in charge	CHIM

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Chemistry	CHIM2M	3		