

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

5 credits

30.0 h + 30.0 h

Q2

Teacher(s)	Page Melissa ;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	Main themes to cover : Introduction to metabolism Bioenergetics Biochemical transport phenomenon Main metabolic ways : Glycolysis and hexose catabolism Metabolism of glycogen and glycogenesis Oxidation of fatty acids and biosynthesis of lipids Krebs cycle Electron transport, oxidative phosphorylation Metabolism of amino acids, nucleotides and linked molecules. Main ways of regulation. The exercises are divided into two complementary parts : One, followed in the case of CHIM BAC, consists of practical work on a specific question in biochemistry. The other, for all, consists of preparing, presenting and discussing, in groups, a question linked to a biochemical problem, but voluntarily carrying onto other disciplines of life sciences.
Aims	<p>The objective of the theoretical course is to examine the general aspects of glucides, lipids, amino acids and nucleotides metabolism, as well as their regulation. The course must allow the acquisition and mastering of several types of competences: General knowledge of metabolism and its regulation modes ;</p> <p>1 comprehension of reactional mechanisms, representation of main metabolic ways, as well as their main regulations ; Integration of metabolism in the physiology context of cells and organisms, mainly animal. The goal of exercises is : Deepening, by practical exercises, basic notions seen in the theoretical course ; by the realization of a personal interdisciplinary work, based on a problem-situation, integrating the understanding of metabolic biochemistry in the context of life sciences.</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>
Evaluation methods	Due to the COVID-19 crisis, the information in this section is particularly likely to change. Written exam including questions requiring precise / short answers, theoretical developments or problem solving. The student presentations are also part of the overall assessment as well as the laboratory sessions (except part A).
Teaching methods	Due to the COVID-19 crisis, the information in this section is particularly likely to change. The skills targeted by the course will be developed using lectures. Students will give a presentation on a topic to choose from a list of topics proposed by teachers. Laboratory sessions for chemistry students are not part of Part A for students in biology and veterinary science.
Content	Bioenergetic principles; carbohydrate metabolism (glycolysis, fermentation, phosphogluconate pathway, gluconeogenesis and glycogenogenesis); Krebs cycle and glyoxylate; respiratory chain and oxidative phosphorylation; photosynthesis; oxidation and biosynthesis of lipids; urea cycle; synthesis and degradation of amino acids and other important nitrogen compounds; nucleotide metabolism.
Inline resources	Slideshows are available via the moodle platform
Bibliography	<ul style="list-style-type: none"> • Lehninger Principles of biochemistry 5th edition <p>Le cours ne fait appel à aucun support particulier qui serait payant et jugé obligatoire. L'ouvrage Lehninger Principles of biochemistry est conseillé à titre facultatif pour un apprentissage plus approfondi</p>
Faculty or entity in charge	CHIM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Chemistry	CHIM1BA	5	LCHM1111 AND LCHM1141 AND LCHM1271	