

Teacher(s)	Soumillion Patrice ;
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	<p><b>Introduction to basic molecules of biochemistry</b></p> <ol style="list-style-type: none"> <li>1. Amino acids and proteins</li> <li>2. Carbohydrates</li> <li>3. Lipids and biological membranes</li> <li>4. Nucleic acids</li> </ol> <p><b>Function of bio molecules</b></p> <ol style="list-style-type: none"> <li>1. Structure of proteins</li> <li>2. Enzymes</li> </ol> <p><b>Notions of molecular biochemistry</b></p> <ol style="list-style-type: none"> <li>1. Replication of DNA</li> <li>2. Transcription of DNA into RNA</li> <li>3. Nucleic acid-protein complexes</li> <li>4. Biosynthesis of proteins</li> </ol> <p>The practical work illustrates the properties of the main classes of biomolecules studied in the theoretical course and initiates students to a certain number of techniques used currently in biochemistry.</p>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>The objective is to introduce students to the structure of biomolecules and their function as well as, from a biochemical view, molecular biology.</p> <ol style="list-style-type: none"> <li>1 The course contains : a theoretical part aimed at presenting the basic concepts of biochemistry ; practical exercises aimed at illustrating the notions seen in the theoretical part.</li> </ol>
Evaluation methods	Written exam in session (80% of the final grade), quiz and practical work reports (20% of the final grade).
Teaching methods	Lectures and practical work in the classroom
Content	<p>This first biochemistry course will aim at presenting the structure and chemical properties of the main molecular protagonists of the living world.</p> <p>The different chapters will be devoted to the detailed description of the major classes of biomolecules (amino acids, nucleotides, lipids, carbohydrates, proteins, enzymes).</p> <p>The way in which small molecules are assembled into larger structures (polymers) will also be discussed.</p> <p>The chemical origin of the main types of covalent and non-covalent interactions between biomolecules will allow a good understanding of the modes of biosynthesis and molecular recognition which are at the heart of the organization and functioning of living organisms.</p> <p>The behavior of enzymes, the main workers of life, will also be introduced, by describing the catalytic properties and the modes of regulation of these properties.</p> <p>The course will also provide a first descriptive introduction to the three major processes that are at the heart of the functioning of any living cell, namely replication, transcription and translation.</p> <p>This introduction will then serve as a basis for presenting the basics of modern molecular biology and recombinant DNA technologies that allow us to manipulate DNA in a surgical manner today.</p> <p>Five half-day practical sessions are also organized to familiarize the student with the experimental manipulation of the main classes of biomolecules (sugars, lipids, proteins, enzymes).</p>
Bibliography	<ul style="list-style-type: none"> <li>• Principles of Biochemistry de Lehninger</li> <li>• Biochemistry de Voet et Voet</li> </ul> <p>(éditions récentes)</p>

Faculty or entity in charge	CHIM
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<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Chemistry	<a href="#">CHIM1BA</a>	4	<a href="#">LCHM1111</a> AND <a href="#">LCHM1141</a>	