

86S1-BIOCH

BIOCHEMISTRY

ECTS: 3.0

HOURS PER SEMESTER/WEEK: LECTURES: 30/2; CLASSES: 30/2

FIELD OF THE STUDY: Chemistry

Level of study: First-cycle (Bachelor's degree) program

Course status: obligatory *

Year of the study: II

COURSE CONTENTS

LECTURES: Interdisciplinary capability of biochemistry. Structure and functions of biologically important compounds - amino acids, peptides, proteins, carbohydrates, lipids, nucleic acids, enzymes and coenzymes. Application of computer methods for the analysis of biological data. Metabolic conversions – anabolic and catabolic. Molecular mechanisms of basic processes taking place in living cells. Medical and nutritional aspects of biochemical modifications of food ingredients. Integration of metabolic conversions in living organisms.

CLASSES: Basic methods of purification and isolation of biomacromolecules. Isolation of chosen biologically active components from biological materials. Determination of the activity of selected enzyme preparations. Comparison of specificity of selected enzymes. Kinetic parameters of enzymatic reactions. Computer methods in the analysis and interpretation of biological data.

EDUCATIONAL PURPOSE: Obtaining: basic knowledge in the field of biochemistry; acquiring: the ability to search and analyse information from various sources; the ability to carry out simple experiments involving biomacromolecules and enzymes; skills in using computer programs and databases of biological compounds; the ability to interpret the results obtained and draw conclusions; developing communication and teamwork skills as well as self-education.

LEARNING OUTCOMES

Knowledge. The student describes the biochemical background and the sequence of stages in life processes and technological processes based on knowledge of the classification, structure, occurrence, function and transformation of the main components of living organisms, as well as their importance in nutrition and changes occurring during their production and storage.

Skills. The student conducts experiments and is able to present the obtained results, own opinion using different forms of communication. The student uses computer programs and internet databases enabling the understanding and interpretation of biological phenomena.

Social competences. The student is able to work independently and in a team and is aware of the need to comply principles of occupational health and safety. The student shows readiness for substantive discussion enabling the achievement of a common understanding positions.

TEACHING FORMS AND METHODS

Lectures. information lecture, lecture with multimedia presentation

Classes. laboratory classes - performing laboratory tasks in small teams of 2.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. written form (3-5 descriptive tasks) - credit with a grade

Classes. written form - credit with grade

BASIC LITERATURE

1) Berg J.M., Stryer L., Tymoczko J., Gatto G., Biochemistry, WH Freeman and Co, R. 9th Ed., 2019

ADDITIONAL LITERATURE

1) Iwaniak A., Darewicz M., Minkiewicz P., Databases of bioactive peptides. In: Biologically active peptides : from basic science to applications for human health / Edited by: Fidel Toldra and Jianping Wu, London: Academic Press, R. 2021, s. 309-330

THE TEACHER/TEACHERS CONDUCTING THE CLASSES:

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