

<b>Title:</b>	<b>Biochemistry of macromolecules</b>
<b>Lecture hours:</b>	10 h- lectures, 20 h – laboratory classes
<b>Study period: (summer/winter)</b>	Summer semester
<b>Number of credits:</b>	6
<b>Assessment methods:</b>	Lectures – Exam (multiple choice test) Labs – test and quizzes (multiple choice and written tasks), report submission after each class
<b>Language of instruction:</b>	English
<b>Prerequisites:</b>	English, at least B1 level Basic courses of biochemistry and chemistry
<b>Course content:</b>	<p>Lectures:</p> <ol style="list-style-type: none"> <li>1. Polymers of carbohydrates.</li> <li>2. Structure of peptides and proteins.</li> <li>3. Structure of nucleic acids.</li> <li>4. Mechanisms of DNA replication.</li> <li>5. Mechanisms of transcription and RNA processing.</li> <li>6. Mechanisms of protein translation.</li> </ol> <p>Laboratories:</p> <ol style="list-style-type: none"> <li>1. Amphoteric properties of amino acids and proteins.</li> <li>2. Spectrophotometry of amino acids and proteins.</li> <li>3. Biochemical properties of proteins. Protein thermostability.</li> <li>4. Biochemical properties of nucleic acids.</li> <li>5. Isolation of plasmid DNA.</li> </ol>
<b>Learning outcomes:</b>	<p>By the end of this course students:</p> <ol style="list-style-type: none"> <li>1. will have been exposed to theoretical fundamentals of biochemistry of macromolecules</li> <li>2. will have opportunities to apply the theory in practice</li> <li>3. will have performed 4 lab analysis of proteins and nucleic acids</li> <li>4. will have written laboratory reports summarising the analyses</li> <li>5. will be able to draw relevant conclusions from lab tests.</li> </ol>
<b>Name of lecturer:</b>	Lectures: Joanna Moraczewska, Ph.D., D.Sc., Professor Laboratories: Katarzyna Robaszkiewicz Ph.D.
<b>Contact (email address):</b>	<a href="mailto:joanna.moraczewska@ukw.edu.pl">joanna.moraczewska@ukw.edu.pl</a> <a href="mailto:robkat@ukw.edu.pl">robkat@ukw.edu.pl</a>

**Literature:**

1. Kuriyan, J., Konforti, B., Wemmer, D. **The molecules of life. Physical and chemical principles**. Garland Science, New York and London, 2013.
2. Krebs, J.E., Kilpatrick, S.T., Goldstein, E.S. **Lewine's Genes XI**. 11th edition, Jones & Bartlett Learning; 2013.
3. Lodish, H., Berk, A., Zipursky, S.L., Matsudaira, P.B.D., Darnell, J.E. **Molecular Cell Biology**, New York: W. H. Freeman & Co.; 1999.
4. Berg, J.M., Tymoczko, J.L., Stryer, L. **Biochemistry**. Sixth edition, W.H. Freeman & Co.; 2007.
5. <http://bcs.whfreeman.com/biochem6/default.asp>