

4.0 credits	30.0 h + 15.0 h	2q
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Teacher(s) :	Larondelle Yvan (coordinator) ; Ghislain Michel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	Precursory course : A basic training in general biology and organic chemistry is required.
Main themes :	<ol style="list-style-type: none"> 1. To recall and emphasise the molecular logic of living organisms. 2. To describe the major biomolecules present in living cell. 3. To detail protein structure and enzyme reaction. 4. To explain the molecular mechanisms underlying DNA replication and protein biosynthesis.
Aims :	The goals aimed by this biochemistry course is to describe the essential macromolecules present in living organisms and to explain the principles governing the interactions between the biomolecules. Special emphasis is put on protein catalysis and biosynthesis. <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>
Evaluation methods :	Evaluation : Written examination with possibility of oral interview
Teaching methods :	Support : The textbook used is the newest edition of the " Lehninger : Principles of Biochemistry " (2000). In addition, the students have access to soft and hard copies of the Microsoft PowerPoint presentations given by the teachers. Framing : Teaching team composed of professor and assistants, all specialised in biochemistry.
Content :	The course is divided in four theoretical parts (A to D) and one practical training. A. Introduction to the molecular logic of life: structural hierarchy in the molecular organization of living cells, energetic basis of metabolism and importance of water. B. Biomolecules and their monomeric subunits: classification, structure, properties and functions of the amino acids, proteins, carbohydrates, lipids and nucleic acids. Protein three-dimensional structure and protein purification methods are highlighted. A special focus is also put on cell membranes and walls. C. Enzymology : classification, enzyme kinetics, reaction mechanisms, principles underlying the regulation of enzymatic reactions. D. Fundamentals of molecular biology : the biochemistry of DNA replication, RNA transcription and protein synthesis. E. Measurement of protein concentration and enzyme activity (determination of kinetic parameters and inhibition); computational simulation of protein chromatography and experimental illustration of protein electrophoresis; overview of properties of carbohydrates or lipids or nucleic acids.
Cycle and year of study :	> Bachelor in Bioengineering > Master [120] in Chemical and Materials Engineering > Bachelor in Engineering > Bachelor in Computer Science > Bachelor in Mathematics > Bachelor in Information and Communication > Bachelor in Philosophy > Bachelor in Pharmacy > Bachelor in Psychology and Education: General > Bachelor in Economics and Management > Bachelor in Motor skills : General > Bachelor in Human and Social Sciences > Bachelor in Sociology and Anthropology > Bachelor in Political Sciences: General > Bachelor in History of Art and Archaeology : General > Bachelor in History > Bachelor in Biomedicine > Bachelor in Religious Studies
Faculty or entity in charge:	AGRO