



## COURSE DATASHEET

|                                |                                 |
|--------------------------------|---------------------------------|
| <b>Semester:</b>               | 2013/14/1                       |
| <b>Course:</b>                 | Biochemistry                    |
| <b>Code:</b>                   | VEMKOKB112B                     |
| <b>Responsible department:</b> | Department of Organic Chemistry |
| <b>Department code:</b>        | MKOK                            |
| <b>Responsible instructor:</b> | Dr. Rita Skodáné Földes         |

---

### Course objectives:

Educational objectives: Short course on biochemistry for non biochemists/biologists

### Course content:

Detailed content of the subject 1.Biochemicals, cellular structures, main pathways of metabolism of biopolymers. 2.Carbohydrates: mono-, di-, polysaccharides. Structure and biochemical role. 3.Properties of amino acids. Peptides. 4.Structural elements of proteins Denaturation. Biochemical roles. Insulin, hemoglobin, structural proteins. 5.Lipids: fatty acids and fats. Phosphoglycerides, sphingomyelins. Terpenes, vitamins, steroids, hormones. Biochemical role. Biomembranes, active, passive transport 6.Nucleic acids: bases, nucleotides. Oligonucleotides. ATP, energy conservation. Structures of NAD<sup>+</sup>, FAD, CoA. Structure of DNA, genetic code. 7.Biocatalysis, classification. Principles of enzyme catalysis. Enzyme kinetics. The Michaelis-Menten model. Inhibitors. Redox- and group transferring coenzymes. 8.Replication. RNA -types, transcription. Structures and functions of m-RNA, t-RNA, r-RNA. Synthesis of peptides (in vivo). 9.Metabolic pathways. Glycolysis, glycogen metabolism. 10.Gluconeogenesis. Hexose monophosphate pathway. 11.Pyruvate dehydrogenase. Citric acid cycle. Anaplerotic reactions. 12.Respiratory chain, oxidative phosphorylation. 13.Degradation of fatty acids. Biosynthesis of fatty acids and complex lipids 14.Catabolic protein metabolism: transamination, deamination, amino acid degradation. Amino acid biosynthesis. 15.Photosynthesis.

### Requirements, evaluation and grading:

Requirements: - attendance is compulsory - passing two tests with an average score of 2 or above

### Required and recommended readings:

Kötelező és ajánlott irodalom: Kolman, J.; Röhm, K. H. Color Atlas of Biochemistry, Thieme, Stuttgart 1996  
Voet, D., Voet, J.G.: Biochemie, VCH, Weinheim, 1992 Boros L., Sajgó M.: Bevezetés a biokémiába. MK, Budapest, 1993.