

Course title Wykład monograficzny - Peptydy i białka w nauce i przemyśle / Monographic lecture - Peptides and proteins in science and industry		ECTS code 13.3.1108	
Name of unit administrating study Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Chemical business	Masters	Full-time studies	
Teaching staff Dr hab. Elżbieta Kamysz, prof. nadzw.			
Forms of classes, the realization and number of hours		ECTS credits 3	
A. Forms of classes, in accordance with the UG Rector's regulations lecture		classes - 30 h tutorial classes – 10 h student's own work – 35 h	
B. The realization of activities in-class learning		Total: 75 h - 3 ECTS	
C. Number of hours 30 h lecture			
The academic cycle 2021/22 winter semester			
Type of course obligatory		Language of instruction Polish	
Teaching methods lecture with multimedia presentation, problem lecture		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations course completion (with a grade)	
		B. Assessment methods written assessment in the test form, student presentation	
		Written test consisting of test questions and open tasks, covering the lecture material. • Oral assessment - supplement of the written test, but only for those students who obtained from the written test up to 5% below the level that allows receiving the next higher grade. Assessment of the test according to the scale of grades given in the Study Regulations. • Additional written test for students who did not obtain the required 51% in the first term. The final grade is determined on the basis of partial grades according to the following rules: 75% of the final grade is the mark of the test, 25% of the final grade is the grade of the student presentation.	
Required courses and introductory requirements General and organic chemistry			
Aims of education familiarize students with the issues mentioned in the lecture's program content.			

Course contents

Structure of the peptide bond and the structures of peptides and proteins; division of peptides and proteins; nomenclature and stereochemistry of peptides; methods of obtaining peptides on a laboratory and industrial scale; techniques for isolating and purifying peptides and proteins; a database of proteins and bioactive peptides; structure and importance of peptides and proteins in medicine, pharmacy, cosmetology and food industry (e.g. peptide drugs, peptide cosmetics ingredients, biologically and functionally active peptides, bioactive sequences derived from food proteins, etc.)

Bibliography of literature

A. Literature required to pass the course

Aminokwasy, peptydy, białka, H. D. Jakubke, H. J. Jeschkeit. (PWN).

Peptides: Chemistry and Biology, N. Sewald H. D. Jakubke, (WILEY-VCH)

Biologicznie aktywne peptydy i białka żywności, J. Dziuba, Ł. Fornal (WNT)

Fmoc Solid Phase Peptide Synthesis, W. Chan and Peter White, Oxford University Press, U.S.A.

Białka i peptydy, S. Doonan. (PWN)

B. Extracurricular readings

Principles of Peptide Synthesis, M. Bodanszky, Springer-Verlag, Berlin Heidelberg

The World of Peptides, T. Wieland, M. Bodanszky, Springer-Verlag, Berlin Heidelberg

Chemia organiczna, R. T. Morrison, R.N. Boyd.

Knowledge

- presents the structure of peptides and proteins,
- knows the rules for naming peptides,
- is able to characterize the main techniques for obtaining and purifying peptides and proteins,
- compares different methods of peptide synthesis,
- knows the basic databases on the subject of peptides and proteins,
- knows and understands the possibilities of using peptides and proteins for scientific and industrial purposes,
- lists applications of peptides and proteins in medicine, pharmacy, cosmetology and food industry.

Skills

- In a clear way, both in speech and in writing, presents correct reasoning regarding protein and peptide chemistry.
- Recognizes the basic equipment used for the synthesis and purification of peptides and can select the appropriate equipment for carrying out chemical experiments.

Social competence

- feels the fundamental role of peptides and proteins in human and mammalian life,
- understands the need to learn about peptides and proteins,
- is careful in dealing with chemical substances (strong acids, alkalis, condensing agents and others).
- can predict and properly plan the necessary personal protective equipment.