


Teacher(s)	Bommer Guido ;Collet Jean-François ;Lemaigre Frédéric (coordinator) ;
Language :	French > English-friendly
Place of the course	Bruxelles Woluwe
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>Teaching continues that of the Metabolic Biochemistry course (WMDS1215) for medical students. Students in Biomedical Sciences must have completed the Molecular and Epigenetic Biology (WSBIM1226) and Biochemistry and Molecular Biology WFARM1221 course.</p> <p>The chapters include a description of normal biochemical mechanisms, as well as illustrations of disturbances at the origin of human pathologies. More specifically, the following themes will be addressed:</p> <ul style="list-style-type: none"> • Mechanisms controlling the expression of genes, microRNAs, circular RNAs • Principles of pathologies resulting from dysfunction of gene expression • Molecular mechanisms of carcinogenesis • Molecular mechanisms and pathologies of hemoglobin • Normal and pathological iron metabolism • Normal and pathological metabolism of heme • Biochemical mechanisms of blood coagulation • Lipoprotein metabolism • Metabolism of purines and pyrimidines • Metabolism of amino acids. • Metabolism of complex lipids and cholesterol
Learning outcomes	
Evaluation methods	<p>The written examination will consist of open-ended question . Students will be evaluated on their ability to synthesize and integrate multiple biochemistry data into a coherent entity. They must be able to describe, use and explain in precise biochemical terms the topics addressed and how a disease can result from molecular and biochemical dysfunctions.</p> <p>When a student has a final mark between 9/20 and 10/20 after correction, the lecturers review together the exam copy to decide whether the mark should be rounded down or up according the overall evaluation of the copy.</p> <p>As a result of the chapter exchanges between WMDS1231 and WMDS1215 that are being implemented from the academic year 2021-2022, students who failed the WMDS1215 exam in 2020-2021 will be examined on the WMDS1215 as taught in 2020-2021. Medical students who failed both the WMDS1215 and WMDS1231 examinations in 2020-2021 will be examined on the topics as taught in 2021-2022.</p>
Teaching methods	The teaching method consists of lectures given on site by the co-teachers, and includes examples and illustrations.
Content	<p>The course complements and is an extension of the Metabolic Biochemistry course WMDS1215 taught to medical students, and of the courses on Biochemistry an Molecular Biology (WFARM1221) and Molecular Biology and Epigenetics (WSBIM1226) taught to biomedical students. The chapters include a description of normal biochemical mechanisms, as well as illustrations of disorders that cause human diseases. More specifically, the following topics will be addressed:</p> <ul style="list-style-type: none"> • Mechanisms controlling gene expression; microRNAs; circular RNAs • Principles of diseases resulting from a dysfunctional gene expression • Molecular mechanisms of carcinogenesis • Molecular mechanisms and diseases of hemoglobin • Normal and pathological metabolism of iron • Normal and pathological metabolism of heme • Biochemical mechanisms of blood coagulation • Lipoprotein metabolism • Métabolism of ethanol, fructose and galactose • Metabolism of glycoproteins and glycosamnioglycans
Inline resources	The slides presented during the course, which cover the subject in a comprehensive way, are available on http://moodleucl.uclouvain.be/

Bibliography	D.R. Ferrier. Biochemistry. Lippincott's Illustrated Reviews, Wolters Kluwer, 2017 Principles of Biochemistry, Horton R.H., Prentice Hall Textbook of Biochemistry with Clinical Correlations, 7ème édition, Thomas M. Devlin, Wiley
Faculty or entity in charge	MED

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Biomedicine	SBIM1BA	3	WMD1120 AND WMD1106 AND WFARM1221S AND WSBIM1227 AND WFARM1282 AND WFARM1247 AND WSBIM1201T	
Bachelor in Medecine	MD1BA	3	WMEDE1101 AND WMDS1111 AND WMDS1109	