


**KAPITAŁ LUDZKI**  
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez  
 Unię Europejską w ramach  
 Europejskiego Funduszu  
 Społecznego

**UNIA EUROPEJSKA**  
 EUROPEJSKI  
 FUNDUSZ SPOŁECZNY


<b>Course title</b>		<b>ECTS code</b>	
Monographic lecture - Biologically active peptides		13.3.0517	
<b>Name of unit administrating study</b>			
null			
<b>Studies</b>			
<b>faculty</b>	<b>field of study</b>	<b>type</b>	drugiego stopnia
Wydział Chemii	Chemia	<b>form</b>	stacjonarne
		<b>specjalty</b>	chemia biomedyczna, analityka i diagnostyka chemiczna, chemia i technologia środowiska, chemia obliczeniowa
		<b>specialization</b>	wszystkie
<b>Teaching staff</b>			
prof. dr hab. Krzysztof Rolka; dr hab. Anna Łęgowska, profesor uczelni			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b>	
<b>Forms of classes</b>		3	
Lecture		lecture 30 hours	
<b>The realization of activities</b>		consultation 10 hours	
classroom instruction		student's own work 35 hours	
<b>Number of hours</b>		TOTAL: 75 hours - 3 ECTS credits	
Lecture: 30 hours			
<b>The academic cycle</b>			
2023/2024 summer semester			
<b>Type of course</b>		<b>Language of instruction</b>	
obligatory		polish	
<b>Teaching methods</b>		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
multimedia-based lecture		<b>Final evaluation</b>	
		Graded credit	
		<b>Assessment methods</b>	
		Written exam with open questions	
		<b>The basic criteria for evaluation</b>	
		Positive grade received in written exam composed of 5 open questions covering issues listed in the course contents; answers to these questions will require solving tasks specified in educational outcomes; the grade scale will be adjusted to the total number of points that could be obtained in the exam. Negative grade should be improved at repeat exam. The applied grading criteria will be in accordance with UG study regulations	
<b>Method of verifying required learning outcomes</b>			
Positive grade received in written exam composed of 5 open questions covering issues listed in the course contents; answers to these questions will require solving tasks specified in educational outcomes; the grade scale will be adjusted to the total number of points that could be obtained in the exam. Negative grade should be improved at repeat exam. The applied grading criteria will be in accordance with UG study regulations			
<b>Required courses and introductory requirements</b>			
<b>A. Formal requirements</b>			
The student should have completed a graduate study lecture: "Physicochemical properties of amino acids and their derivatives"			
<b>B. Prerequisites</b>			
<b>Aims of education</b>			
<ul style="list-style-type: none"> <li>introduction students with all issues listed in the lecture program content,</li> </ul>			

- discussion of the stereochemistry of peptides and proteins,
- familiarizing students with the basic classes of endogenous peptides, their structures and functions
- teaching students how to design of peptides, peptidomimetics of the presumed biological activity
- familiarizing students with peptidic drugs

### Course contents

Lecture topics: Geometry of the amide bond, definitions of torsion angles of polypeptide chains. Canonical secondary, tertiary and quaternary structure. Application of combinatorial chemistry methods for the selection of peptides of the presumed biological activity (design, chemical synthesis and peptide libraries deconvolution). Peptide hormones and protein precursors. Plant peptides. Peptides with antibacterial and antifungal activity. Peptides with anticancer activity. Peptide vaccines. Peptides with immunological activity. Peptides extracted from toxins of different animal species. Opioid peptides. Peptidomimetics and peptide conjugates. The relationship between the structure and activity of the biologically active peptides. Prospects for application of peptides in diagnosis and therapy. Examples of peptidic drugs

### Bibliography of literature

Literature required to pass the course  
 Handbook of biologically active peptides (A.J. Kerstin, red.) Elsevier 2006,  
 Combinatorial peptide and nonpeptide libraries (G. Jung, red.) VCH 1996,  
 N. Sewald, H. Jakubke, "Peptides: chemistry and biology", Wiley-VCH Verlag,  
 Monographic papers provided by the lecturer  
 Extracurricular readings  
 Other monographic works presenting issues contained in the lecture content of the subject

### The learning outcomes (for the field of study and specialization)

#### Knowledge

Defines the basic issues of peptide biochemistry and biology;  
 Defines of torsion angles of polypeptide chains;  
 Defines of canonical secondary, tertiary and quaternary structures;  
 Give examples of structures and functions of endogenous peptides;  
 Characterizes peptidomimetics and peptide conjugates;  
 Names and characterize examples of peptidic drugs;  
 Characterizes methods of combinatorial chemistry;  
 Presents principle of structure-activity-relationships (SAR) studies of peptides.

#### Skills

Uses chemical terminology necessary to present the content of the course;  
 Understands the role of biologically active peptides and peptidomimetics in processes taking place in living organisms;  
 Can design peptides and peptidomimetics with the presumed biological activity  
 Can search for information in scientific literature

#### Social competence

Understands the need for continuous education;  
 Appreciates the usefulness of discussions and consultations;  
 Is aware of the need for critical analysis of own work;  
 Shows creativity in searching for alternative solutions

### Contact

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