Course title in English	**Mechanisms of interaction of proteins with nucleic acids**
Course title in Polish	Mechanizmy oddziaływania białek z kwasami nukleinowymi
Course code	
Type of course	Lecture
Level of course	PhD
Year of study	1-4
Semester/trimester	1/3/5/7
Number of hours/credits allocated	30/2
Name of lecturer	Piotr Mucha PhD, DSc, prof. assoc.,
Objective of the course (expected learning outcomes and competences to be acquired)	*Knowledge*: Student 1. defines the basic structures of nucleic acids 2. characterizes nucleic acid-protein complexes 3. characterizes experimental techniques enabling the study of properties and determination of nucleic acid structures and their complexes with proteins 4. knows the basic mechanisms of regulating the expression of genetic information *Skills*: Student 1. uses physicochemical, biochemical and genetic terminology to the extent necessary to present issues related to the regulation of gene expression 2. presents the structure of nucleic acids and understands the consequences resulting from it 3. presents methods of gene expression regulation *Social competence*: Student 1. understands the need for continuous and systematic education, 2. demonstrate the ability to critically evaluate and analyze information on information on the role of nucleic acids in a cell contained in the mass media
Prerequisites	A. Formal requirements: organic chemistry and biochemistry (or macromolecule chemistry) or any subject in the field of genetics / molecular biology. B. Prerequisites: basic knowledge of organic chemistry and biochemistry
Course contents	Spatial structure of DNA / RNA, PNA and proteins, the role of protein nucleic acid interactions in the cell, characterization of protein-nucleic acid complexes, methods of studying the structure of nucleoprotein complexes, protein-DNA / RNA interaction in selected viruses (HIV, Ebola SARS), characteristics of selected complexes protein-DNA / RNA, specificity of interaction of tRNA and aminoacyl-tRNA synthetics,

	structure and function of the ribosome, mechanisms controlling gene activity, interaction of proteins with nucleic acids in replication, transcription and translation processes, DNA damage and repair
Recommended reading	A. Literature required for the final passing of the used during classes J.M. Berg, L. Strye., J. L. Tymoczko, „Biochemia" , PWN, 2005, J.E. Krebs, Lewin's Genes X, Jones & Bartlett Pub. 10 ed. 2009 Bryszewska M, „Biofizyka kwasów nukleinowych dla biologów", PWN, 2000 B. Supplementary literature Review publications recommended (provided) by the teacher
Teaching methods	Lecture with multimedia presentation
Assessment methods	written test or problem questions (tasks)
Language of instruction	Polish