
Course title: ANIMAL BIOCHEMISTRY WITH ELEMENTS OF BIOORGANIC CHEMISTRY I

ECTS credit allocation (and other scores): 3,5

Semester: spring

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 45

Course coordinator/ Department and e-mail: Dr Aleksandra Orzolek/Department of Animal Biochemistry and Biotechnology: aleksandra.deszczka@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Amino acid color reactions, amino acid paper chromatography. Physicochemical properties of proteins, determination of total protein content. Detection of nucleic acid components. Determination DNA and RNA content. Detection of B complex vitamins (B1, B2, B6, B12). Determination of carotene content. Kinetic properties of selected oxidoreductases and hydrolases. Determination of aspartate aminotransferase (AspAT) and amylases activity.

LECTURES: Basic assumptions of the structural theory of organic compounds. Selected construction elements and properties hydrocarbons and their oxygen derivatives, homologous series of alkanes. Alcohols, aldehydes and ketones, carboxylic acids. Structure, naming and division of amino acids. Some properties of amino acids (configuration, optical activity, amphotericity). Amine and carboxyl group reactions. Peptide bond characteristics. Division of peptides. Construction and physicochemical properties of proteins. Structure and properties of nitrogen bases, nucleotides, DNA, RNA. Characteristics of sugars. Characterization and division of esters. Fatty acids - properties and naming.

Learning purpose: Indication of links between metabolic processes and animal productivity.

On completion of the study programme the graduate will gain:

Knowledge: describes the biochemical basis and course of the most important life processes in a living organism

Skills: uses basic laboratory methods and techniques in qualitative and quantitative analysis.

Social Competencies: is aware of the need for lifelong learning and compliance with hygiene and safety rules.

Basic literature: Murray R., Granner D., Rodwell V., "Harper's illustrated biochemistry"

Supplementary literature: Berg J.M, Tymoczko J., Gatto G., Stryer L. "Biochemistry"

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 47

Student's independent work: 115