

Course title: BIOCHEMISTRY WITH ELEMENTS OF CHEMISTRY (PARAMEDIC)

ECTS credit allocation (and other scores): 0.5

Semester: spring

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

Branch of science: Natural sciences

Language: English

Number of hours per semester: 20

Course coordinator/ Department and e-mail: Elżbieta Łopieńska-Biernat

Type of classes: lectures

---

Substantive content

CLASSES: not applicable

LECTURES: The role of biochemistry in medicine. The role of water and buffer systems in the human body. Structure and functions of proteins. Nitrogen metabolism. Action and functions of enzymes, the role of enzymes in diagnostics. Characteristics of lipid metabolism. Outline of the functions of catabolic and anabolic pathways in cells of the human body. Biochemistry of metabolic diseases: diabetes, phenylketonuria, gout. Case study analysis.

Learning purpose: Understanding the basics of energetic and biochemical functioning of the organism by understanding the integration of metabolic pathways and enzyme activity. Learning the role of water and buffer systems in maintaining homeostasis of the human body.

---

On completion of the study programme the graduate will gain:

Knowledge: The student explains the energetic and biological foundations of life. The student describes the function and role of enzymes in biocatalysis; characterizes the functioning of the body through catabolic and anabolic pathways; explains the physiological and biochemical aspects determining human health; describes the essence of metabolic diseases; characterizes the influence of the internal and external environment of the human body on its health; the student understands the mechanisms regulating metabolism and have knowledge about the generation and processing of chemical energy in the cell.

Skills: The student interprets the biochemical basis of biological life; conducts an analysis of physiological and biochemical threats to human life; discusses the effects of activities saving human life.

Social Competencies: The student is aware of the necessity of lifelong learning, shows an active attitude in presenting the role of emergency medical services; perceives the relationship between the effects of education and the level of performance of the profession; acts in accordance with professional ethics.

Basic literature: Nelson David L. 2016. Lehninger Principles of Biochemistry. ISBN13 (EAN): 9781319108243, Macmillan Higher Education.

Supplementary literature: publications in scientific journal PubMed, <https://pubmed.ncbi.nlm.nih.gov>

---

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 20

Student's independent work: 4