

5.00 credits

30.0 h + 30.0 h

Q2

Teacher(s)	Page Melissa ;
Language :	English
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>Main themes to cover :</p> <ol style="list-style-type: none"> <li>1. Introduction to metabolism</li> <li>2. Bioenergetics</li> <li>3. Biochemical transport phenomenon</li> </ol> <p>Main metabolic ways :</p> <ol style="list-style-type: none"> <li>1. Glycolysis and hexose catabolism</li> <li>2. Metabolism of glycogen and glyconeogenesis</li> <li>3. Oxidation of fatty acids and biosynthesis of lipids</li> <li>4. Krebs cycle</li> <li>5. Electron transport, oxidative phosphorylation</li> <li>6. Metabolism of amino acids, nucleotides and linked molecules.</li> </ol> <p>Main ways of regulation.</p> <p>The exercises are divided into two complementary parts :</p> <p>One, followed in the case of CHIM BAC, consists of practical work on a specific question in biochemistry.</p> <p>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.</p>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <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.</p> <p>The course must allow the acquisition and mastering of several types of competences :</p> <p>General knowledge of metabolism and its regulation modes ;</p> <p>Comprehension of reactional mechanisms, representation of main metabolic ways, as well as their main regulations ;</p> <p>1 Integration of metabolism in the physiology context of cells and organisms, mainly animal.</p> <p>The goal of exercises is :</p> <p>Deepening, by practical exercises, basic notions seen in the theoretical course ;</p> <p>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>
Evaluation methods	<p><b>For all students, evaluation includes :</b></p> <ol style="list-style-type: none"> <li>1. a written exam that will take place during the June exam session. Written exam including questions requiring precise / short answers, theoretical developments or problem solving.</li> <li>2. group work, the exam type decided each year, but this can include a group presentation, this evaluation will take place during the normal term</li> </ol> <p><b>For chemistry and biology students :</b></p> <ol style="list-style-type: none"> <li>1. they will also be evaluated on their participation in laboratory sessions, in which a written report is required for the completion of the evaluation.</li> </ol>
Teaching methods	<p>The skills targeted by the course will be developed using lectures.</p> <p>Laboratory sessions are for chemistry and biology students, and not for students in veterinary science.</p>
Content	<p>Bioenergetic principles;</p> <p>Carbohydrate metabolism (glycolysis, fermentation, phosphogluconate pathway, gluconeogenesis and glycogenogenesis);</p> <p>Krebs cycle and glyoxylate;</p>

	<p>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.</p> <p>Instruction will take place in english.</p>
Inline resources	<p>Slideshows are available via the moodle platform</p>
Bibliography	<ul style="list-style-type: none"> <li>• Lehninger Principles of biochemistry 7th edition</li> <li>• Voet &amp; Voet Biochemistry 4th Edition</li> </ul> <p>Le cours ne fait appel à aucun support particulier qui serait payant et jugé obligatoire. Les manuels ci-dessus sont recommandés (mais pas obligatoires) sur une base facultative pour un apprentissage plus approfondi</p>
Faculty or entity in charge	<p>CHIM</p>

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Chemistry	CHIM1BA	5	LCHM1111 AND LCHM1141 AND LCHM1271	