



## COURSE DATASHEET

<b>Semester:</b>	2014/15/2
<b>Course:</b>	Chemistry of Biopolymers
<b>Code:</b>	VEMKOKB254P
<b>Responsible department:</b>	Department of Organic Chemistry
<b>Department code:</b>	MKOK
<b>Responsible instructor:</b>	Dr. Rita Skodáné Földes

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### Course objectives:

Educational objectives: To gain a deeper understanding of the structure, characterisation, synthesis, biochemical role and industrial/analytical/technological application of biopolymers

### Course content:

Detailed content of the subject Lecture: 1. Introduction. Types of biopolymers, Biomcaromolecular structure. 2. Polysaccharides. Conformation, monomers. Homoglycans. 3. Heteroglycans. 4. Glycoproteins, proteoglycans, glycolipids. 5. Characterisation of polysaccarides. 6. Synthesis of oligo- and polysaccharides. 7. Structure of proteins. Primary structure, confomrational map, secondary structure and motifs. Domains and tertiary structures.. 8. Classification of protein structures. Quaternary and quinternary structures. Examples. 9. Chemical and enzymatic sequence analysis 10. Peptide synthesis 11. Biomacromolecular structure: nucleic acids 12. Purification and charaterisation, sequencing of nucleic acids. 13. Chemical synthesis 14. DNA technology 15. Biomacromolecular interaction Laboratory practice (4 hours/lab): 1. Introduction, safety, requirements. 2. Purification of proteins 3. Denaturation of proteins 4. Hydrolysis of proteins 5. Nucleic acids 6. Biomacromolecular structures: modeling 7. Biomacromolecular structures: modeling 8. Test

### Requirements, evaluation and grading:

Requirements: - attendance is compulsory - making reports of each experiment, passing pre-lab tests with an average score of 2 or above, passing final test with a score of 2 or above

### Required and recommended readings:

Ábrahám S., Oláh B.: Biokémia I-II Egyetemi jegyzet Voet, D., Voet, J.G.: Biochemie, VCH, Weinheim, 1992  
C. Stan Tsai: Biomacromolecules: Introduction to Structure, Function and Informatics, Wiley, 2007.