Catalog of elective disciplines for the 2023-2024 academic year

1. Department: Chemical disciplines

2. Level of preparation: bachelor's degree

3. Specialty: 6B10101 - General medicine, 6B10102 - Pediatrics, 6B10103 - Dentistry

4. **Course:** 1

5. Name of the elective discipline: Chemistry

6. Number of credits: 3

7. Purpose: The purpose of the discipline is to form a holistic physicochemical, natural science approach to the study of the human body and its environment in students, as well as to substantiate the chemical and physicochemical aspects of the most important biochemical processes and various types of equilibria occurring in a living organism. Formation of a student - dentist of systemic knowledge about the basic physical and chemical laws of the course of biochemical processes (normal and pathological) at the molecular and cellular levels; about the structure and mechanisms of functioning of biologically active compounds; the formation of the natural scientific thinking of specialists in the medical dental profile, as well as the competence and professionally significant personality traits.

8. Tasks

- to form an understanding of equilibria in aqueous solutions of strong and weak electrolytes;
- to teach to apply physical and chemical laws to the description of biochemical processes in the body;
- to give an understanding of the basic principles of qualitative and quantitative analysis;
- to teach the use of chemical and physicochemical methods of analysis;
- to study the most important laws of electrochemistry that allow predicting corrosion resistance and optimizing the search for new structural dental materials;
- to form the concept of the relationship between the chemical composition, structure, properties and biological activity of substances;

9. Rationale for the choice of discipline

It is well known that in modern conditions the key task of higher education is the fundamental nature of education. Chemistry is a fundamental science and a powerful tool for research and knowledge of processes in living systems. Therefore, students of medical specialties should master well the basic ideas, laws and methods of this science. The program is supposed to consider the basics of the most important topics of the course of inorganic, analytical and physical chemistry. The discipline "Chemistry" prepares a theoretical basis for the development of some sections of biochemistry, molecular biology, physiology, pharmacology, hygiene and provides a broader involvement of the scientific approach and the latest research methods, gleaned from the fundamental sciences, in the study of biomedical, clinical disciplines. The task of profiling the course is an in-depth study of such topics as the composition of bone tissue, the composition of saliva and its mineralizing function, the processes occurring in the oral cavity. The knowledge gained by students during the passage of the topics "Phase equilibria", "Corrosion of metals and alloys", "Surface phenomena. Adsorption" are the physicochemical basis for the subsequent study of orthopedic and therapeutic dentistry. An important task of optimizing higher medical education is the expansion of interdisciplinary connections and the integration of fundamental, biomedical and clinical disciplines.

10. Outcomes of learning

Knowledge (cognitive domain)	Skills and experiences (psychomotor sphere)	Personal and professional competencies (relationships)
Demonstrates knowledge and understanding: - chemical processes (main types of reactions) in the body, obeying the general laws and laws of chemistry;	- uses calculation formulas (mass fraction, molar concentration, molar concentration equivalent, molar concentration, molar fraction, titer) to determine the quantitative content of	- formulates the general theoretical foundations of chemistry for the application of the acquired knowledge, skills and abilities in their subsequent professional activities. - analyzes,

- general energy and kinetic patterns of chemical processes; - the possibility of using the analysis of medicines using chemical, physico-chemical and other methods; - possible methods for preparing solutions, their quantitative characteristics; - classification, properties and application in medicine of the main classes of organic compounds.	substances in a solution, including biological fluids; - prepares the solution by the dilution method; - uses a certain set of chemical utensils, reagents, basic instruments and methods of physicochemical measurements used in medicine; - complies with the rules of labor protection and safety measures, has the skills of safe work in a chemical laboratory, knows how to provide first aid.	systematizes information on the laws and experimental research in the field of chemistry, using computer technology and an information database of medical sources. - informs and explains the observed patterns in the field of chemistry on the issues of their application in medicine;

11. Prerequisites: disciplines of secondary general education: chemistry, biology, physics and mathematics.

12. Post requisites: medical biochemistry, morphology and physiology.

13. Literature In Kazakh language:

Main:

1.Қ. Н. Дауренбеков, Қ. М. Серимбетова, А. Ш. Өмірқұлов Химия : оқу құралы /. - Шымкент : Әлем баспаханасы, 2019. - 272 бет.

2.Сейтембетов, Т. С. Химия: оқулық / Т. С. Сейтембетов. - Алматы : Эверо, 2010.

Additional:

1. Тюкавкина Н.А., Бауков Ю.И., Зурабян С.Э., қазақ тіліне аударған ж/е жауапты редакторы С.Т.Сейтембетов. Биоорганикалық химия: оқулық / – М : ГЭОТАР – Медиа, 2014. – 400 б.

2. Патсаев, Ә. Қ. Химия пәні бойынша тестілері. 1-бөлім. Бейорганикалық, физколлоидтық химия пәні бойынша тестілері. II-бөлім. Биоорганикалық химия пәні бойынша тестілер : тестілер. - Шымкент : Б. ж., 2010.

Literature In Russian language:

Main:

1. Глинка, Н. Л. Общая химия. Т.1: учеб. пособие для вузов - Алматы : Эверо, 2014
2. Глинка, Н. Л. Общая химия. т. 2 : учеб. пособие для вузов - Алматы : Эверо, 2014
3. Глинка, Н. Л. Общая химия. Т. 3. : учеб. пособие для вузов - Алматы : Эверо, 2014
4. Глинка, Н. Л. Общая химия. т. 4 : учеб. пособие для вузов. - Алматы : Эверо, 2014
5. Жолнин А. В. Общая химия: учебник / А. В. Жолнин ; под ред. В. А. Попкова.- М. : ГЭОТАР - Медиа, 2012

Additional:

1. Патсаев, А. К. Тесты по дисциплине "химия". Ч. 1. Тесты по неорганической, физколлоидной химии. Ч. 2. Тесты по биоорганической химии : тесты . - Шымкент : Б . и., 2010

2 . Веренцова Л.Г., Нечепуренко Е.В. Неорганическая, физическая и коллоидная химия. – Алматы: издательство «Эверо», 2014.

Literature In English language:

1. Glinka, N. L. General chemistry. Volum 1. : manual for graduate students / N. L. Glinka, S. S. Babkina. - 27th ed. - Almaty : "Evero" , 2017. - 232 p.
2. Glinka, N. L. General chemistry. Volume 2.: manual for graduate students / N. L. Glinka, S. S. Babkina. - 27th ed. - Almaty : "Evero" , 2017. - 176 p.
3. Glinka, N. L. General chemistry. Volum 3.: manual for graduate students / N. L. Glinka, S. S. Babkina. - 27th ed. - Almaty : "Evero" , 2017. - 248 p.
4. Glinka, N. L. General chemistry. Volum 4.: manual for graduate students / N. L. Glinka, S. S. Babkina. - 27 th ed. - Almaty : "Evero" , 2017. - 176 p.

5. Nazarbekova, S. P. Chemistry: textbook / S. P. Nazarbekova, A. Tukibayeva, U. Nazarbek. - Almaty : Association of hiigher educationalinstitutions of Kazakhstan, 2016. - 304 p.
6. Shokybayev, Sh. A. Teaching methods on chemistry: textbook / Sh. A. Shokybayev, Z. O. Onerbayeva, G. U. Ilyassova. - Almaty : [s. n.], 2016. - 271 p.
7. Manapov, N. T. Computer chemistry: textbook / N. T. Manapov. - Almaty : Association of hiigher educationalinstitutions of Kazakhstan, 2016. - 312 p.

1. Department: “Pediatrics-2”
2. Level of preparation: bachelor
3. Specialty: 6B10102"Pediatrics"
4. Course: 2
5. The name of the elective discipline "Methods of functional diagnostics in pediatrics"
6.Number of credits: 5
7. Purpose of the discipline: the formation and consolidation of the residents in-depth knowledge and skills based on the latest achievements in the field of functional research methods in pediatrics.
8. Objective:

8. - consolidate the theoretical foundations and practical skills in functional diagnostics of the most common conditions in pediatric diseases, pediatric surgery, pediatric gynecology;
9. - teach to make professional decisions based on the principles of evidence-based medicine;
10. - instill appropriate communication skills when dealing with patients, interacting with colleagues;
11. - to inculcate the skills of moral, ethical and legal culture necessary for serving patients in the conditions of functional diagnostics;
12. - develop a commitment to professional values, such as altruism, compassion, empathy, responsibility, honesty, and respect for the principles of confidentiality;
13. - consolidate teamwork and leadership skills.
14. **9. Justification of the choice of discipline:** the ability and willingness to work with medical and technical equipment used in working with patients - children and teenagers, to own computer equipment, to receive information from various sources, to work with information in the global computer networks; apply the capabilities of modern information technologies to solve professional problems. In the elective discipline "Methods of functional diagnostics in pediatrics" a deeper and more complete mastery of the work of pediatricians.
15. **10.Result of training (compotence):** Functional research methods in pediatrics to conduct general medical examinations and studies for diseases in children

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
• Knowledge and understanding in the study area, including elements of the most advanced knowledge in this area Apply this knowledge and understanding in a professional manner. • Collect and interpret information to form judgments based on social, ethical and scientific considerations.	• Owns the terminology of children's diseases, knowledge in the field of modern scientific achievements of medicine in the field of cardiology, pulmonology and neurology; • Owns the principles of organizing and conducting research and practice in the field of children's diseases. Perceives new ideas. • Knows the principles of management of the organization and implementation of medical care for children • Knows the principles of medical ethics and deontology when dealing with children and their parents, the public, and interacting with colleagues.	• professional approach; purposefulness; self-improvement; clarity of expression; respect for colleagues / partners • To be able to take and decode ECG, EEG, REG to interpret the results of examinations of children: ECG, echocardiography, ultrasound of the internal organs, radiological examination of the chest, etc.

16. 11. Prerequisites: pediatric diseases, pediatric surgery, pediatric gynecology

17. 12. Postrequisites: profile disciplines

18. 13. References

19. Main literature:

20. 1. Samsygina G.A., Scherbakova N.Yu. A Practical Guide to Childhood Illness Volume III. Cardiology and rheumatology of childhood. MEDPRAKTIKA-M, Moscow, 2019
21. 2. Shabalov N.P. Childhood diseases. SPb, 2017
22. 3. Ayupova S.Kh. Clinical Pediatrics in 2 volumes, Almaty, 2018
23. 4. Belokon N.A., Kuberger, M.B. Diseases of the heart and blood vessels in children. A Guide for Physicians Volume 2, "Medicine", Moscow 2018
24. 5. L.R. Zenkov Clinical electroencephalography (with elements of epileptology). Med-Press - Inform, Moscow 2011

25. Additional literature:

26. 1. Prikhodko V.S. Children's cardiorheumatology. Kiev, Health, 2015
27. 2. Petrushina A.D. et al. Emergency conditions in children. M., 2012
28. 3. Baranov A.A. Pediatrics. Clinical guidelines. M., 2017
29. 4. Belozerov Yu.M. Children's cardiology. M., 2014
30. 5. Aleksandrova V.A., Ryabchuk F.N., Krasnovskaya M.A. Clinical lectures in pediatrics. M.-SPb., 2014
31. 6. Moschich PS, Sidelnikova V.M., Krivcheni D.Yu. Cardiology of children's age, Kiev, Health, 2016
32. 7. Zemtsovsky E. Connective tissue dysplasias of the heart. M., 2018
33. 8. Okorokov A.N. Diagnosis of diseases of internal organs, volume 2. Diagnosis of rheumatic and systemic diseases of connective tissue. Diagnosis of endocrine diseases. M., 2010

1. **Department**: “Medical Biophysics & Information Technology”
2. **Level of education:** Undergraduate
3. **Educational program:** "Pediatrics"
4. **Course**: 2
5. **Name of elective discipline**: "Biostatistics"
6. **Number of credits:** 3

7. **Learning goal:** to form theoretical knowledge of the basics of biostatistics, skills of applying statistical methods for data processing and working with special software, skills of scientific analysis and their practical application.

8. **Discipline content:** Descriptive statistics: frequency distribution, measures of central tendency and scatter. Charts. Testing statistical hypotheses. The difference between two sample means: Student t-tests, Mann-Whitney test, Wilcoxon test. Analysis of variance: F-test, Kruskal-Wallis test. Contingency tables: $\chi 2$-test, Yates' correction, McNemar test. Correlation analysis: Pearson correlation coefficient, Spearman's rank correlation coefficient.

9. **Learning objectives:**

- the formation of a knowledge base on modern statistical methods for processing biological and medical data;
- the formation of the basic skills of using modern statistical methods for processing biological and medical data.

10. **Justification of the choice of discipline:**

In health care and clinical medicine, various statistical concepts are often used when making decisions on issues such as: clinical diagnosis, prediction of the possible results of the implementation of certain programs in this group of the population, prediction of the course of the disease in an individual patient, selection of the appropriate program for this group of the population or choice of treatment for a particular patient, etc. Statistics are used in daily laboratory practice.

Knowledge of statistics has become important for understanding and critically evaluating reports in modern medical publications. Thus, knowledge of the principles of statistics is absolutely necessary for planning, conducting and analyzing research on the assessment of various situations and trends in health care, as well as for carrying out scientific research in the field of medical biology, clinics and health care.

Biostatistics is a scientific branch related to the development and use of statistical methods in scientific research in medicine and health care. The introduction of the principles of evidence-based medicine into practice dictates the need of an understanding of biostatistics to a modern medical graduate.

The need to improve the culture of statistical analysis of medical data, both in theoretical studies and in practical activities of a doctor, is dictated, first of all, by modern achievements in the issues of data presentation and systematization. It is especially important for the student to be able to use the statistical software STATISTICA and to adequately interpret the results obtained.

11. **Learning outcomes:**

1) Knowledge and understanding:

- demonstrates knowledge and understanding of biostatistical methods when describing medical research data and assessing the significance of differences in derived quantities characterizing the effectiveness of preventive, diagnostic and therapeutic measures and procedures.

2) Application of knowledge and understanding:

- applies statistical methods to identify patterns, establish causal relationships, in assessing the significance of differences in indicators;
- uses special software for processing medical data.

3) Formation of judgment

- analyzes the results of medical research and screening programs, draws conclusions.

4) Communication skills

- knows how to convey information received during the search and processing to other users.

5) Learning skills and learning ability

- applies scientific principles, methods and knowledge in medical practice and research;
- capable of continuous self-education and development.

12. Pre-requisites: ICT
13. Post requisites: hygiene and epidemiology
14. Bibliography:

- Main

1. Койчубеков Б. К. Биостатистика. уч. пособие / Б.К. Койчубеков. - Алматы: Эверо, 2016. - 152 с.
2. Бөлешов М.Ә. Медициналық статистика: оқулық.-Эверо, 2015
3. Койчубеков Б.К. Биостатистика: учебное пособие.-Эверо, 2014
4. Койчубеков Б.К. Биостатистикаға кіріспе курсы: оқу құралы.-Эверо, 2014
5. Раманқұлова А.А. Биостатистика.-Ақ-Нұр, 2013

- *Supplementary*

1. Мысалдар мен тапсырмалардағы биостатистика: оқу-әдістемелік құрал.- Алматы: Эверо, 2013.
2. Биостатистика в примерах и задачах: уч.-методическое пособие - Алматы: Эверо, 2012. - 80 с
3. Биостатистика в примерах и задачах: уч.-метод. пособие /Б.К. Койчубеков.- Алматы: Эверо, 2012
4. Rosner Bernard Fundamentals of Biostatistics: Texbook/ B.Rosner.-8 nd ed.:GENGAGE learning, 2016

1. **Department:** Biology and biochemistry
2. **Level of training** Undergraduate
3. **Educational program:** Pediatrics
4. **Cours:** 2
5. **Name of elective disciplines:** Medical biochemistry

6. Number of credits : 7

7. Purpose: to form in students a holistic understanding of the molecular mechanisms and regulation of the main metabolic processes, the features of their course in human organs and

tissues, the use of knowledge of biochemical parameters for diagnosing and monitoring the effectiveness of the treatment of childhood diseases .

8. The content of the discipline: Biological functions and structural organization of proteins. Enzymes. The role of membranes in metabolism and their diversity. Biochemical bases of rational nutrition of children. Specific and general pathways of catabolism. Bioenergetics. Features of the exchange of carbohydrates , lipids , proteins in the child's body. Biochemistry of hormones. Biochemistry of the liver , kidneys . Hemprotein exchange . Biochemistry of blood. Biochemistry of the nervous muscular , connective , bone , dental tissues .

9. Tasks:

- to form students' understanding of the role of biological chemistry in the professional activities of future pediatricians ;
- give an idea of the chemical structure, properties and biological functions of proteins, carbohydrates, lipids and other biologically active compounds in living organisms;
- form an idea of the biochemical patterns of energy transformation, metabolism and regulation of metabolic processes;
- to give an idea of the features of the molecular organization and metabolism of the most important organs and tissues of the child's body;
- to form an idea of modern biochemical approaches for diagnosing childhood diseases and correcting metabolic disorders.

10. Rationale for the choice of discipline: Practical medicine requires the training of highly qualified medical personnel whose activities are aimed at improving the health of children. In this regard, it is advisable for a future pediatrician to study the discipline "Medical Biochemistry", which allows you to get a holistic view of the metabolic processes of the child's body, the mechanisms of the occurrence of childhood diseases. Medical biochemistry is one of the main basic medical disciplines that studies the chemical processes that underlie the life of cells, tissues and the body as a whole. The main focus of teaching biochemistry is the study of metabolic processes and the characteristics of metabolism and its regulation in the body of children in order to understand the causes and consequences of their disorders in pathology.

11. Learning outcomes (competencies)

	Knowledge (cognitive sphere **)**	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)

	Demonstrates knowledge of the subject and tasks of medical biochemistry for professional activities. Knows the methods of conducting biochemical analyzes. Describes the molecular mechanisms of the flow and regulation of metabolic processes . Outlines the main provisions of bioenergetics and nutritional biochemistry. Knows the basic principles of the application of biochemical research methods in practice, the reference values of the main biochemical parameters.	Able to work on modern equipment: biochemical analyzer, spectrophotometer, when conducting biochemical analyses. Able to work and search for the necessary data from a special reference material a . Interprets the results of laboratory and instrumental studies of body fluids. Able to determine the reference values of the main biochemical parameters of blood serum.	Able to express their own opinions and critically analyze the results of educational experiments. He knows how to defend his own judgments in practical classes, at meetings of the student circle, student scientific conferences, etc. When planning and conducting educational experiments, he is able to explain the observed facts and phenomena, their cause-and-effect relationships. Able to work in a team, make a collective decision. Able to transfer to students, teachers, examiners the knowledge gained in the process of studying the discipline.

12. Prerequisites: chemistry, molecular biology and medical genetics, fundamentals of morphology and physiology.

1 3. Postrequisites: "Pathology of organs and systems", "Pharmacology", "Propaedeutics of childhood diseases" and "Propaedeutics of internal diseases".

1 4. Literature:

main

In Russian

1. Biochemistry, ed. Corresponding Member RAS, prof. E.S. Severina.- M., 2011
2. Tapbergenov S.O. "Medical and Clinical Biochemistry" - Evero , 201 7 . Itom;
3. Tapbergenov S.O. "Medical and Clinical Biochemistry" - Evero , 201 7 . III volume;
4. Tapbergenov S.O. Medical biochemistry. - Astana, 2011.

Additional:

1. Campbell M.K., Biochemistry, part 1, Almaty-2013;
2. Biochemistry: textbook / ed. E. S. Severina. - 5th ed., rev . and additional - M. : GEOTAR - Media, 2011.
3. Guide to practical exercises in biological chemistry: textbook.-methodical hands. for medical students Universities / ed. S. O. Tapbergenova . - Almaty: Evero , 2012. - 150 p.
4. Biological chemistry with exercises and tasks: textbook / ed. S. E. Severina. - M. : GEOTAR - Media, 2011. - 624 p. + email opt. disk (CD-ROM)

Medical Biochemistry: In Kazakh

1. "Biochemistry" E.S. Severinnin ed., "GEOTAR, Media", 2014; 2. Tapbergenov S.O. Medical Biochemistry - Almaty, 2011
2. Seitembetov T.S. Biological chemistry-Almaty 2011
3. Seitov Z.S., Biochemistry, - Almaty, 2012 ;

On English language

1. Baynes JW, Dominiczak MH Medical Biochemistry, Mosby Elsevier, 2014
2. Ferrier, Denise R. Biochemistry: Lippincott`s Illustrated Reviewes : textbook/Denise

R.Ferrier. -7 th ed. - Philadelphia: Wolters Kluwer, 2017.

Electronic resources: Medical biochemistry

1. Biochemistry [Electronic resource]: textbook for universities / ed. E. S. Severina. - 5th ed. , correct . and additional - Electron. text data. (66.3 Mb). - M. : GEOTAR - Media, 2013. - 768 p. email opt. disc (CD-ROM).

2. Biochemistry [Electronic resource]: textbook / edited by E. S. Severin. - 5th ed. - Electron. text data. (66.4 MB). - M. : Publishing group "GEOTAR-Media", 2011. - 768 p. email opt. disc (CD-ROM

3. Biochemistry with exercises and tasks [Electronic resource]: textbook. for universities / E. S. Severin [and others]; ed. E. S. Severina. - Electron. text data. (58.2 Mb). - M. : GEOTAR - Media, 2010. - 384 p. email opt. disc (CD-ROM): ill. - (Electronic textbook).

1. **Department:** Microbiology, Virology and Immunology
2. **Level of training:** Bachelor's degree
3. **Specialty:** "Pediatrics"
4. **Course:** 4
5. **Name of the elective discipline:** "Clinical Microbiology"
6. **Number of credits: 5**
7. **Target:** the formation of students' knowledge about the role of opportunistic microorganisms in human pathology, the importance of immunity and the normal microflora of the body, the study of microbiological aspects of the problems of nosocomial infections, dysbiosis, drug resistance of microbes, as well as gaining practical skills in diagnosing, preventing and treating diseases caused by opportunistic microorganisms.
8. **Tasks:**

Based on this, the tasks of the CM are as follows:

- study of the biology and role of OPM in the etiology and pathogenesis of human infectious diseases, as well as in maintaining human health, since they are normal inhabitants of the body;
- development and use of methods for microbiological diagnostics, specific therapy and prevention of microbial diseases found in non-infectious hospitals;
- study of microbiological aspects of the problems of nosocomial infections (NI), dysbacteriosis, drug resistance (DR) of microorganisms;
- microbiological substantiation and control of antimicrobial measures in medical institutions (MPIs).

9. **The content of the discipline .** OPM classification. Etiology, pathogenesis of diseases caused by opportunistic microflora. Nosocomial infection. Sanitary and bacteriological state of the hospital environment, assessment of the epidemic situation in the hospital based on bacteriological studies of materials obtained from patients and the nature of the microflora isolated from the hospital environment. Development of a strategy for the use of chemotherapeutic drugs, recommendations for rational antibiotic therapy, based on the study of the sensitivity of pathogens to antibiotics.
10. **Rationale for the choice of discipline:** Clinical microbiology is one of the most important areas of knowledge that is widely used in the work of a doctor.

The discipline "Clinical Microbiology" as a section of medical microbiology, conducts microbiological research in the clinic aimed at studying the etiology, pathogenesis and immunity of infectious processes occurring in a non-infectious clinic, the sanitary and bacteriological state of the hospital environment, assessing the epidemic situation in the hospital based on bacteriological studies of materials obtained from patients, and the nature of the microflora isolated from the hospital environment. One of the important sections of clinical microbiology is the development of a strategy and tactics for the use of chemotherapeutic drugs in a hospital, recommendations for rational antibiotic therapy of patients based on the study of the sensitivity of pathogens to antibiotics. The main aspect of clinical microbiology is the interpretation of the results of laboratory research. It is especially difficult to interpret the results in the diagnosis of diseases caused by opportunistic pathogens (OPM). In recent years, there has been an increase in

the role of OPM in infectious pathology. Clinical microbiology is of great importance in the practice of a medical worker for the proper organization of microbiological laboratories and the observance of sanitary and hygienic standards in medical institutions.

Currently, the problem of purulent-inflammatory diseases in a non-infectious clinic is one of the priorities in practical healthcare. Modern infectious pathology is characterized by an increase in the frequency and proportion of purulent infections, as well as the emergence of new pathogens with altered and previously unknown properties.

Students need knowledge about timely microbiological diagnostics nosocomial infections.

11. Learning outcomes (competencies):

LO 1	Demonstrates knowledge and understanding of biomedical sciences for the diagnosis, treatment, follow-up of the most common diseases in children
LO 3	Carries out dynamic monitoring of healthy and sick newborns in prophylactic pediatric institutions, carries out the necessary diagnostic and treatment-and-prophylactic measures
LO 6	Implements and controls vaccine prevention, examination of children and adolescents, rehabilitation programs
LO 7	Effectively communicates (communicates information, ideas and conclusions, problems and their solutions) in medical practice with specialists and the public, observing the principles of medical ethics, deontology and legal norms
LO 10	Applies scientific principles, methods and knowledge to medical practice and research. Capable of continuous self-education and development

	Knowledge (cognitive sphere)	**Skills and abilities (psychomotor sphere)**	**Personal and professional competencies (relationships)**
	- Knows about the key directions of development of modern clinical microbiology, about the most socially important problems facing clinical microbiology; - Knows the goals and objectives of clinical microbiology and its significance for the future specialty - Knows the classification, morphology and physiology of microorganisms and viruses, their impact on human health. - Knows modern principles and methods of diagnosing purulent-inflammatory diseases. - Knows the molecular genetic basis of the most socially significant nosocomial infections. - Knows the principles of prevention and control of nosocomial infection.	- Knows how to properly take and send the test material for microbiological research **.** - Possesses the skills of preparing a native smear and staining smears using simple and complex methods and conducting microscopic studies. - Able to isolate a pure culture of bacteria and test sensitivity to antibiotics. - Able to consider biochemical and genetic mechanisms of formation of antibiotic resistance of microorganisms from a scientific point of view. - Able to conduct a qualitative and quantitative assessment of the ecological role and bacteriological study of opportunistic microorganisms.	- Formation of students' skills of joint work with chief physicians of hospitals, epidemiologists, chief nurses and heads of bacteriological laboratories in considering microbiological aspects of the etiology, pathogenesis and immunity of microbial diseases in a non-infectious clinic that develops and implements methods for their laboratory diagnosis, specific therapy and prevention. - Collects information on the latest orders and decrees in the field of healthcare of the Republic of Kazakhstan and data from Internet resources for organization in medical institutions to comply with sanitary and hygienic standards and the proper organization of

	- Knows the rules and methods of obtaining biomaterial for microbiological (bacteriological, virological, mycological, parasitological) and serological research methods. - Knows the structure and principles of operation of modern laboratory instruments.	- Able to evaluate and interpret the results of microbiological studies. - Be able to collect human biomaterial	microbiological laboratories

12. Prerequisites: Microbiology and Immunology, Hygiene and Epidemiology

13. Postrequisites: Infectious diseases

14. Literature

1. Borisov, L.B. Medical microbiology, virology, immunology / L.B. Borisov. - 5th ed., Rev. – M.: MIA, 2016. – 792 p.: ill.
2. A.P. Dmitriev, M.V.Baev, N.S.Zubriyanova, Moshenskaya O.A. Hygienic aspects of the prevention of nosocomial infections: a teaching aid.
3. Community-acquired infection : textbook / V.L. Osipova M.: GEOTAR - Media , 2012. - 240 p.: ill.

1. **Department:** emergency medical care and nursing
2. **Level of training:** bachelor course
3. **EP:**« Pediatrics»
4. **Course:** 5
5. **Name of elective discipline:** Emergency medical care -1
6. **Number of credits: 5**

7. The purpose of the discipline: to stimulate the student's interests in integrated clinical thinking, the formation and consolidation of stable knowledge, skills and abilities in the most common emergency conditions in accordance with modern principles of evidence-based medicine.

8. Tasks of the discipline:

- Train to demonstrate knowledge and understanding of biomedical sciences for the diagnosis, treatment and dynamic observation of the most common diseases of adults and children.
- Consolidate the ability to provide emergency and emergency qualified care of the basic category of complexity to patients of adult and child age.
- To teach effective use of information and information technologies in the field of medicine.

9. Content of the discipline:

The subject, tasks, scope and basic principles of emergency medical care. Regulatory legal acts of emergency medical care. Methods of clinical examination of the patient and diagnosis of emergency conditions at the prehospital stage. Terminal states. Basic cardiopulmonary resuscitation - (VLS). Advanced Cardiopulmonary Resuscitation - (ACLS). Emergency medical care for cardiological, pulmonological, endocrinological, patients.

10. Justification of the choice of discipline:

According to the World Health Organization, every fifth victim of extreme situations dies due to the fact that people nearby did not provide emergency medical care or provided it incorrectly. Therefore, improving the quality of medical care for suddenly ill and injured people is possible only through the full use of the possibilities of all stages of medical care. The effectiveness of emergency medical care can be achieved only on the basis of a deep understanding of the changes that occur in the body of a sick or injured person and the clinical manifestations of pathological conditions, knowledge of the basic principles of diagnosing life-threatening emergency conditions and the rules of emergency medical care.

Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
It can differentiate the clinic and provide emergency medical care for acute respiratory failure, bleeding, acute heart failure syndrome, animal and insect bites, thermal burns, convulsions in children.	Adheres to the norms of medical ethics and morality in every kind of professional communication.	Able to build personal, professional and collective relationships.
Knows the principles of the impact of physical, mental and social factors on various human organs and systems in extreme conditions	Able to receive the necessary medical information about a patient in need of emergency medical care	Может решить проблему поиска данных;
Knows medical accounting and reporting documentation, regulatory and legal documentation of the ambulance station.	Knows the equipment, structure, organizational work of the ambulance service, the specifics of the work of the ambulance organization, including specialized.	The student is ready to develop personally and professionally.

11. Prerequisites: Fundamentals of internal diseases

12. Post-requirements: Emergency medical care -2

13. Literature

Main:

1. Государственная программа развития здравоохранения Республики Казахстан «Денсаулық» на 2021-2024 годы

2. Приказ МЗ РК от 30 ноября 2020 года № 225 «Об утверждении Правил оказания скорой медицинской помощи в Республике Казахстан».

3. Верткин А., Свешников К. Руководство по скорой медицинской помощи. Москва. - Издательство Э. - 2017. - 560 с.

4. Неотложная помощь в терапевтической клинике. Под ред. А.В. Гордиенко. – СпецЛит. – 2017. – 229 с.

5. Неотложная амбулаторно-поликлиническая кардиология: краткое руководство / В. В. Руксин. - 2-е изд. - Москва : ГЭОТАР-Медиа, 2016.- 255 с

6. Скорая медицинская помощь. Клинические рекомендации. Под ред. С.Ф. Багненко. - ГЭОТАР-Медиа. – 2018. – 896 с.

Additional:

1. Неотложная кардиология. Под ред. П.П. Огурцова, В.Е. Дворникова. - ГЭОТАР-Медиа. – 2016. – 272 с.

2 Мкртумян А.М., Нелаева А.А. Неотложная эндокринология. - ГЭОТАР-Медиа. – 2018. – 128 с.

3. Клинический протокол диагностики и лечения «Астматический статус». Одобрено Объединенной комиссией по качеству медицинских услуг МЗ РК от «23» июня 2016 года. Протокол №5.

4. Клинический протокол диагностики и лечения «Асфиксия». Одобрено Объединенной комиссией по качеству медицинских услуг МЗ РК от «23» июня 2016 года. Протокол №5.

5. Клинический протокол диагностики и лечения «Внезапная смерть». Одобрено Объединенной комиссией по качеству медицинских услуг МЗиСР РК от «23» июня 2016 года. Протокол №5.

1. Department: emergency medical care and nursing

2.Level of training: bachelor course

3.EP:« Pediatrics»

4. Course: 5

5. **Name of elective discipline:** Emergency medical care -2

6. Number of credits: 5

7. The purpose of the discipline: to form a student's comprehensive knowledge, skills and abilities to provide emergency medical care.

8. Tasks of the discipline:

• To train and familiarize with standard operating procedures for emergency medical care, the main symptoms and syndromes of emergency conditions.

• To train to conduct an initial assessment of the patient's condition (ABCDE algorithm), to choose the right tactics of care.

• Train to search for information on the provision of emergency medical care in the evidence-based medicine database

9. Content of the discipline:

The subject, tasks, scope and basic principles of emergency medical care.

Regulatory legal acts of emergency medical care. Methods of clinical examination of the patient and diagnosis of emergency conditions at the prehospital stage. Urgent conditions in the practice of infectious, neurological, psychiatric, surgical, urological, obstetric-gynecological and pediatric pathologies.

10. Justification of the choice of discipline: the discipline «Emergency medical care-2» helps students to master the necessary knowledge in the provision of emergency medical care, as well as in solving practical tasks based on a competency-based approach: during the assessment of the current condition of the victim in various emergency situations; when identifying the main factors threatening his life; when predicting the consequences of one or the other other effects on the body; when carrying out primary measures aimed at increasing the probability of survival of the victim or reducing the risk of complications that threaten his health.

Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
Can differentiate the clinic of surgical, urological, oncological, infectious, nervous, mental, pediatric, ocular, obstetric and gynecological diseases, distinguishes the main symptoms and syndromes of emergency conditions common in clinical practice of emergencies, catastrophes.	Adheres to the norms of medical ethics and morality in every kind of professional communication.	Able to build personal, professional and collective relationships.
Knows the principles of the impact of physical, mental and social factors on various human organs and systems in extreme conditions	Able to receive the necessary medical information about a patient in need of emergency medical care.	Can solve the problem of data retrieval.
Knows medical accounting and reporting documentation, regulatory and legal documentation of the ambulance station.	Knows the equipment, structure, organizational work of the ambulance service, the specifics of the work of the ambulance organization, including specialized.	Ready to develop personally and professionally.

11. Prerequisites: Neurology, psychiatry and narcology, infectious diseases, children's infectious diseases, traumatology, fundamentals of surgical diseases, obstetrics, gynecology, fundamentals of children's diseases.

12. **Post-requirements:** internship disciplines

13. Literature

Main:

1. Государственная программа развития здравоохранения Республики Казахстан «Денсаулық» на 2021-2024 годы

2. Приказ МЗ РК от 30 ноября 2020 года № 225 «Об утверждении Правил оказания скорой медицинской помощи в Республике Казахстан».
3. Верткин А., Свешников К. Руководство по скорой медицинской помощи. Москва. - Издательство Э. – 2017. – 560 с.
4. Неотложная помощь в терапевтической клинике. Под ред. А.В. Гордиенко. – СпецЛит. – 2017. – 229 с.
5. Неотложная амбулаторно-поликлиническая кардиология: краткое руководство / В. В. Руксин. - 2-е изд. - Москва : ГЭОТАР-Медиа, 2016.- 255 с
6. Скорая медицинская помощь. Клинические рекомендации. Под ред. С.Ф. Багненко. - ГЭОТАР-Медиа. – 2018. – 896 с.

Additional:

1. Скорая медицинская помощь. Клинические рекомендации. Под ред. С.Ф. Багненко. - ГЭОТАР-Медиа. – 2018. – 896 с.
2. Клинический протокол диагностики и лечения «Ишемический инсульт». Одобрено Объединенной комиссией по качеству медицинских услуг МЗ РК от «27» декабря 2016 года. Протокол №18.
3. Клинический протокол диагностики и лечения «Внутримозговое кровоизлияние». Одобрен Объединенной комиссией по качеству медицинских услуг МЗ РК от «25» мая 2017 года. Протокол №22.
4. Организация оказания скорой медицинской помощи вне медицинской организации. Методические рекомендации / С.Ф.Багненко, А.Г.Мирошниченко, И.П.Миннуллин, Н.Ф.Плавунов [и др.]. СПб.: [б. и.], 2015. - 46 с
5. Скорая медицинская помощь. Клинические рекомендации / под ред.: С.Ф. Багненко. - М.: [б. и.], 2015. -871 с.
6. Основы помощи при общирной травме: справочное издание: Д. Скиннер, П. Дрисколл 4-издание, 2018 МККК
7. Неотложная помощь у детей: справочник: пер. с нем. / - М. : Медпресс-информ, 2014.

1. Department of Obstetrics and Gynecology
2. Level of training-Bachelor
3. Educational program-6B10102 «Pediatrics»
4. Course – 4, number of credits-5, number of hours-150.
5. Name of elective discipline- Pediatric gynecology

Goal:

Formation of competencies for the diagnosis and management of patients with gynecological diseases, provision of primary medical care and prevention of common gynecological pathologies, training in the basics of practical skills used in gynecology. To improve the communication skills of interpersonal communication and counseling of patients with gynecological pathology.

The content of the discipline:

Neuroendocrine regulation of the menstrual cycle. Methods of examination of a gynecological patient with an assessment of the specific functions of the female reproductive system and the functions of organs related to sexual organs in anatomical and functional relations. Functional diagnostic tests. Screening methods. Classification, clinic, modern methods of diagnosis and principles of treatment of gynecological diseases.

Tasks:

1. To give students up-to-date knowledge about the main manifestations of the most common obstetric conditions and gynecological pathologies;
2. Teach them to provide emergency care for the most common obstetric conditions and gynecological diseases, to make an observation plan, to provide the necessary care to the patient;
3. Teach to observe and control sanitary and hygienic and anti-epidemic regimes in obstetric and gynecological institutions in accordance with regulatory documents;
4. Teach to train (advise) patients and family on family planning and contraception issues;
5. Teach to provide pre-medical care for emergency conditions in obstetrics and gynecology.

Justification:
Organization of women's health protection in the Republic of Kazakhstan. Formation of competencies for the diagnosis and management of patients with gynecological diseases, provision of primary medical care and prevention of common gynecological pathologies, training in the basics of practical skills used in gynecology. To improve the communication skills of interpersonal communication and counseling of patients with gynecological pathology.

Learning outcomes (competencies)
1) Knowledge and understanding:
- demonstrates knowledge of the subject and tasks of obstetrics and gynecology;
2) Applying knowledge and understanding
- knows the methods of research and primary care in obstetrics and gynecology;
- has the skills of medical examination and prevention of pathology in obstetrics and gynecology ;
3) Formation of judgments
- uses the acquired knowledge to understand the features of etiopathogenesis, clinic, complications and extragenital diseases during pregnancy;
- applies the theoretical knowledge gained in midwifery for further study at the internship level;
4) Communication skills
- demonstrates communication skills when interacting with different people in different obstetric situations;
- demonstrates professional behavior – responsibility, productivity, self-esteem, reflection;
5) Learning skills or learning abilities
- demonstrates readiness and ability to acquire new knowledge;

Prerequisites: Anatomy, physiology, and pathology.

Post-requirements: Nursing care in obstetrics and gynecology

Literature
basic:
1. Bodyazhina I. I. Obstetrics: textbook 1,2,3 Vol.- Evero, 2015
2.management of Obstetrics and gynecology for paramedics and obstetricians: Ed. V. N. Prilepskoy, V. E. Radzinsky. Moscow, 2007. - 688 P.
3. Radzinsky V. E. Obstetrics: textbook + CD. Moscow, 2008-904 P.
4.Gynecology: textbook /L. N. Vasilevskaya [and doctor].] 6-E izd. - Rostov B/D, 2007

additional:
1. urgent assistance in obstetrics and gynecology: management / Ed. "What's The Matter?" - 2nd ed., ISPR. and the ball. Moscow: GEOTAR-media, 2011.
2. Kailyubayeva G. zh. physiology of pregnancy. Dorodovoy care : educational and methodological support / G. zh. Kailyubayeva, G. N. Baimusanova; MZ RK-2-OE izdaniye-Karaganda: AKNUR, 2019. - 132 H

1. Department of Obstetrics and Gynecology
2. Level of training-Bachelor
3. Educational program-6B10102 «Pediatrics»
4. Course – 4, number of credits-5, number of hours-150.
5. Name of elective discipline-Obstetrics
Goal:

Obstetrics is a fundamental branch of clinical medicine. Protection of reproductive health, management of pregnancy, childbirth and the postpartum period is the main task of this discipline. A qualitative indicator of the work of any maternity service is the reduction of maternal and perinatal morbidity and mortality. In the diagnosis and treatment of obstetric complications at the

present stage, it requires the mandatory use of clinical protocols in this specialty. Competencies in this area are mandatory for a graduate of the Faculty of General Medicine, who must know the clinical and physiological characteristics of the female body in different age periods, be able to carry out not only therapeutic and diagnostic, but also preventive measures of physiological and pathological obstetrics.

The content of the discipline:

Formation of knowledge, skills and abilities in the diagnosis and management of pregnancy, childbirth and the postpartum period, primary health care and prevention of common obstetric pathology, training in the basics of practical skills of normal and pathological obstetrics and perinatology.

Tasks:

1. To give students up-to-date knowledge about the main manifestations of the most common obstetric conditions and gynecological pathologies;
2. Teach them to provide emergency care for the most common obstetric conditions and gynecological diseases, to make an observation plan, to provide the necessary care to the patient;
3. Teach to observe and control sanitary and hygienic and anti-epidemic regimes in obstetric and gynecological institutions in accordance with regulatory documents;
4. Teach to train (advise) patients and family on family planning and contraception issues;
5. Teach to provide pre-medical care for emergency conditions in obstetrics and gynecology.

Justification:

Organization of women's health protection in the Republic of Kazakhstan. Help in emergency situations should be a doctor of any specialty, this is especially important in obstetrics, where the life of the mother and fetus depends on the speed and skill of the doctor. Treatment of diseases, taking into account the obstetric and gynecological status in the presence of concomitant obstetric pathology; emergency care for pregnant women, women in labor, women in labor.

The role of the doctor in the prevention of diseases in women, the influence of the course of pregnancy and childbirth. Infection in the development of purulent-septic complications in pregnant women and postpartum women. Critical periods of pregnancy, stages of development of the embryo/fetus; changes that occur in the body of a woman during pregnancy. Complicated course of pregnancy (early toxicosis, gestosis, anemia, infection)

Learning outcomes (competencies)

1) Knowledge and understanding:
- demonstrates knowledge of the subject and tasks of obstetrics and gynecology;

2) Applying knowledge and understanding
- knows the methods of research and primary care in obstetrics and gynecology;
- has the skills of medical examination and prevention of pathology in obstetrics and gynecology ;

3) Formation of judgments
- uses the acquired knowledge to understand the features of etiopathogenesis, clinic, complications and extragenital diseases during pregnancy;
- applies the theoretical knowledge gained in midwifery for further study at the internship level;

4) Communication skills
- demonstrates communication skills when interacting with different people in different obstetric situations;
- demonstrates professional behavior – responsibility, productivity, self-esteem, reflection;

5) Learning skills or learning abilities
- demonstrates readiness and ability to acquire new knowledge;

Prerequisites: Anatomy, physiology, and pathology.

Post-requirements: Nursing care in obstetrics and gynecology

Literature

basic:
1. Bodyazhina I. I. Obstetrics: textbook 1,2,3 Vol.- Evero, 2015
2.management of Obstetrics and gynecology for paramedics and obstetricians: Ed. V. N. Prilepskoy, V. E. Radzinsky. Moscow, 2007. - 688 P.
3. Radzinsky V. E. Obstetrics: textbook + CD. Moscow, 2008-904 P.
4.Gynecology: textbook /L. N. Vasilevskaya [and doctor].] 6-E izd. - Rostov B/D, 2007

additional:
1. urgent assistance in obstetrics and gynecology: management / Ed. "What's The Matter?" - 2nd ed., ISPR. and the ball. Moscow: GEOTAR-media, 2011.
2. Kailyubayeva G. zh. physiology of pregnancy. Dorodovoy care : educational and methodological support / G. zh. Kailyubayeva, G. N. Baimusanova; MZ RK-2-OE izdaniye-Karaganda: AKNUR, 2019. - 132 H