UCLouvain

lchm1271

2026

Elements of biochemistry

4.00 credits	30.0 h + 24.0 h	Q1

Teacher(s)	Soumillion Patrice ;
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
Main themes	**Introduction to basic molecules of biochemistry** 1. Amino acids and proteins 2. Carbohydrates 3. Lipids and biological membranes 4. Nucleic acids **Function of bio molecules** 1. Structure of proteins 2. Enzymes **Notions of molecular biochemistry** 1. Replication of DNA 2. Transcription of DNA into RNA 3. Nucleic acid-protein complexes 4. Biosynthesis of proteins The practical work illusrates the properties of the main classes of biomolecules studied in the theoretical course and initiatee students to a certain number of techniques used currently in biochemistry.
Learning outcomes	**At the end of this learning unit, the student is able to :** The objective is to introduce students to the structure of biomolecules and their function as well as, from a biochemical view, molecular biology. 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.
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	This first biochemistry course will aim at presenting the structure and chemical properties of the main molecular protagonists of the living world. The different chapters will be devoted to the detailed description of the major classes of biomolecules (amino acids, nucleotides, lipids, carbohydrates, proteins, enzymes). The way in which small molecules are assembled into larger structures (polymers) will also be discussed. 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. 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. 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. 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. 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).

Bibliography	• Principles of Biochemistry de Lehninger • Biochemistry de Voet et Voet (éditions récentes)
Faculty or entity in charge	CHIM

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