


2 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	The course is an introduction to macromolecules in solution. The course discusses the notions of ideal and real chains, the size of macromolecules in solution, the notions of excluded volume and second virial coefficient, the thermodynamic properties of polymer solutions, and different techniques of characterization of polymers in solution (osmometry, viscometry, size exclusion chromatography, static light scattering). The course is in flipped classroom format, mixing theoretical notions and practical problems
Aims	<p>This course aims at providing a deeper understanding of the physical-chemical properties</p> <p>At the end of the course, the students will be able to analyze results from experimental methods of determination of the molecular characteristics of a polymer (molar mass, distribution of molar mass, radius of gyration), and to predict its behaviour in solution (solubility, swelling, second virial coefficient, interaction parameter, phase separation). They will also be capable to solve small problems of practical relevance in the field of polymer engineering using these and complementary notions.</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. Solutions of small molecules - reminders</li> <li>2. Characteristics of macromolecular chains</li> <li>3. Single chains in dilute solution</li> <li>4. Viscometry and Size-Exclusion Chromatography</li> <li>5. Phase diagrams of polymer solutions</li> <li>6. Osmometry of macromolecular solutions</li> <li>7. Static light scattering of macromolecular solutions</li> </ol>
Other infos	Flipped classroom format. 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	<a href="#">CHIM2M</a>	2		
Master [120] in Physical Engineering	<a href="#">FYAP2M</a>	2		