Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

THE STATE OF GENERAL CHEMICAL EDUCATION AND THE INITIAL METHODOLOGICAL AND THEORETICAL BASIS OF THE RESEARCH

Tadjieva Khosiyat Sultanovna
Tashkent State Medical University
hosiattadzieva@gmail.com

Abstract

Medical education is a crucial element of the continuing education system in Russia, aimed at ensuring public health and preparing people for a healthy lifestyle. By the end of the 20th century, society's utilitarian and pragmatic attitude toward nature led to an environmental crisis and a deterioration in the socioeconomic situation, leading to increased morbidity and mortality, and a decline in life expectancy in many regions of the country. Drug and alcohol addiction, as well as AIDS, have reached alarming levels, especially among young people. Consequently, fundamentally new demands have emerged in modern society for the national education system, including the medical education system, and new directions for its reform. In the context of globalization and the current state of society, the priority of a sustainable development model and universal human values has been proclaimed, reflected in the goals and fundamental principles of secondary and higher education, as well as enshrined in state regulatory documents.

Medical education in the 21st century is becoming a vital human value. The main trends in its development in the context of the transition to an infosphere society are strengthening its integrative and fundamental nature, deepening its differentiation and humanization. The most important integrative function of medical education is the training of highly qualified specialists and, at the same time, spiritual and moral individuals.

In the substantive interpretation of the concept of "modern medical education" we highlight the following aspects: a) medical education as a universal value; b) medical education as a developing, continuous system; c) medical education as a personally adapted process of training a specialist; d) medical education as

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

oriented towards training a specialist capable of treating a patient as an individual and holistic person; d) medical education as aimed at promoting a healthy lifestyle, general medical culture, and both the physician and the population; e) medical education as aimed at stimulating continuous self-education and self-realization in the context of medical activity.

The personal value of medical education is manifested in the student's individually motivated and motivated approach to their own general and professional development and the quality of their university training. The increasing humanization and fundamentalization of medical education, along with its professional focus, necessitates the inclusion of integrative disciplines, including chemistry, which ensure a holistic understanding of their content and the development of a scientific worldview. Deepening differentiation entails, within the framework of integrative professions (general practitioner, dentist, pediatrician), an expansion of their specializations (general practitioners can be surgeons, therapists, gynecologists, etc.). Furthermore, during postgraduate education, physicians can obtain a more specific specialization through more in-depth differentiated training and self-education.

At the same time, in the context of the existing system of medical education, in meeting the new demands of society and in reflecting modern trends in the development of higher education, serious contradictions arise, the most important of which are the contradictions between:

1) the goals declared in regulatory documents of forming a comprehensively developed creative, highly professional personality of a specialist with global thinking and real possibilities of the modern subject system of education in a medical university;

2) an objective need for fundamentalization, humanization, integration, and greening of medical education and the absence of a comprehensive theoretical concept for training a specialist in a medical university in modern state educational standards for physicians;

3) the need to develop the personality of a doctor as a highly professional, spiritual and moral, humane and leading subject-based system of training, focused on the narrowly focused tasks of mastering the content of a given

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

discipline in the absence of a modern job description for a specialist doctor, reflecting the integrative results of subject-based training and ways of developing a personality in accordance with the requirements of modern society; the necessary integrative courses, including chemical ones, ensuring a holistic perception of the chemical-medical picture of nature,

4) the need of the healthcare system for specialists with a new way of thinking (global, ecological, health and humane) and the traditional way of thinking that exists among medical school graduates, reflecting only particular pictures of the world (chemical, medical-physiological, etc.), formed within the framework of individual subjects;

5) the need of a modern medical university for diverse and variable educational programs and textbooks for various specializations and uniform programs and textbooks recommended by the ministry and currently used in real-life teaching;

6) the levels of school education and the requirements of university education for the knowledge of applicants, which necessitate the inclusion of new pre-university education structures in the university system;

7) the enormous importance of the general chemistry course for medical education, the development of medical thinking and intelligence, and its underestimation as part of general scientific and professional training, the insufficient level of its systematicity and the amount of study time for its conscious and effective assimilation;

8) the intended purpose of the general chemistry course is to provide basic chemical literacy and general theoretical chemical training for physicians, the acquisition of fundamental ideas, concepts, laws, and theories necessary for the study of other chemical and professional disciplines, and the lack of adequate interdisciplinary connections with subjects in the chemical-biological and medical blocks.

The above contradictions can be resolved: a) through scientific support for the holistic educational process of development and formation of the physician's personality by creating a scientifically based concept and a harmoniously composed, appropriate system of university training for physicians with the involvement of a team of specialists from various fields; b) through the

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

modernization of the curriculum, the interdisciplinary integration of individual academic subjects, the design of the process of their study, as well as the development of students taking into account the modern model and professionogram of a specialist physician, the integrity and dynamism of this process.

With regard to the general chemistry course, we see the solution to the problem in an innovative restructuring of chemical-medical education based on the synthesis of its fundamental ideas, in a clearer definition of the status and significance of the general chemistry course in this system, as well as in a scientifically based strategy for modernizing its content and study process, adequate to the modern goals of higher medical education.

Modern pedagogical science and practice, chemical science and their methodologies have prepared sufficient grounds for the restructuring of chemical education in the medical system, including for innovative transformations of the general chemistry course.

The essence of our main problem is to restructure the content and methods of teaching general chemistry (GCC) to medical students and to change its status within the medical education system. In today's world, the development of the personality of future physicians, the skills and abilities of self-education, self-organization, and self-development, and the creation of the necessary conditions for this have become of great importance.

Currently, there is a sufficient body of scientific research addressing these issues. However, a comprehensive study examining the design of integrated courses and the development of a methodological system for their study in medical schools has yet to be completed. It is noteworthy that there is a virtual absence of pedagogical dissertation research in the field of chemistry education in the medical system.

Various aspects of the theory and practice of chemical education in a medical university are presented by a collection of individual works, mainly concerning the organization of educational activities, the development of programs, manuals, environmental focus, testing, individual methods and technologies for teaching bioorganic chemistry, biochemistry and, to a lesser extent, general chemistry.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

However, to date, a comprehensive concept for the development and study of general chemistry in medical schools has not been developed that is adequate to the current requirements and trends in the development of chemistry education and higher medical education, as well as the logic of science and education. The need for such research has become evident due to the universality, fundamental nature, and significance of this chemistry course and the lack of developed methodological foundations for its study in chemical-medical education. The diversification of its assimilation and application in the context of environmental degradation and declining public health indicators, as well as the increasing level of medical research, including molecular diagnostics.

Currently, there is also no constructive methodological and methodological apparatus for studying this problem in the system of medical education; the problems of adapting the general and professional development of a student in the process of transition from the pre-university to the university stage of chemical education have not been studied, taking into account the specifics and capabilities of a medical university, the interests and abilities of applicants and students to master a modern course of general chemistry, to understand its significance and value for future professional activity.

The aim of the study is to develop a theory of integrative-modular developmental teaching of general chemistry to medical students and to determine the methodology for its implementation to improve the quality of chemical training of future doctors.

The object of the study is the content and process of studying general chemistry in a medical university.

The subject of the research is the theory and practice of designing and implementing an integrated course in general chemistry, as well as a methodological system for studying it in a medical university based on modular and personal-activity approaches.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

The result of the study is the assumption that the system of teaching general chemistry to medical students will be more effective if:

- a scientifically developed concept of integrative modular training and a theoretical model of a modern system of content and methods for studying an integrative course in general chemistry at a medical university have been created;
- new content and structure of the general chemistry course have been designed and scientifically substantiated, based on integrative-modular, systemic and personal-activity approaches;
- a comprehensive, professionally oriented methodological system for teaching medical students general chemistry has been created based on interdisciplinary integration, linking all components, parties and participants in the educational process and reflecting its dynamics, integration mechanisms, and technology, ensuring the achievement of educational goals;
- didactic and methodological conditions for the successful functioning of the methodological teaching system have been determined, corresponding to the requirements for the development of the individual and his/her professionalization in subject teaching;
- there will be an increase in personal orientation and provision of adaptation of first-year students to university education, carried out by correlating the content and process of teaching students general chemistry with their age and psychological characteristics, strengthening the individually differentiated and personal-activity approaches that create optimal conditions for personal development;
- objective indicators and criteria for the effectiveness of the experimental learning results were selected, including: a) compliance of students' performance with the general goals of medical education and the objectives of subject-specific training; b) compliance with the requirements of positive changes in the educational environment and in the development of the students' personalities.

The methodological and theoretical foundations and ideas for reorganizing the structure, updating the content have been defined , and a methodology for studying a new theoretical course "General Chemistry" for medical universities has been developed based on a modular approach, principles of interdisciplinary

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

integration, continuity and professional focus; the relationship of this course of general chemistry with the disciplines of general education and medical-professional cycles has been determined; the concept of integrative-modular developmental teaching of general chemistry for students of a medical university has been developed and scientifically substantiated; from the standpoint of a systemic, integrative and personal-activity approaches, a comprehensive methodological system for the modular study of general chemistry has been developed and tested, requirements for this system and functions ensuring its organization, self-realization and development have been determined, the content of each of the modules of the integrative course of general chemistry has been scientifically substantiated and structured, combining the largest and most important sections of general chemistry for medicine and the related biochemical, medical-professional, environmental, and cultural components of the content. The role of the general chemistry course in the chemical and medical training of students has been defined; a model of the holistic process of teaching chemistry in pre-university and initial university educational institutions has been created based on a systems approach; a methodological system for studying general chemistry and managing the quality of its mastery has been developed; a hermeneutic approach has been introduced to address the problem of understanding and consciously assimilating the fundamental content and chemical abstractions of the general chemistry course, and a scenario method has been used; cluster analysis has been used within the framework of the methodological study to process the learning outcomes (questionnaire data).

Conclusions:

The state and contradictions of the existing system of chemical training of medical university students have been determined; development trends and features of chemical education in modern conditions have been revealed; ideas and directions have been defined, methodological and theoretical foundations for modernizing the general chemistry course for medical universities have been developed, a concept and theoretical model of integrative and modular developmental teaching of general chemistry have been created; requirements,

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

criteria and indicators for mastering the general chemistry course and personality formation have been determined; functions and components of the methodological system have been determined: target, motivational , design, content, process-activity, evaluative and result-based; specific features of the process of educational knowledge of general chemistry and chemical training of students in a medical university have been determined; effective forms of organizing student teaching of general chemistry have been identified, their optimal combinations have been established, active methods and techniques, teaching aids that are effective and adequate to the goals and content have been introduced; A new system of educational organization has been formed, a hermeneutic approach to solving the problem of understanding abstractions and the symbolic-mathematical apparatus of the general chemistry course content has been introduced; a strategy and methodological techniques for implementing the principle of continuity of pre-university and university training have been defined; a system of values (universal, chemical-ecological, chemical-medical, professional) has been defined and selected from well-known ones, the possibilities and conditions for their appropriate inclusion in the content and their formation in students during the study of general chemistry have been identified in order to develop socially and individually significant, professionally important qualities of the personality of future physicians; the theoretical and methodological foundations of an educational and methodological complex adequate to our concept and a system for diagnosing the chemical education of students have been developed.

References

1. J. Stenhous. Ueber Larixinsäure, einen krystallisirbaren flüchtigen Bestandtheil der Rinde des Lerchenbaums (Pinus Larix L.). // Annalen der Chemie und Pharmacie. 1862. V. 123. N 47 48. P. 191-199.
2. J. Brand. Ueber Maltol. //Berichte der Deutschen Chemischen Gesellschaft. 1894. V. 27(1). P. 806-810.
3. Abduraimovna, A.D., Turg'unboyevna, Y.N. and Rustamovna, Q.S., 2023. QIZLARNI OILA VA JAMIYATDA O 'ZO 'RNINI TOPISHDA

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

PSIXOLOGIK KO ‘NIKMA VA MA’NAVIY YETUKLIKNI SHAKLLANTIRISH. *Scientific Impulse*, *1*(7), pp.310-313.

4. Abduraimovna, A.D., Turg’unboyevna, Y.N. and Rustamovna, Q.S., 2023. QIZLARNI OILA VA JAMIYATDA O ‘ZO ‘RNINI TOPISHDA PSIXOLOGIK KO ‘NIKMA VA MA’NAVIY YETUKLIKNI SHAKLLANTIRISH. *Scientific Impulse*, *1*(7), pp.310-313.

5. ERMATOV, N., KASSYMOVA, G., TAJIYEVA, K., KHASANOVA, M., ALIMUKHAMEDOVA, M., & AZIMOVA, S. (2020). Expression of tissue-specific genes in mice with hepatocarcinogenesis. *International Journal of Pharmaceutical Research (09752366)*, *12*(3).

6. Inakov, S. A., Mamatkulov, B. B., Kosimova, K., Saidalikhujaeva, S., & Shoyusupova, K. B. (2020). Social and demographic characteristics of elderly and their lifestyle in developing countries: on the example of Uzbekistan. *Indian Journal of Forensic Medicine & Toxicology*, *14*(4), 7418-7425.

7. Kamilova DN, Saydalikhujaeva SK, Abdashimov ZB, Rakhmatullaeva DM, Tadjieva XS. Employment relations and responsibilities of medical institutions workers in a pandemic in Uzbekistan. Journal of Medicine and Innovations. 2021;2(13-1).

8. Kamilova, D. N., Saydalikhujaeva, S. K., Rakhmatullaeva, D. M., Makhmudova, M. K., & Tadjieva, K. S. (2021). Professional image of a teacher and a doctor. *British Medical Journal*, *1*(4), 4-14.

9. Kasimova, K. T. (2024). The Role Of Ecology In The Development Of Cardiovascular Diseases.

10. Khilola, T. K. (2024). Assessment of environmental conditions in tashkent and relationship with the population suffering from cardiovascular diseases.

11. Khudoyberganov, M., Rakhmatkarieva, F., Abdurakhmonov, E., Tojiboeva, I., & Tadjieva, K. (2022, June). Thermodynamics of water adsorption on local kaolin modified microporous sorbents. In *American Institute of Physics Conference Series* (Vol. 2432, No. 1, p. 050001).

12. Kosimova, K. T., Jalolov, N. N., & Ikramova, N. A. (2025, April). THE RELATIONSHIP BETWEEN AIR POLLUTION AND ARTERIAL

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

HYPERTENSION. International Conference on Advance Research in Humanities, Applied Sciences and Education.

13. Qosimova, X. T., Ikramova, N. A., Juraboyeva, D. N., & Mukhtorova, D. A. (2025, March). THE ADVERSE EFFECTS OF SMARTPHONES ON COGNITIVE ACTIVITY IN THE EDUCATIONAL PROCESS AND WAYS TO MITIGATE THEM. In *The Conference Hub* (pp. 76-79).
14. Sadullayeva, X. A., Salomova, F. I., & Sultonov, E. Y. (2023). Ochiq suv havzalari muhofazalash ob'ekti sifatida. In *V международная научно-практическая конференция «Современные достижения и перспективы развития охраны здоровья населения*.
15. Sadullayeva, X. A., Salomova, F. I., & Sultonov, E. Y. (2023). Ochiq suv havzalari muhofazalash ob'ekti sifatida. In *V международная научно-практическая конференция «Современные достижения и перспективы развития охраны здоровья населения*.
16. Sadullayeva, X. A., Salomova, F. I., Mirsagatova, M. R., & Kobiljonova Sh, R. (2023). Problems of Pollution of Reservoirs in the Conditions of Uzbekistan.
17. Sadullayeva, X. A., Salomova, F. I., Mirsagatova, M. R., & Kobiljonova Sh, R. (2023). Problems of Pollution of Reservoirs in the Conditions of Uzbekistan.
18. Sadullayeva, X. A., Salomova, F. I., Mirsagatova, M. R., & Kobiljonova Sh, R. (2023). Problems of Pollution of Reservoirs in the Conditions of Uzbekistan.
19. Sadullayeva, X. A., Salomova, F. I., Mirsagatova, M. R., & Kobiljonova Sh, R. (2023). Problems of Pollution of Reservoirs in the Conditions of Uzbekistan.
20. Salomova, F. I., & Kosimova, H. T. (2017). RELEVANCE OF STUDYING INFLUENCE OF THE BONDS OF NITROGEN POLLUTING THE ENVIRONMENT ON HEALTH OF THE POPULATION SUFFERING CARDIOVASCULAR ILLNESSES (REPUBLIC OF UZBEKISTAN). In *INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS AND PROSPECTS OF MODERN SCIENCE AND EDUCATION* (pp. 81-83).

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

21. Salomova, F. I., Ahmadalieva, N. O., Sadullaeva, K. A., & Sherkuzieva, G. F. (2022). Dust storm and atmosphere air pollution in Uzbekistan.
22. Salomova, F. I., Ahmadalieva, N. O., Sadullaeva, K. A., & Sherkuzieva, G. F. (2022). Dust storm and atmosphere air pollution in Uzbekistan.
23. Saydalikhujayeva, S. K., Kosimova, K. T., Mamadzhanov, N. A., & Ibragimova, S. R. (2020). The role of modern pedagogical technologies in improving the system of higher medical education in the republic of Uzbekistan. *New Day in Medicine*, *1*(29), 85.
24. Sherkuzieva, G. F., Salomova, F. I., & Yuldasheva, F. U. (2023). Oziq ovqat qo'shimchalari va aholi salomatligi. 2023.«. *O 'zbekistonda vinochilik va sanoat Uzumchiligi sohasining muammolari va Ularning innovatsion yechimlari» Respublika ilmiy-texnikaviy konferensiya Ilmiy ishlar to 'plami*, 101-102.
25. Sherkuzieva, G. F., Salomova, F. I., & Yuldasheva, F. U. (2023). Oziq ovqat qo'shimchalari va aholi salomatligi. 2023.«. *O 'zbekistonda vinochilik va sanoat Uzumchiligi sohasining muammolari va Ularning innovatsion yechimlari» Respublika ilmiy-texnikaviy konferensiya Ilmiy ishlar to 'plami*, 101-102.
26. ShR, K., Mirrakhimova, M. H., & Sadullaeva, H. A. (2022). Prevalence and risk factors of bronchial asthma in children. *Journal of Theoretical and Clinical Medicine*, *2*, 51-56.
27. ShR, K., Mirrakhimova, M. H., & Sadullaeva, H. A. (2022). Prevalence and risk factors of bronchial asthma in children. *Journal of Theoretical and Clinical Medicine*, *2*, 51-56.
28. Tadjieva, K. S. (2024). USING SITUATIONAL TASKS TO INCREASE THE EFFECTIVENESS OF TEACHING MEDICAL CHEMISTRY. *Web of Teachers: Inderscience Research*, *2*(1), 64-68.
29. Tadjieva, K. S., Kosimova, K. T., & Niyazova, O. A. (2025). THE ROLE OF AIR POLLUTION IN THE DEVELOPMENT OF CARDIOVASCULAR DISEASES.
30. Tursunov, D., Sabiorva, R., Kasimova, X., Azizova, N., & Najmiddinova, N. (2016). Status of oxidant and antioxidant systems in alloxan diabetes and ways

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

its correction. In *Science and practice: a new level of integration in the modern world* (pp. 188-190).

31. АБДУЛЛАЕВА, М., & ТАДЖИЕВА, Х. (2023). ИЗУЧЕНИЕ РАСТВОРИМОСТИ СИСТЕМ: КАЛИЕВАЯ СОЛЬ-ОДНОЗАМЕЩЕННЫЙ УКСУСНОКИСЛЫЙ МОНОЭТАНОЛАММОНИЙ-ВОДА. Международный центр научного партнерства «Новая Наука»(ИП Ивановская ИИ) КОНФЕРЕНЦИЯ: НАУЧНЫЙ ДЕБЮТ 2023 Петрозаводск, 03 декабря 2023 года Организаторы: Международный центр научного партнерства «Новая Наука»(ИП Ивановская ИИ).

32. Акромов, Д. А., & Касимова, Х. Т. (2017). Результаты изучения токсикологических свойств фунгицида" Вербактин". *Молодой ученый*, (1-2), 2-3.

33. Ахмадалиева, С. У., & Машарипова, Р. Ю. ОСНОВЫ ЗДОРОВОГО ОБРАЗА ЖИЗНИ СТУДЕНТА МЕДИКА. *ББК: 51.1 л0я43 С-56 А-95*, 228.

34. Ахмадалиева, С. У., & Машарипова, Р. Ю. ОСНОВЫ ЗДОРОВОГО ОБРАЗА ЖИЗНИ СТУДЕНТА МЕДИКА. *ББК: 51.1 л0я43 С-56 А-95*, 228.

35. Ахметов, Н. С., Азизова, М. К., & Бадыгина, Л. И. (2014). Лабораторные и семинарские занятия по общей и неорганической химии.

36. Балтабаев, У. А., Джураев, А. Д., & Таджиева, Х. С. (2008). Реакции фенилизотиоцианата с α-аминокислотами. *Жур. Химия и химическая технология*, *1*, 39-42.

37. Денисова, У. Ж., & Машарипова, Р. Ю. (2022). ПОВЫШЕНИЕ ПОКАЗАТЕЛЕЙ ЭФФЕКТИВНОСТИ ОБМАННЫХ ДЕЙСТВИЙ В СОРЕВНОВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ СТУДЕНТОВ БАСКЕТБОЛИСТОВ 1-КУРСА НА ОСНОВЕ ПОДВИЖНЫХ ИГР. *Вестник науки*, *4*(1 (46)), 18-24.

38. Денисова, У. Ж., & Машарипова, Р. Ю. (2022). ПОВЫШЕНИЕ ПОКАЗАТЕЛЕЙ ЭФФЕКТИВНОСТИ ОБМАННЫХ ДЕЙСТВИЙ В СОРЕВНОВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ СТУДЕНТОВ БАСКЕТБОЛИСТОВ 1-КУРСА НА ОСНОВЕ ПОДВИЖНЫХ ИГР. *Вестник науки*, *4*(1 (46)), 18-24.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

39. КАМИЛОВА, Д., САЙДАЛИХУЖАЕВА, Ш., МАХМУДОВА, М., РАХМАТУЛЛАЕВА, Д., & ТАДЖИЕВА, Х. (2022). ИНСОН САЛОМАТЛИГИ ВА ТИББИЙ КЎРИКНИНГ АҲАМИЯТИ. *Журнал" Медицина и инновации"*, (3), 143-162.

40. Каримов, В. В., & Машарипова, Р. Ю. (2021). Метод «Джит Кун До» в учебном процессе на занятиях по физической культуре для студентов-стоматологов. *Вестник науки*, *4*(12 (45)), 32-36.

41. Косимова, Х. Т., & Садирова, М. К. (2018). Нормативная база для проведения мониторинга по изучению влияния соединений азота на здоровье населения. In *INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS OF NATURAL SCIENCES AND MEDICINE* (pp. 30-32).

42. Косимова, Х. Т., & Садирова, М. К. (2018). ОЦЕНКА ТЯЖЕСТИ И НАПРЯЖЕННОСТИ ТРУДОВОЙ ДЕЯТЕЛЬНОСТИ ВРАЧЕЙ ФИЗИОТЕРАПЕВТИЧЕСКИХ КАБИНЕТОВ. In *WORLD SCIENCE: PROBLEMS AND INNOVATIONS* (pp. 276-278).

43. Косимова, Х. Т., Мамаджанов, Н. А., & Ибрагимова, Ш. Р. (2020). РОЛЬ СОВРЕМЕННЫХ ПЕДАГОГИЧЕСКИХ ТЕХНОЛОГИЙ В ДАЛЬНЕЙШЕМ СОВЕРШЕНСТВОВАНИИ СИСТЕМЫ ВЫСШЕГО МЕДИЦИНСКОГО ОБРАЗОВАНИЯ В РЕСПУБЛИКЕ УЗБЕКИСТАН. *Новый день в медицине*, (1), 88-90.

44. Машарипова РЮ, Рожкова АС. Использование нетрадиционных видов гимнастики для оптимизации занятий физической культурой в вузе. InСборник научных трудов I-Международная научно-практической онлайн-конференция «Актуальные вопросы медицинской науки в XXI веке». УДК 2019 (Vol. 6, pp. 613-615).

45. Машарипова, Р. Ю. (2020). Повышение специальной двигательной активности студентов-стоматологов. *Наука, образование и культура*, (8 (52)), 51-53.

46. Машарипова, Р. Ю. (2022). АНАЛИЗ ФИЗИЧЕСКОЙ ПОДГОТОВЛЕННОСТИ СПЕЦИАЛЬНЫХ АТЛЕТОВ-ГИМНАСТОВ. *Central Asian Research Journal for Interdisciplinary Studies (CARJIS)*, *2*(5), 730-737.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

47. Машарипова, Р. Ю. (2022). АНАЛИЗ ФИЗИЧЕСКОЙ ПОДГОТОВЛЕННОСТИ СПЕЦИАЛЬНЫХ АТЛЕТОВ-ГИМНАСТОВ. *Central Asian Research Journal for Interdisciplinary Studies (CARJIS)*, *2*(5), 730-737.
48. Машарипова, Р. Ю., & Хасанова, Г. М. (2020). Повышение двигательной подготовленности студентов-стоматологов в процессе учебных занятий физической культурой. *Вестник науки*, *5*(3 (24)), 101-104.
49. Пахрудинова, Н. Ю., Хасанова, Г. М., & Машарипова, Р. Ю. Хореография и здоровый образ жизни. *ББК: 51.1 л0я43 С-56 А-95*, 278.
50. Таджиева, Х. С. (2022). ИСПОЛЬЗОВАНИЕ МЕТОДА ПРОБЛЕМНЫХ СИТУАЦИЙ НА ЗАНЯТИЯХ МЕДИЦИНСКОЙ ХИМИИ. In *Kimyo va tibbiyot: nazariyadan amaliyotgacha* (pp. 205-208).
51. Таджиева, Х. С. (2023). МОДЕЛИРОВАНИЕ ПРОБЛЕМНОГО ОБУЧЕНИЯ В МЕДИЦИНСКОМ ВУЗЕ. *West Kazakhstan Medical Journal*, (3 (65)), 170-175.
52. Таджиева, Х., & Юсупходжаева, Х. (2023). Особенности преподавания медицинской химии в современных условиях на лечебном и педиатрическом факультетах медицинских вузов. *Современные аспекты развития фундаментальных наук и вопросы их преподавания*, *1*(1), 119-124.
53. Шеркузиева, Г. Ф., & Касимова, Х. Т. (2017). Токсичность биологически активной добавки" Laktonorm-H (K Kaliy)" в условиях хронического эксперимента. *Молодой ученый*, (1-2), 10-12.