

Course title: ENZYMOLOGY AND BIOINFORMATICS

ECTS credit allocation (and other scores): 3

Semester: spring

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 75

Course coordinator/ Department and e-mail: prof. dr hab. Małgorzata Darewicz, Department of Food Biochemistry, darewicz@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

LECTURES: Lectures concern the characteristics of in silico, in vitro, in vivo methods applied in a contemporary life sciences.

The content of the lectures include the following issues: enzymes and coenzymes, proteins purification and isolation, proteins, lipids, carbohydrates metabolism, modifications and applications, the databases of low molecular weight compounds and their enzymatic reactions, defining the similarities of biomolecules and practical application of bioinformatics in food science.

CLASSES: The enzymology exercises cover: enzymes mode of action, specificity, kinetics, The bioinformatic exercises concern the prediction of physicochemical properties of high- and low molecular weight molecules; analysis of proteins as the source of peptides with biological and functional properties and searching for compound data in databases using structure search options including molecule editors and chemical codes.

Learning purpose: To acquire the knowledge skills concerning biomacromolecules, enzymes and computer methods.

On completion of the study programme the graduate will gain:

Knowledge: Student has knowledge of databases and the structure and functions of enzymes.

Skills: Student plans, conducts and analyses the results of experiments.

Social Competencies: Student organizes work and distributes responsibilities

Basic literature: Stryer L., Biochemistry, 7th edition, ed. WH Freeman and Company, 2012; Selzer P. M., Marhöfer R. J., Rohwer A., Applied Bioinformatics, Ed. Springer, 2008.

Supplementary literature: scientific articles proposed by teacher.

The allocated number of ECTS points consists of: 75

Contact hours with an academic teacher: 49

Student's independent work: 26