


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.

6 credits

50.0 h + 10.0 h

Q1

|                             |  |
|-----------------------------|--|
| Teacher(s)                  | Delzenne Nathalie (coordinator) ;  |
| Language :                  | French   |
| 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                 | Sub-sections : - A. General aspects : physico-chemical aspects of biochemical processes (including enzyme kinetics and classification, bioenergetics); - B. Molecular Biology (in Eukarya) : from genes to active proteins (structure and regulation); interest of molecular biology in diagnosis and drug development. - C. Metabolism : description, regulation, and tissue specificity of key anabolic and catabolic pathways. - D. Integrated view of metabolic pathways in the whole organism; modulation in several (patho)physiological situations.   |
| Aims                        | <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>   |
| Content                     | A. Principles of chemistry applicable to biological processes. Concepts of molecular interactions, enzyme kinetics, and bioenergetics in the context of drug discovery (drug metabolism, signal transduction, synthetic peptides, development of enzyme inhibitors). B. Structure and functions of genes and nucleic acids; genome replication; principles/regulation of gene expression and protein synthesis in eucaryotes and procaryotes. C Description and regulation of carbohydrates, lipids, amino-acids , and nucleotides metabolism at the molecular, cellular and tissue level ; control of energy homeostasis; hormonal regulation and cell signaling; metabolic fluxes. D. Metabolic adaptation to physiological situations (such as nutritional status, stress ); illustration of inter-organs cooperation (liver, adipose tissue, muscle, brain ). Practical laboratory exercises (enzymes kinetics, molecular biology) and seminars (use of reference book and website; oral presentation of case-study) |
| Inline resources            | The slides presented in the course are available on MoodleUCL ( <a href="https://moodleucl.uclouvain.be/">https://moodleucl.uclouvain.be/</a> ).   |
| Bibliography                | Support de cours obligatoire : diapositives des cours disponibles sur Moodle, en version pdf   |
| Other infos                 | Other elements Cellular biology ; organic and general chemistry. Evaluation Evaluation of experimental knowledge during the period of practical exercise. Written exam with questions integrating all aspects (A to D) . Support Notes including key figures, power point presentations, and summary of each chapter. Ouvrages de référence ; sites internet et adresses d'organismes intéressants : Biochemical Pathways Eds Gerhard Michal. Wiley press  |
| Faculty or entity in charge | FASB   |

| <b>Programmes containing this learning unit (UE)</b> |         |         |                                    |   |
|--|---------|---------|------------------------------------|---|
| Program title  | Acronym | Credits | Prerequisite                       | Aims  |
| Bachelor in Biomedicine                              | SBIM1BA | 6       | WMD1120 AND<br>WMD1105 AND WMD1106 |  |