

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ

# МАТЕРІАЛИ

II науково-практичної інтернет-конференції  
**РОЗВИТОК ПРИРОДНИЧИХ НАУК  
ЯК ОСНОВА НОВІТНІХ  
ДОСЯГНЕНЬ У МЕДИЦИНІ**



*м. Чернівці  
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MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
MINISTRY OF HEALTH OF UKRAINE  
BUKOVINIAN STATE MEDICAL UNIVERSITY

# CONFERENCE PROCEEDINGS

## II Scientific and Practical Internet Conference **DEVELOPMENT OF NATURAL SCIENCES AS A BASIS OF NEW ACHIEVEMENTS IN MEDICINE**



*Chernivtsi, Ukraine*  
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Медицина є прикладом інтеграції багатьох наук. Наукові дослідження у сучасній медицині на основі досягнень фізики, хімії, біології, інформатики та інших наук відкривають нові можливості для вивчення процесів, які відбуваються в живих організмах, та вимагають якісних змін у підготовці медиків. Науково-практична інтернет-конференція «Розвиток природничих наук як основа новітніх досягнень у медицині» покликана змінювати свідомість людей, характер їхньої діяльності та стимулювати зміни у підготовці медичних кадрів. Вміле застосування сучасних природничо-наукових досягнень є запорукою подальшого розвитку медицини як галузі знань.

Конференція присвячена висвітленню нових теоретичних і прикладних результатів у галузі природничих наук та інформаційних технологій, що є важливими для розвитку медицини та стимулювання взаємодії між науковцями природничих та медичних наук.

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#### Комп'ютерна верстка:

**Марія ІВАНЧУК**

**Розвиток природничих наук як основа новітніх досягнень у медицині:** матеріали II науково-практичної інтернет-конференції, м. Чернівці, 22 червня 2022 р. / за ред. В. І. Федіва – Чернівці: БДМУ, 2022. – 489 с.

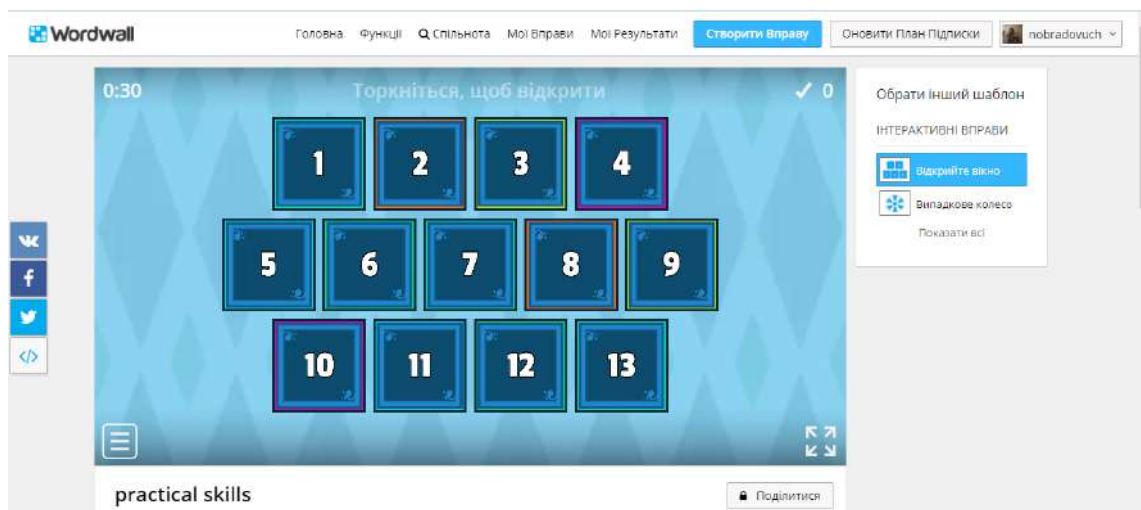
У збірнику подані матеріали науково-практичної інтернет-конференції «Розвиток природничих наук як основа новітніх досягнень у медицині». У статтях та тезах представлені результати теоретичних і експериментальних досліджень.

Матеріали подаються в авторській редакції. Відповідальність за достовірність інформації, правильність фактів, цитат та посилань несуть автори.

Для наукових та науково-педагогічних співробітників, викладачів закладів вищої освіти, аспірантів та студентів.

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*Pic. 1 "Open the box" template interface*

The advantage is that while creating the game you can change the template and choose the theme, i.e the appearance of the exercise. This allows the teacher to choose the most effective format of communication with each group.

Thus, gamification, in particular the use of the Wordwall service, is a modern tool of drawing students' interest and diversification of practical classes, which helps with realization and systematizing of the basic knowledge.

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**Davydova N.V.**

### **Features of Distance Learning of Bioorganic and Biological Chemistry in Higher Medical Educational Establishments**

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**Abstract.** The application of modern methodology and techniques in practical classes for getting integrated and professional competences during studying of bioorganic and biological chemistry in higher medical educational establishments is discussed.

**Key words:** bioorganic and biological chemistry, distance education, competencies, methodological techniques.

Facing the challenges of the modern world, it is relevant to search for new educational programs and achieve new quality level of professional education which meets the requirements of modern society [3]. Today, the main task of higher education is to train not just a specialist, but a professional person capable of constant self-development and self-learning, ready for research activities and participation in various projects [1]. Interactive online teaching methods are relevant nowadays and include implementation, and management of educational activities, which make students equal and interested in the educational process. The purpose of these methods is to maximize students' cognitive needs and abilities, and finally to speed up the educational progress [2].

The staff of bioorganic and biological chemistry and clinical biochemistry department of Bukovinian State Medical University actively implements new interactive and active teaching methods based on innovative teaching technologies. The staff of the department has prepared full set of educational and methodological materials for students which includes syllabubs, set of lectures, detailed methodological recommendations for practical classes, including the algorithm for preparing for the classes and laboratory test, set of clinical cases to solve, multiple-choice questions, biochemical vocabulary. All these materials are available printed and online in Moodle.

Moodle has become one of main tool to host e-learning materials for students. It offers a wide range of features to provide the educational process in case of both offline and online study, as well as a variety of ways to present educational material, check knowledge and educational progress [4]. The positive aspect of the platform is its flexibility, possibility to be constantly updated and corrected [5].

A specific feature of bioorganic and biological chemistry and clinical biochemistry department in the methodological aspect is presenting the educational materials in such a way that even the most complex biochemical process looks simple, logical, without missing its most important details, highlighting the main things that are necessary for understanding the topic. Many topics are presented to students using diagrams, drawings, tables, in the form of presentations and videos. The staff of the department uses a variety of forms and methods to ensure the attention and interest of students during practical classes and lectures, for example, interactive classes using SMART Board and Smart Lab interactive application of SMART Learning Suite software which masters new forms of offline and online classroom training, provides assessing students' achievements [6].

A great range of opportunities for activating the cognitive abilities of students is provided by practical classes where besides the traditional approach the teachers implement interactive forms such as small-group discussion, brainstorming, project-based learning, and cooperative learning [3]. These

technics are revealed to be the most efficient in discussing certain clinical cases which need biochemical diagnostics and interpretation of laboratory tests results. The use of such methods increases students' sociability, logical thinking, and clarity in setting specific tasks. The small-group discussion is an active form of learning, involving the interaction of students in the dialogue mode. It is focused not only on the interaction between students and teacher, but also on active communication with each other, promotes consolidation of already studied material, comprehension of new one, formation of research skills and public speaking skills. It is especially effectively realized in topics "[Methods of molecular-genetic investigations]" "Biochemistry of aging".

The department of bioorganic and biological chemistry and clinical biochemistry of BSMU annually holds an Olympiad on biochemistry for Ukrainian students as well as for international students, which includes written test on some biochemical problems which need deep integration with other topics, solving clinical cases, biochemical crosswords, quizzes, writing the biochemical integrated sequential pathways. Students who show the best results in the olympiad are rewarded with additional points to their educational progress.

The workbook is a modern, multifunctional educational tool which performs teaching, information, communication and reflective functions. The staff of our department has published a workbook on bioorganic chemistry which includes instructions and algorithms for performing the laboratory practice, special forms for filling in the chemical reactions and obtained results, making the conclusions, control questions, and references.

Implementation of distance learning has given priority to the publishing of electronic textbooks over printed ones. E-textbooks have many advantages like possibility to add multimedia content, interactive links, online availability for students, and absence of printing costs. The staff of bioorganic and biological chemistry and clinical biochemistry department has published seven e-textbooks on different chapters of biochemistry: "Bioorganic chemistry", "Fundamentals of enzymology", "Functional biochemistry", "MCQ in biochemistry", "Biochemistry. Practical manual" and others.

Distance education makes difficulty in getting practical skills, since the main educational technology in biochemistry is a laboratory workshop, where students perform the laboratory test experiment within the framework of studied topic [1]. Making educational videos let students master the necessary professional competencies of a specialist. The video materials provide an opportunity for students to follow all the steps the laboratory test procedure, get certain result and make correspondent conclusions like it usually occurs in offline practical classes. All videos in the e-manual are grouped according to the curriculum. Subtitles describe all the steps in details, and at the end of

each video the corresponding chemical reactions and explanation of the chemical properties of individual bioorganic compounds are given.

Thus, based on the above mentioned the implementation of distance learning needs application of modern educational methods which successfully optimizes teaching of bioorganic and biological chemistry in medical universities.

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**The importance of mathematical education for future doctors**

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**Abstract.** The importance of the role of mathematics in medical education is considered in the work. It is shown that knowledge in various branches of mathematics is necessary for future doctors and pharmacists for understanding of medical processes, making correct diagnosis, and undertaking of scientific medical researches.

**Key words.** medical education, mathematics, high school

**Introduction.** The question if mathematics is needed for the future specialist in the field of medical and pharmaceutical sciences always faces applicants for the education of these areas.