

Teacher(s)	Bommer Guido ;Collet Jean-François ;Lemaigre Frédéric coordinator ;
Language :	French
Place of the course	Bruxelles Woluwe
Prerequisites	General biochemistry and molecular biology Knowledge of french, active and passive, oral and written Knowledge of english, passive <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	The course follows up on the courses on general biochemistry and molecular biology (WMDS1109 and WMDS1212 for medical students; WSBIM1226 and WSBIM1227 for biomedical students) The course describes the control of gene expression, metabolism of glucids and lipids, nitrogen metabolism, and integrated biochemistry, in health and disease.
Aims	<p>The student should be able to :</p> <ul style="list-style-type: none"> <li>- Demonstrate his/her capacity to summarize and integrate various biochemical informations into a coherent set of knowledge</li> <li>- Explain how a disease can result from abnormal gene expression</li> <li>- Explain how molecular and metabolic anomalies lead to cancer</li> <li>- Know the principles of glucose homeostasis</li> <li>- Describe the regulation of synthesis and degradation of glucose, glycogen, ethanol, fructose and galactose, in health and disease</li> <li>- Describe the structure and function of proteoglycans and glycoproteins</li> <li>- Describe the regulation of synthesis and degradation of fatty acids, triglycerids, ketone bodies, and complex lipids, in health and disease</li> <li>1 - Integrate hepatic, muscle, adipose and nervous metabolism in terms of metabolic fluxes in the fed and starved states</li> <li>- Describe the regulation of synthesis and degradation of cholesterol and bile salts, in relation with gastrointestinal tract anatomy</li> <li>- Describe the regulation of synthesis and degradation of plasma lipoproteins</li> <li>- Know the principles of nitrogen and protein turnove, in health and disease</li> <li>- Describe the key reactions of urea and aminoacid metabolism</li> <li>- Describe purine and pyrimidine metabolism and understand how this interferes with drug metabolism</li> <li>- Describe folic acid and Vitamin B12 metabolism, in relation with gastrointestinal tract anatomy</li> <li>- Explain principles of abnormal oxygen transport by hemoglobin in disease</li> <li>- Describe absorption, transport and storage of iron, in health and disease</li> <li>- Describe syntesis and degradation of heme, in healthand disease and in relation with gastrointestinal tract anatomy</li> </ul> <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	Students are evaluated on their knowledge, ability to implement knowledge, and ability to integrate the various parts of the course. The exam consists in part on mutple choice evaluation and in part on open questions.
Teaching methods	Teaching method: lecture courses
Content	The course discusses the following topics: <ul style="list-style-type: none"> <li>• principles of disease-causing gene dysregulations</li> <li>• cancer metabolism</li> <li>• metabolism of glucids, lipids, and nitrogen metabolism in health and disease</li> <li>• biochemistry integrated at the organismal level</li> </ul> <p>At the end of the course, the students should be able to demonstrate their ability to summarize and integrate various biochemical informations into a coherent set of knowledge. They must be able to describe, use and explain, with</p>

	rigorous biochemical terminology, the themes discussed during the courses. They must be able to explain how a disease can result from biochemical and molecular dysfunctions.
Inline resources	Slides presented during courses are comprehensive and are made available on <a href="http://moodleucl.uclouvain.be/">http://moodleucl.uclouvain.be/</a>
Bibliography	<ul style="list-style-type: none"> <li>• Le support de cours est constitué des fichiers reprenant les diapositives de cours. Ils sont recommandés, mais non obligatoires.</li> </ul> <ol style="list-style-type: none"> <li>1. PC Champe &amp; RA Harvey: Biochemistry. Lippincott Williams &amp; Wilkins</li> <li>2. Horton RH: Principles of Biochemistry. Prentice Hall</li> </ol>
Other infos	Teaching, slides and exams are in french. Students are allowed to answer exam questions in english.
Faculty or entity in charge	MED

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Biomedicine	<a href="#">SBIM1BA</a>	5	WMD1120 AND WMD1106 AND <a href="#">WFARM1221S</a> AND <a href="#">WSBIM1227</a> AND <a href="#">WFARM1282</a> AND <a href="#">WFARM1247</a> AND <a href="#">WSBIM1201T</a>	