

DOI 10.36074/logos-06.02.2026.045

# ANALYSIS OF EFFECTIVENESS AND RESULTS OF ASSESSING THE LEVEL OF PREPARATION OF STUDENTS IN THE ELECTIVE DISCIPLINE “BIOGENIC ELEMENTS AND THEIR ROLE IN HUMAN LIFE” AT THE BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

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**Introduction.** Modern medical education requires the introduction of innovative approaches that ensure individualized learning and the formation of deep interdisciplinary connections. In the context of training specialists in the specialty I2 «Medicine», elective disciplines that allow students to expand their professional horizons are of particular importance.

With the aim of forming the scientific worldview of future doctors, studying the classification, topography, daily requirements, toxicity, sources of supply, biological role, and clinical manifestations of deficiency or excess of biogenic elements in the human body, the ability to analyze the causes and consequences of pathological conditions in the human body in future practical activities, the elective discipline «Biogenic elements and their role in human life» was introduced for first-year students in the specialty I2 «Medicine» at the Bogomolets National Medical University.

**The main material.** The elective discipline «Biogenic elements and their role in human life» is 3 ECTS credits (90 hours), of which 10 hours are lectures, 20 hours are practical classes, and 60 hours are independent work.

A questionnaire was conducted via Google Forms (11 questions) and methods of variational statistics were applied. A total of 121 respondents (students of medical faculties № 1 and № 2, now the Educational and Scientific Institute of Medicine) participated in the questionnaire, with an average age of 17 years. The

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questionnaire was conducted in the second semester of the 2024-2025 academic year.

The questionnaire results indicate an exceptionally positive perception of the elective discipline «Biogenic elements and their role in human life» by students: 82.6% of students are completely satisfied with the organization of blended learning, and 100% of respondents noted the objectivity of assessment and compliance with the norms of pedagogical ethics by scientific and pedagogical staff. The results obtained prove the high quality of the organization and positive perception of the content of the elective discipline «Biogenic elements and their role in human life» [1].

The educational content of the elective discipline «Biogenic elements and their role in human life» is fully integrated into the Likar\_NMU distance learning platform. The introduction of the elective discipline on the official Likar\_NMU distance learning platform has proven to be effective. Most students (62.8%) consider distance learning to be as effective as face-to-face learning, which is particularly important in the context of wartime and the need to ensure the continuity of medical education. This testifies to the successful digital transformation of the elective discipline «Biogenic elements and their role in human life» [1].

The structure of the elective discipline on the Likar\_NMU distance learning platform was graded «very good» by 66.1% of students, 90.1% of students considered the amount of material sufficient for preparation for practical classes, 81% of students did not encounter difficulties with distance learning, although 20.7% noted technical problems with uploading answers [1].

As for the format of the future elective discipline «Biogenic elements and their role in human life», 54.5% of respondents consider a blended format (face-to-face and distance learning) to be the best choice after the end of wartime conditions [1].

The curriculum of the elective discipline «Biogenic elements and their role in human life» successfully integrates theoretical knowledge with real clinical tasks. Involving students in research work (theses, reports) stimulates their self-development and increases their interest in studying the elective discipline.

Regarding interdisciplinary integration, the elective discipline «Biogenic elements and their role in human life» is consistent with other fundamental courses (anatomy, medical biochemistry, physiology), ensuring the integrity of the scientific worldview without duplicating educational goals.

The main vector for the further development of the elective discipline is the transition to a blended (face-to-face and distance) learning model, which was supported by 54.5% of students. This will combine the advantages of digital technology flexibility with the need for direct interaction during practical training.

There is also a need for further gamification of learning (Quizlet, Kahoot) and expanded use of video materials to increase student motivation [1].

**Conclusions.** The research confirms that the elective discipline «Biogenic elements and their role in human life» is an important component of the fundamental training of future doctors at the Bogomolets National Medical University. It not only provides the theoretical basis for further study of medical and biological disciplines, but also directly shapes the professional competencies necessary for clinical diagnosis and treatment monitoring.

Teaching the elective discipline «Biogenic elements and their role in human life» corresponds to European standards of medical education and successfully fulfills the task of training competitive specialists capable of applying knowledge of microelementology to improve population health.

#### REFERENCES:

- [1] Slipchuk, V., Yanitska, L. (2025). Assessment of the level of competence of higher education students in the elective discipline "Biogenic elements and their role in human life". *ScienceRise: Pedagogical Education*, 3(64), 4-13. <http://doi.org/10.15587/2519-4984.2025.337471>