

MINISTRY OF HEALTH PROTECTION OF UKRAINE

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of general and clinical epidemiology and biosafety

I APPROVE



Vice-rector for scientific and pedagogical work

Eduard BURIACHKIVSKYI

September 1, 2023

**WORKING PROGRAM OF EDUCATIONAL DISCIPLINE
"SOCIAL MEDICINE, PUBLIC HEALTH"**

Level of higher education: second (master's)

Branch of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

The work program is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in the specialty 22 "Medicine" of the field of knowledge 22 "Health care", approved by the Scientific Council of ONMedU (protocol No. 8 of June 29, 2023).

Developers:

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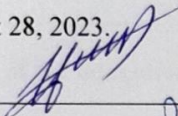
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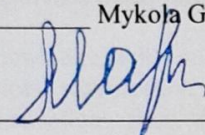
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The work program was approved at the meeting of the department of general and clinical epidemiology and biosafety

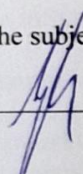
Protocol No. 1 dated August 28, 2023.

Head of the department  Mykola GOLUBYATNYKOV

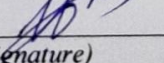
Agreed with the guarantor of the OPP  Valery MARICHEREDA

Approved by the subject cycle commission for medical and biological disciplines of ONMedU
Protocol No. ___ of "___" _____ 2023.

Head of the subject cycle methodical commission for medical and biological disciplines of ONMedU

 Leonid GODLEVSKYI

Reviewed and approved at the meeting of the department of general and clinical epidemiology and biosafety with course of microbiology and virology
Protocol No. 1 of "1" September 2023

Head of the department  Mykola GOLUBYATNYKOV
(signature) (First Name Surname)

Reviewed and approved at the meeting of the department _____

Protocol No. ___ of "___" _____ 20__

Head of Department _____
(signature) (First Name Surname)

1. Description of the academic discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristic academic discipline	
The total number of: Credits - 3	Branch of knowledge 22 "Health care"	<i>Full-time education</i>	
		<i>Mandatory discipline</i>	
Hours - 90	Specialty 222 "Medicine"	<i>A year of training</i>	2
		<i>Semester</i>	III
Content modules - 3	Level of higher education second (master's)	<i>Lectures</i>	8 hours
		<i>Practical</i>	48 hours
		<i>Seminary</i>	0 hours
		<i>Independent work</i>	34 hours
		<i>Including individual tasks</i>	0
		<i>Final control form</i>	test

2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

Goal: acquiring the necessary knowledge, skills and competences related to research, analysis and assessment of population health indicators, organization, resource provision and activities of the health care system; development of recommendations from the standpoint of evidence-based medicine to prevent and eliminate the harmful effects of factors on health and to improve the organization of medical assistance to the population and the public health system.

Task:

1. learn the basic concepts and concepts of evidence-based medicine and biostatistics;
2. learn the regularities of formation and methods of assessment of population health indicators and the influence of medical and social, economic, environmental factors, conditions and lifestyle on it;
3. learn theoretical foundations, modern principles, regularities and legal foundations of public health and its protection systems in the context of preserving and strengthening the health of the population;
4. interpret the main methods of determining and assessing the state of health of the population in relation to the factors affecting it;
5. work out measures regarding the organization of the activity of a family doctor and ways of its improvement;
6. be able to fill in basic accounting medical documentation and analyze reporting forms of the medical service;
7. elaborate managerial preventive decisions aimed at strengthening and preserving the health of people of different ages;
8. elaborate management decisions on meeting the needs of the population in medical care.

The process of studying the discipline is aimed at forming elements of the following competencies:

IC. The ability to solve typical and complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.

- **General (GC):**

- GC1. Ability to abstract thinking, analysis and synthesis
- GC3. Ability to apply knowledge in practical situations
- GC4. Knowledge and understanding of the subject area and understanding of professional activity
- GC6. Ability to make informed decisions
- GC10. Ability to use information and communication technologies
- GC11. Ability to search, process and analyze information from various sources
- GC16. The ability to evaluate and ensure the quality of the work performed

GC17. The desire to preserve the environment

- **Special (SC):**

SC9. Ability to carry out medical evacuation measures

SC15. The ability to conduct an examination of working capacity

SC16. Ability to maintain medical documentation, including electronic forms

SC17. The ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of an individual, family, population

SC18. The ability to analyze the activity of a doctor, unit, health care institution, ensure the quality of medical care and increase the efficiency of the use of medical resources

SC19. The ability to organize and integrate the provision of medical assistance to the population and the marketing of medical services

SC20. Ability to conduct epidemiological and medical statistical studies of the health of the population; processing of social, economic and medical information.

Program learning outcomes (PLO):

PLO1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.

PLO2. Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.

PLO3. Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems.

PLO16. Form rational medical routes for patients; organize interaction with colleagues in their own and other institutions, organizations and institutions; to apply tools for the promotion of medical services in the market, based on the analysis of the needs of the population, in the conditions of the functioning of the health care institution, its division, in a competitive environment.

PLO18. To determine the state of functioning and limitations of a person's vital activities and the duration of incapacity for work with the preparation of relevant documents, in the conditions of a health care institution, based on data about the disease and its course, peculiarities of the person's professional activity, etc. Maintain medical documentation regarding the patient and the contingent of the population on the basis of regulatory documents.

PLO19. Plan and implement a system of anti-epidemic and preventive measures regarding the occurrence and spread of diseases among the population.

PLO21. Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information.

PLO22. Apply modern digital technologies, specialized software, and statistical methods of data analysis to solve complex healthcare problems.

PLO23. Assess the impact of the environment on human health to assess the morbidity of the population.

PLO24. To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

PLO26. Manage work processes in the field of health care, which are complex, unpredictable and require new strategic approaches, organize the work and professional development of personnel taking into account the acquired skills of effective teamwork, leadership positions, appropriate quality, accessibility and justice, ensuring the provision of integrated medical help

PLO28. Make effective decisions on health care issues, assess the necessary resources, take into account social, economic and ethical consequences.

As a result of studying the academic discipline, the student of higher education must:

Know:

- definition of social medicine and public health as a science and subject of teaching, its significance for health care practice;
- theoretical and methodological foundations of biostatistics;

- basic organizational elements of statistical research;
- methodological foundations and criteria for choosing the main adequate methods of analysis for testing statistical hypotheses;
- theoretical and methodical bases of analysis of statistical results, their assessment and description in order to form reasonable conclusions
- peculiarities of interpretation of the concept of "health", indicators of population health;
- regularities in the formation of the demographic situation, its features in different countries;
- components of the medical and social significance of morbidity and methods of its study;
- classification of risk factors, assessment of their possible impact on public health;
- basic principles and types of medical assistance to the population, features of medical provision of various contingents of the urban and rural population;
- organization and content of the work of medical institutions and doctors of the main specialties;

Be able:

- to determine the tactics of statistical research organization, experiment planning;
- determine the necessary methods of statistical processing of research data;
- calculate statistical indicators, parameters of statistical aggregates;
- prevent, diagnose and correct statistical errors;
- determine the methods of graphic representation of the results of statistical analysis;
- evaluate and analyze statistical indicators and parameters of statistical aggregates;
- use applied methods of biostatistics for data analysis;
- determine and evaluate health indicators using appropriate statistical methods;
- fill out accounting documents for the study of population health indicators (demographic, morbidity, disability), activities of the main health care institutions;
- determine and analyze indicators of morbidity: general, infectious, hospitalized, for the most important socially significant diseases, with temporary loss of working capacity;
- evaluate indicators of physical development of the population and indicators of disability to characterize the health of the population;
- to analyze the peculiarities of the formation of a healthy lifestyle in certain population groups;
- interpret the features of medical assistance to the population;
- to analyze the expediency of implementing various models of primary medical care based on family medicine;
- determine the tactics in the process of examination of the loss of working capacity (temporary and permanent) with the filling of relevant documents;
- carry out an assessment of the quality of medical care;
- develop management solutions aimed at improving the health of the population and optimizing medical care
- use skillsassessment of the state of health of the population and the influence of determinants on it, risk assessment, as well as the development and implementation of preventive measures aimed at preserving, strengthening the health and social well-being of the population;
- use skillsevaluation of the activity of the health care system, institutions, units or health care professionals; identifying and eliminating negative factors influencing their work, as well as developing measures to improve the organization and improve the activities of health care professionals and institutions.

Master the skills:

- conducting epidemiological and medical-statistical studies;
- processing and analysis of received social, statistical and medical information;
- calculation, assessment and analysis of statistical indicators;
- implementation of advocacy and communication in the field of public health using various communication channels and techniques;
- carrying out disease prevention measures among the population, including in cooperation with public health specialists

3. Content of the academic discipline

Unit1. "Biostatistics»

Topic 1. Social medicine and public health as a science. Evidence-based medicine, research methods and its significance for health care practice.

Social medicine and public health is a science that studies the laws of public health and the system of its protection. The importance of social medicine for the formation of health care. History of development and methods of social medicine: statistical, demographic, historical, experimental, epidemiological, economic, sociological, methods of expert assessments, modeling, forecasting. Theory and practice of evidence-based medicine, basic principles of evidence-based medicine. Concept of clinical epidemiology. Classification of epidemiological studies. Evidence-based medicine and quality of clinical research. Biostatistics as the main component of the evidence-based medicine system. The main stages of the development of biostatistics.

Topic 2. Relative values. Graphic representation of statistical data.

Concept of statistical indicators, their types, form of presentation. Absolute data, relative values, their practical significance. Intensity indicators and their components: general and special. Types of relative values (intensive, extensive, relative intensity, ratio, visibility), their calculation method and methodical bases of application for data analysis. Definition, method of calculation, meaning and application in the activity of a dentist. Concepts and types of structure of medical and biological data, structural changes, features of their analysis. Graphic images of medical and biological data.

Topic 3. Variation series. Average values.

Variational series, their elements, characteristics and parameters. Average values in the doctor's activity, their types, practical significance, methods of calculation. The concept of variation, the variability of population parameters, assessment methods. Mean square deviation, coefficient of variation. The concept of laws of distribution, their types, characteristics.

Topic 4. Method of standardization. Analysis of dynamic series. Risk factors. Methodology for calculating risk indicators and their assessment.

Method of standardization. The essence, significance and application of the method for identifying the influence of various risk factors on the health indicators of the population and the activities of medical and preventive institutions. Types of dynamics series. Basic rules of construction and analysis of dynamic series when studying the dynamics of medical and biological phenomena. The main indicators of dynamic series analysis. The main methods of processing a dynamic series in order to determine the trend. Interpolation and extrapolation in series of dynamics. Concept of risk factors. Risk indicators, methods of their calculation and analysis. Absolute, additional risk. Relative risk, additional population risk. Odds ratio.

Topic 5. Assessment of the probability of research results. Parametric and non-parametric criteria for assessing the probability of obtained results. Correlation-regression analysis.

Parametric methods of assessing the probability of medical and biological research. Average error of mean and relative value, confidence interval. Estimation of the probability of difference: Student's criterion, calculation method, its evaluation, typical errors of use. The concept of non-parametric methods of assessing the reliability of statistical data. Interrelated and independent aggregates. Wilcoxon test. Chi-square goodness-of-fit criterion. Correlation-regression analysis of the relationships between factors and outcome measures in medical research.

Topic 6. Design, methods of collecting statistical material and organization of statistical research. Screening. Types of questionnaires, compilation method.

Organization and stages of statistical research. Statistical research program. Purpose and plan of statistical research. Sources of statistical information. Methods of statistical research by time and degree of coverage. Methods of collecting statistical information. Concept of sample research. Object and unit of observation. Types of groupings. Types, rules of construction and filling of statistical tables. Methods of direct registration, copying and survey. Types of questionnaires and methods of their preparation. Types of questions.

Subsection 2. "Population health statistics"

Topic 7. Population health: the main determinants. Methods of study and assessment of factors affecting the health of the population.

Targeted approaches to defining the concept of "health": general philosophical, individual theoretical, individual practical, population. Population health as a conditional statistical concept. Methods of studying health. Population health indicators: demographic; physical development; morbidity; disability. Leading groups of factors affecting the health of the population: the level and lifestyle of people, the state of the environment, biological factors, availability and quality of medical care. Peculiarities of health of different sex-age, professional population groups. Public health strategies for health preservation.

Classification of risk factors affecting health. Methodical approaches to the study of factors that determine the level of health of the population and its separate contingents. Risk indicators: absolute, risk ratio (relative risk) and additional population risk; methods of its study. Error of the first and second kind. Odds. Odds ratio indicator. Methodology of calculation and evaluation. Prognostic factors and risk factors, their meaning and possibilities of use. Peculiarities of the study of the influence of factors: socio-economic, socio-biological, ecological and natural-climatic, medical and organizational.

Topic 8. Methods of studying and evaluating the main demographic indicators of the natural movement of the population. Analysis of the demographic situation.

Documents used to study the natural movement of the population. The procedure for registering births in Ukraine. The essence of the concepts "live birth", "stillbirth", "death of the fetus". Methods of determining and evaluating general and special birth rates. Total mortality. The procedure for registering deaths in Ukraine. Methods of studying mortality, determination of general and special indicators, their meaning and assessment. Structure of causes of mortality. Natural population growth. Population changes. Mechanical and natural population movement. Analysis of regional features and dynamics of demographic indicators. Assessment of the demographic situation. Average life expectancy (LOL), definition of the concept. The method of determining the SOTZ indicator, its dynamics in different regions of the world, individual countries and in Ukraine. Population aging as a medical and social problem.

Topic 9. Methods of studying and evaluating infant mortality rates.

Procedure for registration of infant (toddler) mortality. Methodology for determining indicators of general, neonatal, early neonatal, late neonatal, and post-neonatal mortality of infants. Assessment of the ratio of infant mortality and neonatal mortality. Perinatal mortality. Leading causes of infant mortality in different age periods of the first year of life. The main groups of factors affecting the formation of infant mortality levels (biological, environmental, medical and organizational, lifestyle).

Topic 10. Methods of studying and evaluating reproductive health indicators.

Determination of the main indicators characterizing reproductive health. Assessment of regional characteristics and modern trends in reproductive health indicators. Analysis of factors affecting reproductive health, in particular the birth rate, morbidity of the female population, maternal mortality, and infant mortality. Methodology for determining maternal mortality rates. Methodology for determining indicators of general, neonatal, early neonatal, late neonatal, and post-neonatal mortality of infants. Assessment of the ratio of infant mortality and neonatal mortality. Perinatal mortality. Development of measures to optimize the system of preserving the reproductive health of the population.

Topic 11. Methods of studying population morbidity. Calculation and evaluation of indicators of general morbidity and its varieties.

The concept of morbidity, the purpose of its study, peculiarities in Ukraine and the world. Medico-social significance of morbidity as a leading cause of temporary and permanent disability, mortality. The impact of morbidity on the needs of the population in providing medical care, on the health of future generations. Economic costs associated with morbidity, incl. with incidence of socially significant and dangerous diseases. Methods of studying morbidity, possibilities of using individual methods, their advantages and disadvantages. Factors affecting the completeness of data on morbidity depending on the methods of its study. International statistical classification of diseases, injuries and causes of death, principles of its construction and significance.

Types of morbidity, methods of studying morbidity, their advantages and disadvantages. Accounting and reporting documents for the study of morbidity, rules for filling them out. International statistical classification of diseases. Characteristics of the morbidity of the urban and rural population, different age and sex groups of the population. Study of morbidity based on requests for medical assistance. General morbidity: the method of determining the indicators of primary morbidity and prevalence of diseases, their assessment, regional features and dynamics. Disability as an indicator of population health, its medical and social significance.

Topic 12. Methodology of study and assessment of incidence rates for the most important socially significant diseases. Methodological foundations of research on the burden of diseases.

Diseases of the circulatory system, oncological, neuropsychiatric diseases, diabetes, tuberculosis, HIV infection/AIDS, trauma, alcoholism, drug addiction and toxic addiction as medical and social problems. Leading factors affecting the prevalence of diseases. Dynamics of the main indicators. Determination of the list of diseases, organization of constant monitoring. A set of indicators characterizing the global burden of diseases: calculation methodology and assessment. Significance of disease burden research results for the public health system. Improving the health of the least socially protected population. Measures to reduce morbidity and mortality from the most common diseases in Ukraine and Europe.

Topic 13. Comprehensive assessment of population health. Analysis of indicators of physical development.

Population health indicators. The main sources of information in the study of population health. Health criteria and groups. Comprehensive assessment of individual health. Evaluation of the quality of life. Comprehensive assessment of population health. Integral indicators of the comprehensive assessment of the population's health: population vitality coefficient; human development index. Indicators of the WHO population health assessment system: life expectancy adjusted for disability - DALE; health-adjusted life expectancy - HALE. Characteristics of physical development as an indicator of population health. Definition of the concept of "physical development", its genetic and social conditioning. Biological development and morphofunctional development. Methods of assessment of physical development. Regional features and dynamics of indicators of physical development.

Subsection 3. "Organization of health care"

Topic 14. Methodology for analyzing the causes of social inequality in relation to health and its protection. Providing strategic leadership in the interests of health and well-being.

Obstacles to providing the necessary conditions for individual support health. Social inequality as a cause of unsatisfactory access to medical care and social support. Analysis of the causes of social inequality in relation to health and its protection. Ways to improve the health of all strata of the population. Strategic management: definition, key provisions. Types of strategic leadership in the interests of health. Vectors of development. Nationwide approach. The principle of participation of the whole society. A set of policy implementation tools. Political participation and leadership. Strategic planning of public health services, policy planning and monitoring of its implementation.

Topic 15. Family medicine. Primary, secondary and tertiary medical assistance to the population.

The essence of the concept of "primary medical care" (PMD). Principles of organizing PMD on the basis of family medicine. The role of the family doctor (general practice) in providing medical needs of the population. Work models of a family doctor. The role of the dentist (family dentist) in the functioning of the Institute of Family Medicine. System of organization of provision of secondary (specialized) and tertiary (highly specialized) medical care to the urban and rural population. The structure, staff and activity of various types of medical and preventive facilities that provide the population with secondary and tertiary medical care. Evaluation of the effectiveness of the organization of providing care to different contingents of the population. Measures to improve the organization and operation of medical institutions of the second and third level of providing medical care.

Topic 16. Emergency and urgent medical assistance to the population. Emergency situations in health care.

The organization of the emergency medical service (EMS), its institutions. Emergency medical care centers. Tasks of the station (department) of emergency medical aid (EMS) and its functions. Organization of ShMD in rural areas. Interaction of the ShMD service with various medical institutions. Points of emergency medical care. Emergency situations in health care. Disaster medicine. Actual problems of international health. Bioterrorism as a serious challenge and global threat to international health in the 21st century.

Topic 17. Organization of obstetric and gynecological care and medical care for children.

Tasks and content of the work of the women's consultation and the maternity hospital, their structural divisions. Expert assessment of organizational elements of medical care for pregnant women. Interaction between women's consultations, children's polyclinics, children's homes. Tasks and content of the children's polyclinic and hospital, structural divisions. Preventive and anti-epidemic work of the children's polyclinic. Basic accounting documentation of maternity and childhood care institutions. Methods of calculation and analysis of indicators of their work. Measures to improve the activities of maternity and childhood care institutions. Perinatal centers.

Topic 18. Organization of medical care for the elderly. Palliative and hospice care.

Assessment of the state of health of the elderly, its features. The main trends in the organization of geriatric care in the world and in Ukraine. Treatment and prevention institutions (units) and other institutions that provide medical and social assistance to the elderly in Ukraine. Palliative and hospice care: history and principles of development, medical and social significance.

Topic 19. Organization of medical examination of disability. Temporary and permanent loss of working capacity, method of calculating indicators.

Disability as an indicator of population health. Violation of body functions leading to disability. Disability groups. Causes of disability. Classes of diseases causing the main causes of disability of the population. Indicators of disability: general disability (contingents of the disabled), primary disability (disability); method of calculation and assessment. Tasks of attending physicians during examination of temporary disability. Medical Advisory Commission (MAC): functions, composition, organization of work. Reasons for temporary incapacity. Drawing up and procedure for issuing leaves of incapacity for work in certain types and cases of temporary incapacity for work.

Causes of persistent incapacity. Disability groups. Medical and social expert commissions (MSEK), their types and functions. Methods of studying and calculating indicators of disability of the population. Structure of disability by causes and groups. Dynamics of disability. The value of the sick leave as an accounting, legal and financial document.

Topic 20. Information and explanatory activities (advocacy) as a component of medical prevention.

Informing society, decision-makers, politicians about existing and potential threats to health, health problems, needs for preventive measures. The art and technique of informing, influencing and motivating people, institutions, and audiences regarding important issues of health determinants. Tasks and content of the work of public health centers, their structural subdivisions, interaction with other health care institutions. Development of preventive strategies to protect and strengthen health, reducing the negative impact of determinants on the health of the population. Preventive programs and disease prevention strategies.

Topic 21. Health promotion. Types, forms and methods. Moral, ethical and legal aspects of health care interventions.

Methods and means of medical and hygienic training and education of the population, their features in various health care institutions. Definition of the concepts of "health promotion", "healthy lifestyle", "prevention". Types of prevention. The importance of forming a healthy lifestyle for preserving and strengthening the health of the population. Leading lifestyle factors affecting health. Population Directions for the formation of a healthy lifestyle. Development of questionnaires for the study of factors influencing the state of health of the population. Drawing up a plan of lectures. Development of reproductive medicine. Artificial insemination, surrogate motherhood, gamete donation: moral and ethical

aspects. The role of reproductive medicine in solving the problem of low fertility. Moral, ethical and legal aspects of transplantation.

Topic 22. Communication and social mobilization in the interests of health. Press releases and communication with mass media.

The importance of communication in matters of preserving and strengthening health. Forms of communications.

Communication channels. The importance of relations with the public and mass media. Problems and possible errors. A press release in public health is an important form of conveying medical information to the general public: rules of drafting and use.

Topic 23. Informatization of public health. Medical information systems in the world and in Ukraine. Visualization and effective presentation of health data. Dissemination and use of results.

Information technologies in the global health care system. Medical information systems: saving information, quick access to information, mutual exchange of information, conducting statistical analysis of aggregated data, reducing staff time and reducing the number of errors. Terminological standards and rubricators. Complex automation of medical facilities. Electronic document management. Electronic card of the patient. Effective presentation of health data. Traditional forms of data presentation in the form of charts and tables. Data visualization using modern technologies: infographics, animation, interaction. Forms of presentation: posters, postcards, booklets, presentations, films.

Topic 24. Differentiated assessment.

4. The structure of the academic discipline

No	Topics	The number of hours, of which:			
		total	L	Practic e busy	SIW
Subsection 1. "Biostatistics"					
1	Social medicine and public health as a science. Evidence-based medicine, research methods and its significance for health care practice.	6	2	2	2
2	Relative values. Graphic representation of statistical data.	4	–	2	2
3	Variation series. Average values.	4	–	2	2
4	Method of standardization. Analysis of dynamic series. Risk factors. Methodology for calculating risk indicators and their assessment.	4	–	2	2
5	Assessment of the probability of research results. Parametric and non-parametric criteria for assessing the probability of obtained results. Correlation-regression analysis.	4	–	2	2
6	Design, methods of collecting statistical material and organization of statistical research. Screening. Types of questionnaires, compilation method.	4	–	2	2
Subsection 2. "Population health statistics"					
7	Population health: the main determinants. Methods of study and assessment of factors affecting the health of the population	3		2	1
8	Methods of studying and evaluating the main demographic indicators of the natural movement of the population. Analysis of the demographic situation.	4	-	2	2
9	Methods of studying and evaluating infant mortality rates.	4		2	2
10	Methods of studying and evaluating reproductive health indicators.	4	-	2	2
11	Methods of studying population morbidity. Calculation and	5	2	2	1

	evaluation of indicators of general morbidity and its varieties.				
12	Methodology of study and assessment of incidence rates for the most important socially significant diseases. Methodological foundations of research on the burden of diseases.	3	-	2	1
13	Comprehensive assessment of population health. Analysis of indicators of physical development.	3	-	2	1
Subsection 3. "Organization of health care"					
14	Methodology for analyzing the causes of social inequality in relation to health and its protection. Providing strategic leadership in the interests of health and well-being.	3	-	2	1
15	Family medicine. Primary, secondary and tertiary medical assistance to the population.	3	-	2	1
16	Emergency and urgent medical assistance to the population. Emergency situations in health care.	3	-	2	1
17	Organization of obstetric and gynecological care and medical care for children.	3	-	2	1
18	Organization of medical care for the elderly. Palliative and hospice care.	5	2	2	1
19	Organization of medical examination of disability. Temporary and permanent loss of working capacity, method of calculating indicators.	5	2	2	1
20	Informational and explanatory activities (advocacy) as a component of medical prevention.	3	-	2	1
21	Health promotion. Types, forms and methods. Moral-ethical and legal aspects of health care interventions.	3	-	2	1
22	Communication and social mobilization in the interests of health. Press releases and communication with mass media.	3	-	2	1
23	Informatization of public health. Medical information systems in the world and in Ukraine.	3	-	2	1
24	Visualization and effective presentation of health data. Dissemination and use of results. test	4		2	2
	Total hours	90	8	48	34

5. Topics of lectures / seminars / practical / laboratory classes

5.1. Topics of lectures

No	Names of topics	Number of hours
1	Social medicine and public health as a science. Evidence-based medicine, research methods and its significance for health care practice.	2
2	Methods of studying population morbidity. Calculation and evaluation of indicators of general morbidity and its varieties.	2
3	Organization of medical care for the elderly. Palliative and hospice care.	2
4	Organization of medical examination of disability. Temporary and permanent loss of working capacity, method of calculating indicators.	2
	Total	8

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

No	Names of topics	Number of hours
1	Social medicine and public health as a science. Evidence-based medicine, research methods and its significance for health care practice.	2
2	Relative values. Graphic representation of statistical data.	2
3	Variation series. Average values.	2
4	Method of standardization. Analysis of dynamic series. Risk factors. Methodology for calculating risk indicators and their assessment.	2
5	Assessment of the probability of research results. Parametric and non-parametric criteria for assessing the probability of obtained results. Correlation-regression analysis.	2
6	Design, methods of collecting statistical material and organization of statistical research. Screening. Types of questionnaires, compilation method.	2
7	Population health: the main determinants. Methods of study and assessment of factors affecting the health of the population	2
8	Methods of studying and evaluating the main demographic indicators of the natural movement of the population. Analysis of the demographic situation.	2
9	Methods of studying and evaluating infant mortality rates.	2
10	Methods of studying and evaluating reproductive health indicators.	2
11	Methods of studying population morbidity. Calculation and evaluation of indicators of general morbidity and its varieties.	2
12	Methodology of study and assessment of incidence rates for the most important socially significant diseases. Methodological foundations of research on the burden of diseases.	2
13	Comprehensive assessment of population health. Analysis of indicators of physical development.	2
14	Methodology for analyzing the causes of social inequality in relation to health and its protection. Providing strategic leadership in the interests of health and well-being.	2
15	Family medicine. Primary, secondary and tertiary medical assistance to the population.	2
16	Emergency and urgent medical assistance to the population. Emergency situations in health care.	2
17	Organization of obstetric and gynecological care and medical care for children.	2
18	Organization of medical care for the elderly. Palliative and hospice care.	2
19	Organization of medical examination of disability. Temporary and permanent loss of working capacity, method of calculating indicators.	2
20	Informational and explanatory activities (advocacy) as a component of medical prevention.	2
21	Health promotion. Types, forms and methods. Moral-ethical and legal aspects of health care interventions.	2
22	Communication and social mobilization in the interests of health. Press releases and communication with mass media.	2
23	Informatization of public health. Medical information systems in the world and in Ukraine.	2
24	Visualization and effective presentation of health data. Dissemination and use of results. Test	2
	Total	48

5.4. Topics of laboratory classes

Laboratory classes are not provided.

6. Independent work of a student of higher education

No	Names of topics	Number of hours
1	Social medicine and public health as a science. Evidence-based medicine, research methods and its significance for health care practice.	2
2	Relative values. Graphic representation of statistical data.	2
3	Variation series. Average values.	2
4	Method of standardization. Analysis of dynamic series. Risk factors. Methodology for calculating risk indicators and their assessment.	2
5	Assessment of the probability of research results. Parametric and non-parametric criteria for assessing the probability of obtained results. Correlation-regression analysis.	2
6	Design, methods of collecting statistical material and organization of statistical research. Screening. Types of questionnaires, compilation method.	2
7	Population health: the main determinants. Methods of study and assessment of factors affecting the health of the population	1
8	Methods of studying and evaluating the main demographic indicators of the natural movement of the population. Analysis of the demographic situation.	2
9	Methods of studying and evaluating infant mortality rates.	2
10	Methods of studying and evaluating reproductive health indicators.	2
11	Methods of studying population morbidity. Calculation and evaluation of indicators of general morbidity and its varieties.	1
12	Methodology of study and assessment of incidence rates for the most important socially significant diseases. Methodological foundations of research on the burden of diseases.	1
13	Comprehensive assessment of population health. Analysis of indicators of physical development.	1
14	Methodology for analyzing the causes of social inequality in relation to health and its protection. Providing strategic leadership in the interests of health and well-being.	1
15	Family medicine. Primary, secondary and tertiary medical assistance to the population.	1
16	Emergency and urgent medical assistance to the population. Emergency situations in health care.	1
17	Organization of obstetric and gynecological care and medical care for children.	1
18	Organization of medical care for the elderly. Palliative and hospice care.	1
19	Organization of medical examination of disability. Temporary and permanent loss of working capacity, method of calculating indicators.	1
20	Informational and explanatory activities (advocacy) as a component of medical prevention.	1
21	Health promotion. Types, forms and methods. Moral-ethical and legal aspects of health care interventions.	1
22	Communication and social mobilization in the interests of health. Press releases and communication with mass media.	1
23	Informatization of public health. Medical information systems in the world and in Ukraine.	1
24	Visualization and effective presentation of health data. Dissemination and use of results. Test	2
	Total	34

7. Teaching methods

Lectures.

Practical training: conversation, solving situational problems, practicing skills for working with medical documentation.

Independent work: independent work with the textbook, independent work with the bank of test tasks Step-1, independent solution of situational tasks.

8. Forms of control and assessment methods (including criteria for evaluating learning outcomes)

Current control: oral survey, testing, assessment of performance of practical skills, solution of situational tasks, assessment of activity in class.

Final control: balance

Evaluation of the current educational activity in a practical session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey, solving a situational problem;
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
2. Evaluation of practical skills and manipulations on the subject of the lesson:
 - methods: assessment of the correctness of the performance of practical skills
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

The grade for one seminar session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Current assessment criteria for practical training:

Rating	Evaluation criteria
Perfectly "5"	It is presented to the applicant when he shows deep, solid and systematic knowledge in the scope of the curriculum, answers all questions without mistakes, reasonably formulates conclusions, using materials presented for independent work of the applicant, competently and consistently, with knowledge of the methodology, completed practical work ; using scientific terms and concepts correctly.
Fine "4"	The acquirer reveals the main content of the educational material; gives incomplete definitions of concepts; admits inaccuracies when using scientific terms, vaguely formulates conclusions, performed practical work, but made minor mistakes during the research.
Satisfactorily "3"	The applicant reproduces the basic educational material, but makes significant mistakes when presenting it, gives simple examples, definitions of concepts are insufficient, characterizes general issues of social medicine.
Unsatisfactorily "2"	The applicant discloses the content of the educational material fragmentarily, makes gross mistakes in the definition of concepts and when using terminology, did not complete the practical work.

Credit is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Assessment is carried out in the last class before the beginning of the examination session (with the tape system of learning. The grade for the assessment is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded to 2 (two) decimal places using the statistical method.

9. Distribution of points received by students of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional assessment into a multi-point scale

Traditional four-point scale	Multipoint 200-point scale
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	Top 10% achievers
B	The next 25% of earners
C	The next 30% of earners
D	The next 25% of earners
E	The next 10% of earners

10. Methodological support:

- Working program of the academic discipline
- Syllabus of the academic discipline
- Multimedia presentations
- Methodical developments for practical classes
- Electronic bank of test tasks by subdivisions of the discipline
- Tasks for current control of knowledge
- Tasks for final control of knowledge

- Methodical recommendations for independent work of higher education applicants
- Methodological developments for lectures

11. Questions for preparing for the final inspection

1. Biostatistics as the main component of the evidence-based medicine system, its significance for health care practice
2. Organization and stages of statistical research.
3. Object and unit of observation. Sources of statistical information.
4. Methods of statistical research by time and degree of coverage.
5. Methods of collecting statistical information. Types of questionnaires, compilation method.
6. Types, rules of construction and filling of statistical tables.
7. Relative values: definition, method of calculation, meaning and application in the activity of a dentist.
8. Graphic images of medical and biological data.
9. Variational series, their elements, characteristics and parameters.
10. Average values in the doctor's activity, their types, practical significance, methods of calculation.
11. The concept of variation, the variability of population parameters, assessment methods.
12. Methods of assessing the probability of medical and biological research (parametric).
13. Average error of mean and relative value, confidence interval.
14. Estimation of the probability of difference: Student's criterion, calculation method, its evaluation.
15. The concept of non-parametric methods of assessing the reliability of statistical data.
16. Dynamic series. Definition, types and analysis of dynamic series.
17. Standardization method: essence and meaning.
18. Correlation-regression analysis of the relationships between factors and outcome measures in medical research.
19. Screening. Methodology for assessing the sensitivity and specificity of screening tests
20. Risk factors. Methodology for calculating risk indicators and their assessment
21. Subject and content of demography. Population statics and dynamics. Population censuses.
22. Public health, functions and services.
23. Leading groups of factors affecting the health of the population, their classification.
24. The subject and content of demography, the importance of demographic data for health care practice. Sources of information, main indicators.
25. Birth rate, indicators in Ukraine. Factors influencing the birth rate.
26. Mortality. Methodology for calculating general and special indicators. Features and causes of mortality in different population groups. Infant mortality. Leading causes, factors influencing its formation. Medical and social aspects of reducing infant mortality.
27. Morbidity, its medical and social significance. Study methods, their advantages and possibilities. International statistical classification of diseases, injuries and causes of death, principles of its construction and significance.
28. General morbidity, sources of study. Indicators of general morbidity, peculiarities among the urban and rural population.
29. Infectious morbidity: feasibility of special accounting, main indicators.
30. Incidence of the most important socially significant diseases: list of nosological forms, main indicators.
31. Hospitalized morbidity: concepts, main indicators.
32. Morbidity with temporary disability, main indicators.
33. Physical development. Criteria for studying biological and morpho-functional development. Modern trends of indicators of physical development.
34. Disability: the main causes of disability, groups of disabilities, factors affecting it. Determination and assessment of disability indicators.

35. Health care system in Ukraine. Principles and organization.
36. Organization of primary medical care on the basis of family medicine.
37. Organization of secondary and tertiary care.
38. Organization of inpatient care for the population, availability of beds for the population, levels of hospitalization. Hospital district. Analysis of hospital activity.
39. Peculiarities of medical provision of the rural population.
40. Organization of obstetric and gynecological care. Reproductive health of women.
41. Organization of medical care for children.
42. Organization of medical care for the elderly. Hospice and palliative care.
43. Emergency medical assistance.
44. Concept of quality and effectiveness of medical care, their criteria. Quality standards in the activity of dental institutions.
45. Examination of temporary disability: tasks of attending physicians, medical advisory commission (MAC).
46. Types of temporary incapacity for work, Procedure for issuing and extending leaves of incapacity for work in case of various types of incapacity for work.
47. Examination of permanent incapacity. Medical and social expert commissions (MSEK).
48. Groups and causes of disability. Organization of rehabilitation of the disabled.
49. Organization of ambulatory polyclinic assistance to the urban population. Structure and tasks of the city (district) polyclinic
50. Inpatient care for patients.
51. Public health service in Ukraine, its tasks and activity content.
52. International health. Bioterrorism.
53. Inequality in the health of the population and its protection. Detection and reduction.
54. Ecological public health. Provision of public health protection, including environmental, labor, and food safety.
55. Prevention and intersectoral cooperation in the public health system. Types of prevention. Preventive programs in health care. Screening.
56. Health promotion. Informational and explanatory activities (advocacy) as a component of medical prevention.
57. Communication and social mobilization in the interests of health.
58. Tasks and content of the work of public health centers, their structural units for prevention and formation of a healthy lifestyle, interaction with other health care institutions.
59. Moral and ethical aspects of health care interventions.
60. Informatization of public health. Medical information systems.

12. Recommended literature

Main:

1. Biostatistics for the Biological and Health Sciences, Global Edition, 2nd edition 2018, [Pearson Education Ltd](#), ISBN:9781292229461-
2. Oxford Textbook of Global Public Health, 6 edition. Edited by Rogers Detels, Martin Gulliford, Quarraisha Abdool Karim and Chorh Chuan Tan. - Oxford University Press, 2017. - 1728 p.

Additional:

1. Public health: textbook for students. higher med. education institutions - Kind. 3 - Vinnytsia: "New Book", 2013. - 560 p.
2. Board Review in Preventive Medicine and Public Health. Gregory Schwaid. - ELSEVIER., 2017. - 450
3. Medical Statistics at a Glance Text and Workbook. Aviva Petria, Caroline Sabin. - Wiley-Blackwell, 2013. - 288 p.
4. Donaldson's Essential Public Health, Fourth Edition. [Liam J. Donaldson](#), [Paul Rutter](#) - CRC Press, Taylor&Francis Group, 2017 - 374 p.

5. Jekel's epidemiology, biostatistics, preventive medicine and public health. Fourth edition. David L. Katz, Joann G. Elmore, Dorothea MG Wild, Sean C. Lucan. - ELSEVIER., 2014. - 405 p.
6. Oxford Handbook of Public Health Practice, Fourth Edition. Charles Guest, Walter Ricciardi, Ichiro Kawachi, Iain Lang. - Oxford University Press, 2012. - 656 p.
7. Primer of Biostatistics, Seventh Edition. Stanton A. Glantz - McGraw-HillEducation, 2012. - 320 p.

13. Electronic information resources

- World Health Organization www.who.int
- Cochrane Center for Evidence-Based Medicine www.cebm.net
- Cochrane Library www.cochrane.org
- US National Library of Medicine - MEDLINE www.ncbi.nlm.nih.gov/PubMed
- Canadian Center for Evidence in Health Care www.cche.net
- Center for Disease Control and Prevention www.cdc.gov
- Public Health Center of the Ministry of Health of Ukraine www.phc.org.ua
- Ukrainian database of medical and statistical information "Health for all":
<http://medstat.gov.ua/ukr/news.html?id=203>
- British Medical Journal www.bmj.com
- Journal of Evidence-Based Medicine www.evidence-basedmedicine.com