


8.00 credits

59.0 h + 20.0 h

Q2

Teacher(s)	Bommer Guido (coordinator) ;Boucquey Marie ;Collet Jean-François ;Demoulin Jean Baptiste ;
Language :	French
Place of the course	Bruxelles Woluwe
Learning outcomes	
Evaluation methods	<p>Successful completion of the course requires participation in practical sessions. Instructors reserve the right to cancel the exam grade (0/20, in June and August) in cases of unjustified absence from practical sessions. Any absence must be justified with a medical certificate, submitted to the department office as soon as possible. The final grade may take into account the grade obtained for practical work. In cases of repeated absences from practical sessions and exercises, even if medically justified, the student must contact the teaching team as soon as the issue is known. If participation in practical sessions and exercises is insufficient, instructors will request the examination board to refuse registration for the related exam in compliance with Article 72 of the RGEE.</p> <p>The written exam may include multiple-choice questions and open-ended questions. The type of assessment chosen for the first exam session may be modified depending on the number of students registered for the second session. The final grade is the arithmetic sum of the points for the multiple-choice section and the short-answer section (for a total of 20 points). A final grade between 9/20 and 10/20 is not automatically rounded up to 10/20. There are no negative points and no weighting based on the questions or the course chapters. However, when students obtain a score between 9/20 and 10/20 after grading, the instructors review the exam paper again and round the grade down or up based on the overall evaluation of the paper.</p>
Teaching methods	Lectures Mandatory practicals and exercises
Content	<ol style="list-style-type: none"> 1. Structural Biochemistry <ul style="list-style-type: none"> • Water and aqueous solutions • Principles of thermodynamics • Amino acids • Protein purification • Protein folding and structure • Protein evolution • Protein analysis by mass spectrometry and electrophoresis • Structures of carbohydrates and lipids 2. Molecular Biology <ul style="list-style-type: none"> • DNA structure • Chromatin organization • DNA replication • Gene organization • Synthesis and regulation of messenger RNA, ribosomal RNA, and transfer RNA • Protein synthesis (mRNA translation; post-translational modifications and protein targeting) • Epigenetic control of gene expression by histone and DNA modifications • Genetic engineering techniques, DNA manipulation (PCR, sequencing), and plasmid vectors 3. Introduction to Metabolic Biochemistry <ul style="list-style-type: none"> • Regulation and allostery • Introduction to enzymes: enzyme kinetics and catalytic mechanisms • Principles of metabolic control • The glycolysis pathway • The Krebs cycle • Electron transport and oxidative phosphorylation
Inline resources	Slides and exercises available on MOODLE

Bibliography	<ul style="list-style-type: none">• Les diapositifs du cours• "Biochimie", de Voet et Voet, 3ème édition française - (traduction de l'édition américaine par L. Domenjoud). Edition de Boeck. Disponible à la bibliothèque.• « Lehninger Principles of Biochemistry - International Edition » de David L Nelson et Michael M. Cox.<ul style="list-style-type: none">• En paperback de l'édition WH Freeman.• Coupon de réduction de disponible pour le livre électronique
Faculty or entity in charge	MED

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Dentistry	DENT1BA	8		
Bachelor in Medecine	MD1BA	8		