

## Innovative Methods Of Teaching Biochemistry

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**ANNOTATION** This article substantiates that teaching biochemistry in medical higher education institutions is currently one of the urgent problems in training qualified personnel. It is noted that there is a need to introduce additional elements to significantly improve the traditional approach to teaching biochemistry. The article suggests that utilizing pedagogical tasks at all stages of learning, improving the biochemistry course, and implementing modern computer technologies will lead to increased opportunities for effective teaching.

**Keywords:** biochemistry, teaching, situational tasks, computer technologies.

### INTRODUCTION.

Organisms are living things with a specific structure and function. They can be unicellular or multicellular and can be found in a variety of environments, including water, soil, air, and even inside other organisms [1].

Organisms can come in a variety of sizes and shapes, from microscopic bacteria to giant trees and animals. They can also have a variety of locomotion modes, from crawling and swimming to flying [2].

Organisms also have the ability to reproduce, grow, and develop. They can pass on their genetic material to their offspring and undergo changes throughout their lives [6]. In general, organisms are complex and fascinating life forms that inhabit our planet and play an important role in biochemical processes and ecosystems [7].

Biological chemistry is the science of the chemistry of life, the chemical composition of living matter, the chemical processes that occur in living organisms and are the basis of their vital activity [8]. Biochemistry is a biological science that widely uses physical and chemical research methods. Biochemistry studies the chemical nature of the substances that make up living organisms and their transformations [9]. The objects of study of biochemistry are microorganisms, plants, animals, and humans. Depending on the objects of study, modern biochemistry is divided into the following sections: biochemistry - animals; plants; microorganisms; medical; radiation; space; technical [10].

Medical universities conduct initial courses of training students in theoretical sciences, one of which is biological chemistry. The difficulty of studying biochemical reactions, metabolic cycles,

and the subtleties of regulation, as well as the length of the names of most enzymes and metabolites, exhaust students. Biochemistry, like many other complex subjects, has a false image of an unnecessary and difficult obstacle that must be overcome, passed as quickly as possible and forgotten in order to start studying "real" biology. Therefore, the teacher faces a difficult intellectual obstacle: on the one hand, to conduct the learning process in accordance with pedagogical principles and methods, and on the other, to encourage students to deeply understand the processes that form the basis of life. The task of a good teacher is to awaken student activity in order to transform the passive reproduction of the studied material into its effective assimilation and consolidation[16]. To increase the effectiveness of biochemistry teaching, interactive methods have been introduced. Interactive teaching increases student activity and contributes to a deeper assimilation of knowledge. For example, through laboratory exercises, online simulations and video lessons, students have the opportunity to apply theoretical knowledge in practice. Such methods allow students to understand complex biochemical processes and test them in practical conditions.

Biochemistry is by its nature closely related to several scientific fields. Biochemical processes often involve biology, genetics, ecology, and pharmaceuticals. Therefore, innovative methods of teaching biochemistry require a multidisciplinary

approach. Students not only learn biochemical reactions, but also learn to relate them to other scientific fields. For example, integration with the fields of bioinformatics and molecular biology helps students develop new knowledge and skills.

One of the most important aspects of innovative teaching is the integration of technologies and artificial intelligence into the teaching process. Biochemistry is a rapidly changing field, and the processes of identifying and analyzing biochemical processes using modern technologies, such as molecular modeling, bioinformatics, and artificial intelligence, are changing significantly. Students learn to use new technologies in laboratory work, which creates a solid foundation for conducting scientific research and applying them in practice.

**CONCLUSION:** Thus, it is possible to facilitate the mastery of complex topics by students by using new methods and forms of conducting classes aimed at activating cognitive interest and increasing the effectiveness of educational activities, and moving away from stereotypical, passive delivery of material. The existing medical education system does not have time to adapt to the growth of the volume of information, changes in its structure and functions, and approaches aimed at transferring and mastering ready-made knowledge do not allow training a successful and qualified specialist in a rapidly changing world.

The introduction of innovative forms and methods into the biochemistry course allows solving several problems at once:

- activating the cognitive process of students based on the novelty of the material being studied and the influence of an unusual form of its presentation;

- forming a holistic conceptual scientific worldview in students;

- creating the necessary conditions for motivating students to engage in independent creative research and mastering new material.;

Innovative methods of teaching biochemistry are aimed not only at in-depth mastery of scientific knowledge, but also at developing students' creative, analytical thinking and practical skills. This approach helps students master modern technologies, apply their knowledge in practice, and achieve success in scientific research. Innovative methods of teaching biochemistry increase students' interest in scientific activity and prepare them for successful work in the fields of science and technology in the future.

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