

Title:	<b>TECHNIQUES of PROTEIN BIOCHEMISTRY</b>
Lecture hours:	10 h- lectures, 20 h – laboratory classes
Study period: (summer/winter)	Summer semester
Numbers of credits:	4
Assessment methods:	Lecture – Exam (multiple choice test) Labs – test and quizzes (multiple choice and written tasks), lab reports
Language of instruction:	English
Prerequisites:	English, at least B1 level Basic courses of biochemistry and chemistry
Course content:	<p><u>Lectures:</u></p> <ol style="list-style-type: none"> <li>1. cDNA production and cloning. Plasmid multiplication and purification.</li> <li>2. Expression of recombinant protein in Prokaryotic and Eucaryotic systems.</li> <li>3. Electrophoretic techniques and Western-Blot in analysis of protein expression level.</li> <li>4. Protein purification from animal tissues.</li> <li>5. Rentgenografic NMR, and CD methods in the analysis of protein structure.</li> </ol> <p><u>Laboratories:</u></p> <ol style="list-style-type: none"> <li>1. Isolation and purification of actin from chicken muscle tissue</li> <li>2. Transformation of bacteria cells with the tropomyosin-encoding gene</li> <li>3. Expression of tropomyosin in bacterial cells</li> <li>4. Protein-protein interactions: Co-sedimentation method (pelleting )</li> <li>5. Densitometric analysis and final report preparation</li> </ol>
Learning outcomes:	<p><u>By the end of this course students:</u></p> <ol style="list-style-type: none"> <li>1) will have been exposed to theoretical fundamentals of laboratory methods of protein expression and purification</li> <li>2) will be able to apply the theory in practice</li> <li>3) will have performed laboratory work</li> <li>4) will have written laboratory reports and analysis summaries</li> <li>5) will be able to draw relevant conclusions from lab tests.</li> </ol>
Name of lecturers:	Lecture: Joanna Moraczewska, PhD., D.Sc., Professor Laboratory: Małgorzata Siatkowska, PhD.

Contacts (email address):	<a href="mailto:joanna.moraczewska@ukw.edu.pl">joanna.moraczewska@ukw.edu.pl</a> <a href="mailto:gosia.sl@ukw.edu.pl">gosia.sl@ukw.edu.pl</a>
Literature:	<ol style="list-style-type: none"><li>1. Principles and Techniques of Biochemistry and Molecular Biology, Wilson K., Walker J. eds. , Sixth Edition, Cambridge University Press; 2005</li><li>2. Berg J.M., Tymoczko J.L, Stryer L. Biochemistry. Sixth edition, W.H. Freeman &amp; Co.; 2007. <a href="http://bcs.whfreeman.com/biochem6/default.asp">http://bcs.whfreeman.com/biochem6/default.asp</a></li></ol>