

Ministry of Healthcare of Ukraine  
Poltava State Medical University

Department of Public Health with Medical and Labor Examination

«**AGREED**»

Guarantor of the academic program in  
specialty«Medicine»

\_\_\_\_\_ Igor SKRYPNYK

“ \_\_\_\_\_ ” \_\_\_\_\_ 2024

«**APPROVED**»

Chairman of the Academic Council of  
the International Faculty

\_\_\_\_\_ Lilya BURYA

Protocol from \_\_\_\_\_ 2024 № \_\_\_\_\_

**SYLLABUS**

***SOCIAL MEDICINE, PUBLIC HEALTH***  
regulatory discipline

educational and professional level	second (master's) level of higher education
field of knowledge	22 "Health Care"
specialty	222 "Medicine"
academic qualification	Master of Medicine
professional qualifications	Physician
academic and professional program	«Medicine»
mode of study	full-time
course and semester of study of the discipline	3 course (VI semester); 4 course (VII semester); 6 course (XI-XII semester)

«**RESOLVED**»

at the meeting of the Department of Public  
Health, with Medical and Labor Examination

Head of  
Department \_\_\_\_\_ I.A.Holovanova

Protocol from August 26, 2024 № 1

## INFORMATION ABOUT LECTURERS, WHO TEACH THE EDUCATIONAL DISCIPLINE

Surname, name, patronymic of the lecturer	<i>Holovanova Irina Anatoliivna, MD, Professor, chief of department</i>
Lecturer`s profile	<a href="https://soc-med.pdmu.edu.ua/team">https://soc-med.pdmu.edu.ua/team</a>
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Surname, name, patronymic of the lecturer	<i>Khorosh Maksym Viktorovich, Ph.D., Associate Professor</i>
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Department page on UMSA website	<a href="https://soc-med.pdmu.edu.ua/">https://soc-med.pdmu.edu.ua/</a>

## BASIC CHARACTERISTICS OF EDUCATIONAL DISCIPLINE

The scope of the discipline

The study of the discipline is allocated 7 ECTS credits, 210 hours, including:

- **for module 1. Biostatistics** – 1 ECTS credits are allocated, 30 hours: lectures - 4 hours, practical classes - 12 hours, independent work - 14 hours;
- **for module 2. Public Health** – 3 ECTS credits, 90 hours: lectures - 8 hours; practical classes - 30 hours; independent work - 52 hours
- **for module 3. Organization and economics of health care** – 3 ECTS credits, 90 hours: practical classes - 40 hours, independent work - 50 hours.

### **The policy of the academic discipline**

Teaching at the Department of Social Medicine, Public Health, Organization and Economics of Health Care with medical and labor examination is determined by a system of requirements that the teacher imposes on the student when studying the discipline and is based on the principles of academic integrity.

Policy on adherence to the principles of academic integrity of higher education students:

- independent performance of educational tasks of current and final controls without the use of external sources of information (for example, except as permitted by the teacher, preparation of practical tasks during the lesson);
- write-offs during knowledge control are prohibited (including with the use of mobile devices);
- independent performance of individual tasks and correct registration of references to sources of information in case of borrowing of ideas, statements, information.

Policy on adherence to the principles and norms of ethics and deontology by higher education students:

- actions in professional and educational situations from the standpoint of academic integrity and professional ethics and deontology;
- compliance with the rules of the internal regulations of the department, to be tolerant, friendly and balanced in communication with graduate students and teachers, medical staff of health care institutions;

- awareness of the importance of examples of human behavior in accordance with the norms of academic integrity and medical ethics.

Attendance policy for higher education students:

- Attendance at all classes: lectures, practical, TMC is mandatory in order to adequately current and final assessment of knowledge.

Deadline policy and completion by higher education students:

- working off of missed classes takes place in accordance with the Regulations of electronic working off of missed classes and unsatisfactory grades by students, approved by the educational institution;

- works submitted by the applicant of higher education with violation of the term without valid reasons are evaluated at a lower grade (75% of the maximum, for example, thematic individual work);

- re-assessment of PMK in order to increase the assessment is not allowed, except in situations of non-compliance with the discipline program or non-attendance at the final control.

The process of teaching at the Department of Social Medicine, Public Health, Organization and Economics of Health Care with Medical and Labor Expertise is carried out in accordance with the norms of the current legislation of Ukraine and regulatory documents. When organizing the educational process, teachers and students act in accordance with:

Regulation on the organization of the educational process at Poltava State Medical University.

Regulation on the academic integrity of recipients of higher education and employees of Poltava State Medical University (<https://www.umsa.edu.ua/sections/naukovyi-viddil/materiali-dlya-zavantazhennya>)

Internal code of conduct for students of Poltava State Medical University.

Regulation on the organization and methods for assessment of educational activities of higher education recipients at Poltava State Medical University.

Regulation on the organization of self-directed work of students at Poltava State Medical University.

Regulation on retaking missed classes and making up unsatisfactory grades by the recipients of higher education at Poltava State Medical University.

Regulation on the procedure of forming the individual educational trajectories for the recipients of higher education at Poltava State Medical University.

Regulation on the procedure of credit transfer for academic disciplines and calculation of academic difference.

Regulation on the appeal claim for the results of final control of academic performance for recipients of higher education.

Regulation on rating the recipients of higher education at Poltava State Medical University.

Regulation on the financial incentives for academic success of students at Poltava State Medical University and others.

All the above documents can be found at <https://www.umsa.edu.ua/n-process/departament-npr>

### **Description of the discipline (abstract)**

*Social medicine* is a science that studies the state of health of the population and the factors that shape it, as well as substantiates the medical and social measures of the state, society and health care system in the direction of preserving, strengthening and restoring health. In turn, public health is the basis of preventive medicine, which aims to preserve the health of society as a whole and the individual health of the population, based on statistics and understanding of the cause-and-effect relationships between the disease and its consequences. .

**The subject of the discipline** is modern principles of evidence-based medicine, theoretical and methodological foundations of biostatistics, health statistics, patterns of public health, its preservation at both individual and public levels, the organization and economics of health care.

### **Prerequisites and postrequisites of an academic discipline**

**Pre-requisites.** The discipline is based on the study by students of the following disciplines: microbiology, virology and immunology; pathomorphology; pathophysiology; pharmacology; hygiene and ecology; propaedeutics of internal medicine, propaedeutics of pediatrics; general surgery.

**Post-requisites.** The knowledge, skills and abilities acquired after the completion of the study of this discipline are required for the study of such clinical disciplines as internal medicine, surgery, pediatrics, obstetrics and gynecology; training of reserve officers in the field of knowledge "Health Care".

Also, this knowledge, skills and abilities are necessary for future doctors to form a preventive direction of their activities of doctors, taking into account the possible impact on the health of the population of factors of different origins, risk assessment in developing comprehensive medical and social measures in cooperation with public health; for the organization of medical and diagnostic process, as well as assessment of its scope and quality; to study the legal and organizational principles of health care.

### **The aim and tasks of the academic discipline:**

***The aim of studying the academic discipline*** is to help for students to master of the necessary knowledge, skills and competencies in the study, analysis and evaluation of population health indicators; organization of resource for support and activities of the health care system; the development of evidence-based medicine recommendations for the prevention and elimination of the harmful effects of factors on health and the improvement of the organization of medical care for the population and the public health system.

#### ***the main tasks of studying the discipline "Social Medicine" are:***

- mastering of modern principles of evidence-based medicine;
- mastering of the methods of descriptive and analytical statistics;
- acquaintance with methods of definition and analysis of the basic biostatistical indicators and criteria;
- mastering the methodological and theoretical foundations of the formation of statistical aggregates for their further adequate analysis;
- mastering the methods of determining, analyzing and evaluating the main indicators of population health according to individual criteria and in relation to the factors that affect it;
- mastering the patterns and features of the formation of population health;
- mastering the principles of developing measures to preserve and strengthen the health of the population and its individual contingents;
- mastering the theoretical foundations and legal foundations of the health care system, its functions and strategic directions of development;
- mastering the principles, directions, tasks of the public health system;
- mastering the principles of health care organization and provision of medical services;
- mastering the basics of health economics.

**Competences and learning outcomes in accordance with the academic and professional program, the formation of which is facilitated by the discipline (integral, general, special)**

***General:***

- GC 1. Ability to abstract thinking, analysis and synthesis, ability to learn and master modern knowledge.
- GC 2. Ability to apply knowledge in practical situations.
- GC 3. Knowledge and understanding of the subject area and understanding of professional activity.
- GC 4. Ability to adapt and act in a new situation.
- GC 5. Ability to make informed decisions; work in a team; interpersonal skills.
- GC 6. Ability to communicate in English. Ability to use international Greco-Latin terms, abbreviations and clichés in professional oral and written speech.
- GC 7. Skills in the use of information and communication technologies.
- GC 8. Definiteness and perseverance in terms of tasks and responsibilities.
- GC 9. The ability to act socially responsibly and consciously.

***Special (professional, subject):***

- SC 1. Patient survey skills.
- SC 13. Ability to carry out sanitary and hygienic and preventive measures.
- SC 14. Ability to plan and carry out preventive and anti-epidemic measures against infectious diseases.
- SC 15. Ability to determine the tactics of management of persons subject to dispensary supervision.
- SC 16. Ability to conduct a health examination.
- SC 17. Ability to keep medical records.
- SC 18. Ability to conduct epidemiological and medico-statistical studies of public health; processing of state, social, economic and medical information;
- SC 19. Ability to assess the impact of the environment, socio-economic and biological determinants on the health of an individual, family, population.
- SC 20. Ability to analyze the activities of a physician, department, health care facility, take measures to ensure the quality of care and improve the efficiency of medical resources.
- SC 21. Ability to conduct activities for the organization and integration of medical care and marketing of medical services.

***Program learning outcomes, that promoting the formation of contributes to the discipline:***

- PLO 2. Collect data on patient complaints, life history (professional history in particular) in a health care facility and / or at the patient's home, according to a standard survey scheme.
- PLO 14. Implement a system of anti-epidemic and preventive measures, including primary prevention measures in the health care facility and beyond, based on data on the health of the population served, the presence of environmental impact, determinants health, using existing methods, within the primary health care. Organize secondary and tertiary prevention measures among the assigned contingent of the population, using a generalized procedure for assessing human health (screening, preventive medical examination, seeking medical care).
- PLO 15. Plan and implement preventive and anti-epidemic measures to prevent the spread of infectious diseases in a health care facility based on the results of epidemiological surveys of infectious diseases, epidemiological analysis, using existing preventive and anti-epidemic methods. Identify in the health care facility, using statistical and laboratory methods of risk group, risk areas, time of risk, risk factors and carry out epidemiological analysis of infectious diseases of the population. Diagnose infectious diseases in the early stages, carry out primary anti-epidemic measures in the center of infectious diseases.
- PLO 16. To determine the tactics of management of persons subject to dispensary supervision in a health care institution or at the patient's home on the basis of the obtained data on the patient's state of health, using standard schemes, using knowledge about the person, his organs and systems. ethical and legal norms, by making an informed decision.
- PLO 17. Conduct an examination of working capacity by determining the presence and degree of disability, type, degree and duration of disability with the issuance of relevant documents in a health care facility on the basis of data on the disease and its course, features of professional activity.
- PLO 18. Maintain medical records of the patient and the population on the basis of regulatory documents, using standard technology. Prepare reports on personal production activities, using official accounting documents in the standard form.

PLO 19. Conduct epidemiological and medical-statistical studies of public health; processing of state, social, economic and medical information under any circumstances using standard procedures, modern computer information technologies in particular.

PLO 20. Assess the impact of the environment, socio-economic and biological determinants on the health of the individual, family, population. Analyze the incidence of the population, identifying risk groups, risk areas, time and risk factors in the health care facility, using statistical and laboratory methods.

PLO 21. To analyze the activities of a doctor, department, health care institution, to identify defects in the activities and the reasons for their formation. Take measures to ensure the quality of medical care and improve the efficiency of medical resources.

PLO 22. Take measures to organize, integrate the provision of medical care to the population and conduct marketing of medical services.

PLO 23. Form goals and determine the structure of personal activities based on the results of the analysis of certain social and personal needs.

PLO 24. Adhere to a healthy lifestyle, use the techniques of self-regulation and self-control.

PLO 25. To be aware of and guided in their activities by civil rights, freedoms and responsibilities, to constantly improve their professional and cultural levels.

PLO 26. Adhere to the requirements of ethics, bioethics and deontology in their professional activities.

*Results of studying of disciplines:*

Upon completion of the study of the discipline, students must:

**To know:**

- Methods of epidemiological (descriptive, analytical) and medical and statistical research.
- The origin of evidence in the application of evidence-based medicine in practice.
- Statistical values and expediency of their use in different situations.
- Requirements for diagnostic tests that can be used for screening tests.
- Risk indicators and methods of their calculation.
- Indicators of public health and factors that determine it.
- Socio-economic and biological determinants that affect public health.
- Medical and social problems of preserving the health of the population.
- The main indicators that characterize the activities of the main types of institutions and departments of health care.
- The main medical and organizational factors that affect the activities of the doctor of the unit, health care institution.
- Principles and methods of promoting a healthy lifestyle. Principles of prevention.
- Advocacy company's principles for promoting public health.
- Standard procedures, including modern computer information technology, for the processing of medical information.
- Official document management systems in the professional work of a doctor, including modern computer information technology.
- Methods and ways of disseminating information to promote public health.
- Sources of medical and social information.
- Fundamentals of health care in the country.
- Indicators of the quality of medical care.
- Procedure for providing primary, secondary, tertiary, emergency, hospice medical care and rehabilitation.
- Types of disability of the population.
- Methods of organizing the examination of temporary and permanent disability.
- The main economic categories.

- Fundamentals of medical services marketing.
- Basics of pricing of medical services.
- Methods for determining the medical, social and economic efficiency of health care facilities.
- Types of management. Methods of making managerial decisions.

**To be able:**

- Know the standard methods of descriptive, analytical epidemiological and medical-statistical research.
- Be able to calculate and evaluate indicators of individual and population health, in the dynamics and in comparison with the average static data.
- Be able to determine the source of the required information; ability to conduct statistical processing of material and analysis of the received information.
- Be able to assess the relationship and impact of socio-economic and biological factors on the health of the individual, family, health population.
- Be able to organize their own work and work in a team with junior staff or in an interdisciplinary team; determine the rational medical route of the patient.
- Be able to organize the promotion of a healthy lifestyle, primary prevention of diseases and injuries among the population.
- Be able to process information, analyze data, draw conclusions.
- Be able to organize measures to improve public awareness on a particular issue.
- Be able to determine the patient's route.
- Be able to conduct an examination of temporary disability
- Be able to draw up medical records.
- Be able to assess the quality of medical care
- Be able to conduct an examination of temporary disability
- Be able to analyze the healthcare market.
- Be able to calculate the price of medical services.
- Be able to make management decisions in the field of health care for public health.

**Thematic plan of lectures**  
**indicating the main issues, which are considered at the lecture**

№	Topic title	Number of hours
	<b>Module 1. Biostatistics</b>	
1	<i>Methodical bases of the organization of statistical researches. Data types. Methods of collecting statistical material.</i> Descriptive and analytical statistics. The purpose and objectives of statistical research. Data types: quantitative, qualitative, categorical. General and sample population. Methods of statistical research: current (longitudinal), simultaneous (transverse), continuous, non-continuous, monographic, main array, selective. Representativeness of the sample: qualitative and quantitative. Methods of selection of observation units: random, mechanical selection, nesting, directional selection. Methods of accounting and information collection: registration, documentation, copying, surveys.	2
2	<i>Epidemiological studies in health care, their classification. Empirical and experimental studies.</i> Research design: epidemiological, experimental, clinical, quasi-experimental. The modern concept of epidemiology. Classification of epidemiological studies. Comparative characteristics of different types of research, assessment of the degree of evidence of their results. Retrospective	2

	and prospective studies. Empirical research (descriptive and analytical). Descriptive epidemiology: a description of a single case and a series of cases. Analytical epidemiological studies. Cohort studies and case-control studies. Research ethics. Types of control. Blindness study. The required sample size. Selection of object and units of research. Inclusion and exclusion criteria. The concept of randomization and stratification.	
	<b>Total for module 1</b>	<b>4</b>
	<b>Module 2. Public Health</b>	
1	<i>Public health, features and services. Population health: key determinants.</i> Principles of the public health system. Tasks and operational functions of the public health system. Public health actors. Public policy and regulation of the public health system. Economic action plan to promote public health. Global advances in public health. Public health indicators. Population health as an economic category. Determinants of health. Population health indicators and factors that determine it. Risk factors.	2
2	<i>Medical and social problems of demographic processes.</i> Demography as a science. Sources. Population statics: population, analysis of population by age, sex, place of residence. "Age Pyramid". Types of population: regressive, progressive, stationary. Population aging. Analysis of indicators of coolant and demographic load. Indicators of natural population movement: birth rate, mortality, natural population movement. Indicators of mechanical movement of the population. Fertility, indicators and factors influencing fertility. Methods of studying the birth rate. Methods for determining and estimating general and special fertility rates. The order of birth registration in Ukraine. Current trends and regional features of birth rate in Ukraine and the world. Total mortality, its leading causes in different regions, individual countries and in Ukraine, gender, age and territorial features. Procedure for registration of deaths in Ukraine. The structure of causes of death. Methods of studying mortality, determination of general and special indicators, their significance and evaluation. Natural population growth. Average life expectancy, definition. Population aging. The scale of demographic aging of J. Bozio-Garnier-E. Rosetta. Urbanization of the population as a socio-economic problem.	2
3	<i>The incidence of the population as a medical and social problem.</i> Analysis of the state of health of the population according to morbidity indicators. Methods of studying morbidity indicators: by treatment, by preventive examinations, by causes of death, by specially organized research. Advantages and disadvantages of each method. Sources of information on the study of population morbidity and risk factors. Prevalence and morbidity rates. Set of indicators DALE, QALE. Indicators of infectious and non-infectious morbidity, indicators of hospital morbidity, indicators of morbidity with temporary disability. Disability as an indicator of public health. The global burden of disease. STEPS methodology studies the prevalence of risk factors among the population. International Statistical Classification of Diseases and Related Health Problems (ICD).	2
4	<i>Prevention and intersectoral collaboration in the public health system.</i> Prevention in the public health system: population, group, individual. Partner organizations: governmental and non-governmental. Definitions of "health promotion", "healthy lifestyle", "prevention". Components of the concept of "lifestyle" that affect the health of the population. Health-related behavior. Behavioral risk factors. Correction of behavioral risk factors among the population. Levels of influencing factors. Questionnaire as a method of researching risk factors. WHO concept of strategic communication in the interests of effective information transfer.	2



	<b>Total for Module 2</b>	<b>8</b>
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**Thematic plan of practical lessons  
on modules and substantive modules indicating the main issues,  
which are considered at the practical lessons**

№	Topic title	Number of hours
<b>Module 1. Biostatistics</b>		
<i>Content module 1. Methodical bases of the organization of statistical researches.</i>		
1	<p><i>Biostatistics as a methodological basis for the analysis and assessment of public health and health protection systems. Organization and planning of statistical studies.</i></p> <p>Social medicine and public health as a science. Methods of social medicine. Definitions of "medical statistics", "biostatistics", "evidence-based medicine", "clinical epidemiology". The purpose of statistical methods in medicine. Planning a statistical study depending on the hypothesis. Scientific hypotheses.</p>	2
2	<p><i>Design of epidemiological studies: case-control, cohort, randomized clinical trials.</i></p> <p>The structure of the epidemiological method: descriptive (descriptive), analytical, experiment, forecasting. Design of epidemiological studies: case-control, cohort. Randomized and non-randomized trials. Factors influencing the sample size. Choice of sampling method. Deterministic and probabilistic samples. Repeated and unique sampling. Retrospective and prospective studies. Cross-sectional (cross-sectional) studies. Longitudinal (longitudinal) studies.</p>	2
3	<p><i>Relative values. Variation series. Average values.</i></p> <p>The concept of statistical indicators, their types, form of presentation. Absolute data, relative values, their practical significance in medicine and health care. Types of relative values (intensive, special indicators of intensity, extensive, relative intensity, ratio, clarity), methods of their calculation and methodological bases of application for data analysis. application of relative values. Descriptive statistics. Average values in clinical and epidemiological studies, their practical significance. Elements and characteristics of variation series. Average values: their types, calculation methods, features of use. The concept of variation, its meaning. Assessment of the normality of the distribution, "jumping" options. Variability of population parameters, estimation methods. Absolute indicators of variation (amplitude, standard deviation) and relative indicators of variation (coefficients of variation and determination), their estimation. Measures of variation, the concept of distribution laws, their types, characteristics. The rule of "three sigma", its practical use.</p>	2
4	<p><i>Parametric and Nonparametric methods for estimating probability.</i></p> <p>Probability of research results. Test of statistical hypotheses. The null hypothesis. The basis for the choice of methods of parametric statistics. Normal distribution. Student's criterion for dependent and independent populations. Method of calculation, evaluation of the indicator. Features of use on small samples. Student's table. Confidence interval. ANOVA analysis of variance. Dependence of response on the level of the factor. Comparison of relative values: Chi-square. The basis for choosing methods of nonparametric statistics. Difference criteria for independent samples;</p>	2

	distinction criteria for dependent samples; assessment of the degree of dependence between variables. Dependent and independent sets. Criterion of signs. Mann-Whitney test. The Kruskal-Wallis method, the Wilcoxon pair test, the Kolmogorov-Smirnov test, the Fisher test, and the McNamara test.	
5	<i>Correlation and regression analysis.</i> Dependence between signs: functional, correlation. Strength and direction of communication. Pair correlation coefficients. Multiple correlation coefficient. Purpose and method of calculation of Pearson's linear correlation coefficient, its estimation. Purpose and method of calculating Spearman's rank correlation coefficient. Kendall correlation coefficient. Regression analysis. Regression coefficients. Regression equation.	2
6	<i>Graphical analysis methods.</i> Graphic methods of data analysis. Types of diagrams (linear, bar, intra-bar, sector, radial, cartograms and card diagrams), the rules of their construction. Graphic representation in descriptive statistics: histograms, scale diagram (box or "box with a mustache"). Modern methods of graphic representation: infographics, dashboard, animation of diagrams, interactive diagrams.	2
	<b>Total hours per module 1</b>	<b>12</b>
<b>Module 2. Public Health</b>		
<i>Content module 1. Public health, functions and services. Population health.</i>		
1.	<i>Public health, features and services.</i> Principles of the public health system. Tasks and operational functions of the public health system. Public health actors. Public policy and regulation of the public health system. Functions and services. Economic action plan to promote public health. Global advances in public health. Public health indicators.	2
2.	<i>Public health. Assessment of the state of health and well-being of the population. The methodology of the study and assessment of factors that affect the health of the population.</i> Targeted approaches to the definition of "health": general philosophical, individual theoretical, individual practical, population. Population health as a conditional statistical concept. Indicators of mental well-being. Indicators of social well-being. Quality of life. Population health indicators: demographic (birth rate, mortality, life expectancy); physical development; morbidity; disability. Classification of risk factors that affect health. Leading groups of factors that affect the health of the population: the level and way of life of people, the state of the environment, biological factors, availability and quality of medical care. Determinants of health. Public health strategies for maintaining good health. Methods of studying and assessing the factors that affect the health of the population. World practice for maintaining public health. Methodology of population health analysis and assessment.	2
<i>Content module 2. Population health statistics</i>		
3.	<i>The methodology of studying and evaluating the basic demographic indicators of the natural movement of the population. Analysis of the demographic situation.</i> Demography as a science. Statistics and population dynamics. Population size and structure. Fertility, indicators and factors influencing fertility. Methods of studying the birth rate. Methods for determining and estimating general and special fertility rates. The order of birth registration in Ukraine. Current trends and regional features of birth rate in Ukraine and the world. Total mortality, its leading causes in different regions, individual countries and in Ukraine, gender, age and territorial features. Procedure for registration of deaths in Ukraine. The structure of causes of death. Methods of studying mortality, determination of general and special	2

	indicators, their significance and evaluation. Natural population growth. Analysis of the demographic situation in Ukraine: Types of population; average life expectancy; Population aging. Demographic aging scale. Demographic load. Sources of information on the study of the demographic situation in the country.	
4.	<p><i>The methodology of the study and evaluation of infant mortality rates. Maternal mortality.</i></p> <p>Infant mortality (infant mortality). The value of the indicator for assessing the health of the population, the level of socio-economic well-being and development of society. Leading causes of infant mortality. Methods for determining the indicator, its dynamics in different regions of the world, individual countries and in Ukraine. The essence of the concepts of "live birth", "stillbirth", "fetal death". Calculation methods: by WHO, Rats. Procedure for registration of infant (infant) mortality. Methods for determining the indicators of general, neonatal, early neonatal, late neonatal, postneonatal infant mortality. Estimation of the ratio of infant mortality and neonatal mortality. Perinatal mortality. Leading causes of infant mortality at different ages of the first year of life. The main groups of factors influencing the formation of infant mortality rates (biological, environmental, medical and organizational, lifestyle).</p>	2
5.	<p><i>The methodology of the study and evaluation of indicators of general morbidity.</i></p> <p>The concept of "population morbidity", its place in the complex of medical indicators of population health. Methods of studying morbidity: on requests for medical care; method according to medical examinations, according to the causes of death, according to special sample studies; population surveys. Advantages and disadvantages of each method. Morbidity rates in Ukraine and the world. Morbidity by special types of accounting: general, primary, hospital. Indicators of pathological lesions. Units of morbidity study. Sources of information on the study of morbidity: accounting and reporting medical documentation. Ecology of diseases. Spatial analysis of morbidity. Medical geography, biomedical model of health. Geography of health, socio-ecological model of health. Incidence and prevalence.</p>	2
6.	<p><i>The methodology of the study and evaluation of indicators of non-infectious morbidity of the most important socially significant diseases.</i></p> <p>Medico-social significance of NCD study. Analysis of the prevalence of cardiovascular diseases and their structure in Ukraine and the world. Analysis of the prevalence of cancer and its structure in Ukraine and the world. Analysis of the prevalence of diabetes. Analysis of the prevalence of mental illness in Ukraine and the world. Strategies to reduce the frequency of NCDs. Functions of public health centers and health care systems in noncommunicable disease prevention strategies. Components of lifestyle (level, quality, style, structure), their impact on the spread of socially significant infectious diseases. Acculturation, deculturation of society, their impact on the spread of socially significant infectious diseases.</p>	2
7.	<p><i>The methodology of studying and evaluating the indicators of infectious morbidity by the most important socially significant diseases.</i></p> <p>Epidemiological aspects of socially significant infections. Vaccine-controlled infections. National vaccination calendar. Study of seasonal fluctuations of infectious diseases. Quarantine diseases. Medical and social significance of studying the prevalence of tuberculosis in Ukraine and ways to prevent it. Medico-social significance of studying the prevalence of HIV infection. Medico-social significance of studying the prevalence of viral hepatitis. Drug addiction as a driving force of the epidemic of socially significant infectious</p>	2

	diseases. Priority issues for public health centers in relation to certain infectious diseases.	
8.	<i>Medical and social aspects of morbidity with temporary and permanent disability. Calculation methodology and analysis of indicators.</i> Efficiency. Types of disability: temporary (full, partial) and permanent (reverse and permanent). Causes of disability. Indicators of morbidity with temporary disability: number of days, number of cases, average duration of one case, structure of cases. Medico-social significance of morbidity with temporary disability. Occupational diseases in the structure of morbidity with temporary disability, connection with working conditions, their prevention. Groups of frequent and long-term patients in enterprises. Invalidity. Types of disability. Indicators of disability. Disability of the population. The structure of the causes of disability. The structure of the contingents of the disabled. International classification of functioning, limitations of vital activity and health. International classification of functioning, limitations of life and health of children and adolescents.	2
9.	<i>Methodological basis for the study of the burden of disease. The implications of the results for the public health system.</i> Leading health risk factors for developing countries and economically developed countries. The structure of risk factors that make up the "global burden of disease". STEPS methodology studies the prevalence of risk factors among the population. Nutritional risks. Risks associated with drinking water. Methodology for calculating the global burden of disease. Methodology for calculating the DALE indicator. Lost years of life. Global trends in the leading causes of death of women and men.	2
<i>Content module 3. Prevention and preservation of public health</i>		
10.	<i>Prevention Health promotion. Types, forms and methods.</i> Primary, secondary and tertiary prevention. Health promotion as a preventive activity of the health care system. International health care prevention programs. Prevention of socially dangerous infectious diseases. Prevention of socially significant non-communicable diseases. Targeted prevention programs to combat socially significant diseases: coronary heart disease, hypertension, diabetes, tuberculosis, malignant neoplasms. Screening programs for early detection of diseases. Public health actions and services to promote the health of the whole population or for groups at increased risk of adverse health effects. The role of intersectoral cooperation in improving the efficiency and effectiveness of preventive measures. Methods and means of medical and hygienic training and education of the population, their features in different health care institutions. Defining target audiences.	2
11.	<i>Outreach activities (advocacy) as part of medical prevention.</i> Three principles of health promotion: literacy of the population; safe living environment; priority of public health in all policies. Social lobbying, or advocacy. Advocacy targets. Advocacy company plan. Information campaigns. Tasks and content of the work of public health centers, their structural units, interaction with other health care institutions. Development of preventive strategies to protect and promote health, reduce the negative impact of determinants of public health. Prevention programs and strategies for disease prevention. The role of WHO in shaping public health policy.	2
12.	<i>Communication and social mobilization for health. Press releases and media relations.</i> Types of communication: Interpersonal, group, mass. The importance of communication in maintaining and promoting health. Forms of communication. Communication channels: verbal and nonverbal. Methodology for preparing and conducting communications within the	2

	public health system. The importance of public relations and the media. Problems and possible errors of communication measures. A public health press release is an important form of communicating medical information to the general public: rules of compilation and use. The role of public organizations and public figures in the public health system.	
13.	<i>Informatization of public health. Medical information systems in the world and in Ukraine.</i> Information technology in the global health system. WHO ERB Database Family "Health for All" (WHO). European Environment and Health Information System (ENHIS). Medical information systems: storage of information, fast access to information, exchange of information, statistical analysis of consolidated data, reduction of staff time and reduction of errors. Terminological standards and rubricators. Comprehensive automation of medical institutions. Electronic document management. Electronic patient card.	2
14.	Practical skills control	2
15.	Final modular control.	2
	<b>Total hours per module 2</b>	<b>30</b>
<b>Module 3. Organization and economics of health care.</b>		
<i>Content module 1. Organization of health care.</i>		
1.	<i>Organization of Health care system in Ukraine.</i> Health care system and its basic principles. Principles for the development of national health systems in accordance with WHO recommendations. The place of the public health system in the health care system. Global models of health care organization and financing. Market model of health care organization. Social model of health care. Public-private health care model. Classification of health care facilities by areas of activity. Executive bodies that implement state policy in the areas of sanitary and epidemiological well-being of the population, quality control and safety of medicines, combating HIV / AIDS and other socially dangerous diseases. Classification of health care facilities by organizational and legal forms of activity. Qualification characteristics of health care professions.	4
2.	<i>Assessment of the state of health of the population based on a complex of statistical indicators.</i> Organization of epidemiological surveillance of the health of the population. Descriptive and analytical epidemiology. Application of statistical methods to determine and assess the health of the population in relation to the factors that determine it (absolute, relative and average values, standardization method, correlation and regression analysis, parametric and non-parametric assessment of the reliability of research results.	4
3.	<i>Assessment of the health status of the population and the activities of medical institutions.</i> Population health indicators: Demographic, morbidity, disability. Integrated indicators of health system assessment: infant and maternal mortality. Methods of studying the incidence of the population. Modern coding systems: International Statistical Classification of Diseases and Related Health Problems (Tenth Revision, Australian Modification). Invalidity. Disability. Identify the main types of accounting and reporting documentation used in health care facilities. Electronic medical records. E-health system. Electronic registers. Indicators of the quality of medical care to the population: indicators of defects; performance indicators. Assessment of the DALY indicator (Disability-adjusted life year).	4
4.	<i>Organization of provision of primary medical care to the population.</i>	2

	Organization of the work of the main institutions of providing primary care to the population of the city: family doctor's outpatient clinics, Determining the possibilities of integration of cooperation of basic institutions in providing primary care to certain groups: the elderly, people with mental disorders, HIV / AIDS, etc. Interaction of PMC institutions with Public Health Centers. Depending on the specific situation, determining the role of day hospitals. Analysis of the peculiarities of providing PMC to the rural population: rural outpatient clinic, medical and obstetric point. Assessment of the organization of PHC structures for the provision of medical care to children. Features of providing PMC to children in rural areas. According to specific situations, definition and analysis of the main indicators of activity: primary health care facilities, secondary (specialized) and tertiary (highly specialized) treatment and prevention care. Directions of preventive work of the PMC doctor.	
5.	<i>Organization of provision of specialized medical care to the population.</i> Goals and objectives of medical institutions that provide specialized and highly specialized medical care. Structures of hospitals that provide specialized and highly specialized medical care to residents of the city and village, children and adults. Analysis of tasks, structure and activity of dispensaries (anti-tuberculosis, dermato-venereological, psychoneurological, endocrinological, medical-physical training). The procedure for referring patients to institutions that provide SMC and TMC. Development of new organizational forms of medical care for certain groups of the population - HIV-infected, tuberculosis patients, the elderly, the elderly, etc. According to specific situations, definition and analysis of the main indicators of activity: institutions of secondary (specialized) and tertiary (highly specialized) treatment and prevention care.	2
6.	<i>Organization of medical and social examination of temporary and permanent disability.</i> Efficiency. Types of disability: temporary and permanent. General provisions of the organization of examination of temporary disability for work (ETD). Tasks for the organization of ETD at different levels: the attending physician, the head of the profile department, the medical advisory commission (MAC), the deputy chief physician with ETD and the responsible person of the health authority with ETD. Use of algorithm of actions of the doctor at carrying out examination of temporary working capacity. Documents certifying temporary disability. The procedure for filling out documents certifying temporary disability. Determining the sources and / or location of information used in the examination of temporary and permanent disability. Organization of work of the medical and social expert commission (MSEC): types, tasks, functions, medical documentation.	4
<i>Content module 2. Economics of health care.</i>		
7.	<i>Health care as a sector of the economy.</i> Economic categories: macroeconomics and its indicators; microeconomics and its indicators; global economy. Gross domestic product (GDP) of the country. Budget, the mechanism of its formation in Ukraine. Objects of health economics. Health system resources. Sources of health care funding. Budget managers. Basic financial models of health care systems. Packages of medical services. Tariffs for medical services. Methods of financial planning of medical institutions.	4
8.	<i>Health care market. Organization of marketing activities of medical institutions. Entrepreneurship in health care.</i> Regularities of formation, functioning and features of the healthcare market. Health services market conditions: demand, supply, price, competition.	4

	Medical services and their properties: mono-service; comprehensive service. Competition, types of competitive structures. The essence, principles, functions, tasks and purpose of marketing. The process of marketing research. Analysis of the possibilities of the medical services market. Strategy and tactics of marketing activities. Means of disseminating information and evaluating the effectiveness of advertising. Marketing control.	
9.	<i>Methods of pricing and price regulation in the health care system. Remuneration of medical service providers.</i> Price as an economic category. Types of prices in the field of health care. Features of price formation and regulation in the health care system. Expenditures of health care institutions: production and non-production. Pricing methods. Pricing on the principle of diagnostic-related groups. Development of a pricing strategy in order to implement economic tasks in medical institutions, enterprises. Wages as a component of the price of medical services. Salary fund of the health care institution. Staff list. The essence, types and requirements for payment systems of health care providers. Comparative characteristics of methods of payment for primary, secondary and tertiary care. Methods of calculating salaries for medical workers. Deductions from wages and salaries: personal income tax and the single social contribution.	4
10.	<i>Health care management.</i> History of management. Schools of management and their features in modern health management. Management as a function of management. The content and importance of financial management in health care. Health resources as an object of management. Facilities and subjects of management in health care. Stages of the management process. Information flows: internal and external. Methodology and stages of management decision making. Methods of modeling management decisions. Modeling a management decision using a decision tree. Control and types of control: preliminary, current, final. Tasks and objectives of control. Types of management: linear, staff, functional, matrix. Management of information support in the field of health care. External and internal information.	4
11.	<i>Organization of quality control of medical care in health care facilities.</i> Components of the quality of medical care (WHO). Industry standards in the field of health care: standard, clinical protocol, report card of material and technical equipment, medical form. Mechanisms for ensuring the quality of medical care in the health care system: licensing, accreditation, standardization, certification. Quality control system of medical care in Ukraine. Organization of quality control of medical care in health care facilities. Information base of criteria and indicators of quality of medical care. Quality control of medical care: external and internal. The role of the National Health Service of Ukraine in ensuring the quality of medical care. Quality self-control.	2
12.	Final Modul Control.	2
	<b>Total hours per module 1</b>	40

### Self-directed work

№	Title of topics	Number of hours
<b>Module 1. Biostatistic</b>		

	<i>Preparation for practical classes - theoretical training and development of practical skills</i>	19
	<i>Elaboration of topics that are not included in the classroom plan (list)</i>	18
1	<i>Estimation of reliability of research results. Characteristics and analysis of statistical errors.</i> Probability theory. Mathematical expectations. Survival rates.	2
2	<i>Screening tests: characteristics and basic requirements. The concept of risk factors.</i> Determination of risk indicators in the case-control study. Assessment of risk factors. The purpose of application of methods of risk assessment and assessment of chances, formation of conclusions.	2
3	<i>Information support of epidemiological and clinical research. Systematic reviews and meta-analysis.</i> Systematic reviews and their characteristics. Practical application of the meta-analysis method. History of development of Cochrane cooperation. Sources of information on systematic reviews. Application of the model.	2
4	<i>Medical statistics, role in the analysis of public health and the health care system. Electronic document management.</i> Medical Information Systems (MIS). Electronic document management: electronic medical records, electronic registers.	2
5	<i>Public health databases. Organizing and conducting statistical surveys in public health.</i> Databases, registers. National Cancer Registry of Ukraine. Information portals. Questionnaires and questionnaires to determine quality of life, lifestyle, risk factors, prevalence of diseases among the population.	2
6	<i>The use of knowledge of biostatistics in the daily practice of the doctor.</i> The place and role of biostatistics in medical education and the work of a practitioner. Application of the principles of evidence-based medicine. Search for evidence in the doctor's practice. Sources.	2
7	<i>Software of statistical researches and the order of presentation of scientific works.</i> Overview of the main packages of statistical data processing (Excel, Statistica, R, SPSS, SAS, online calculators): advantages, disadvantages, access, problems of mastering	2
	Preparation for the final modular control.	5
	<b>Total hours per module 1</b>	<b>42</b>
<b>Module 2. Public health</b>		
	<i>Preparation for practical classes - theoretical training and development of practical skills</i>	20
	<i>Elaboration of topics that are not included in the classroom plan (list)</i>	19
1	<i>Theory of health and health care</i> Approaches to understanding the essence of human health and related concepts. Health as an object of scientific knowledge. Health culture as a component of universal culture. Personal responsibility for one's health as a strategic principle of health practice. Health-related behavior. World practice of promoting public health. European Health Policy and Strategy for Health 2020. Shanghai Declaration on Health Promotion under the 2030 Agenda for Sustainable Development.	2
2	<i>Surveillance and assessment of the health and well-being of the population.</i> Epidemiological surveillance and public health information fund. Areas of epidemiological surveillance: births and deaths; Infectious diseases; non-communicable diseases; social and mental health; maternal and child health, reproductive health; the impact of the environment on public health;	1



	occupational diseases and labor protection; injuries and violence; infections transmitted during medical care; antimicrobial resistance; immunoprophylaxis. Sanitary and epidemiological well-being of the population.	
3	<i>Medical and social problems of demographic processes</i> History of the census. Factors influencing the birth rate in the country. Factors influencing the mortality rate in the country. Ranking of countries by birth rate, mortality, life expectancy. Indicators of mechanical movement of the population, migration processes in the country and their role in the organization of health care. Life expectancy, the relationship with the human development index. Trends in the dynamics of average life expectancy in some regions of the world, countries and Ukraine.	2
4	<i>Providing of strategic leadership for health and well-being.</i> Strategic leadership: definitions, key provisions. Types of strategic leadership for 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. Strategic information. WHO documents on promoting public health.	1
5	<i>Application of sociological methods in the public health system.</i> The main methods of the survey: interviews and questionnaires. Public health research planning: purpose and objectives of the research, research design, inclusion and exclusion criteria in the organization of the research. Questionnaires: closed and open questions. Survey as a type of intervention. Types of documents: statistical, verbal, official and unofficial. Focus group: the purpose of the survey.	1
6	<i>Methodology for analyzing the causes of social inequality in health and its protection and ways to overcome them.</i> Injustice and inequality in health. Forms of health inequalities: socio-economic inequalities; territorial inequality; gender inequality; information inequality regarding health appears with the development of e-health; ethnic inequality. Social gradient. The driving forces of injustice to health. Public policy to overcome inequalities in public health. Social gradient. Stigmatization.	1
7	<i>Public health emergencies. Bioterrorism.</i> Public health as a factor of national security. Sanitary and epidemiological well-being of the population. Outbreak. Epidemics. Military conflicts. Bioterrorism. Dangerous biological factors, their categories, features. Humanitarian crises. Stress and conflict. Mechanisms to protect people from stress.	2
8	<i>Visualization and effective presentation of health data. Dissemination and use of results.</i> The concept of information visualization, its types. Cognitive visualization. Imaging techniques: histograms, charts, cartograms, map diagrams, tables. Infographics. Dashboards. Visual data distribution channels.	2
	Performing of practical skills	6
	Preparation for the final modular control.	5
	<b>Total hours per module 2</b>	<b>52</b>
<b>Module 3. Organization and economics of health care.</b>		
	<i>Preparation for practical classes - theoretical training and development of practical skills</i>	26
	<i>Elaboration of topics that are not included in the classroom plan (list)</i>	24
1.	<i>Regulatory and legal support of health care facilities.</i> Sources of law: the Constitution of Ukraine, codified laws, laws of Ukraine, Resolutions of the Cabinet of Ministers, Orders of the Ministry of Health, letters, orders, etc. The main provisions of the Law "Fundamentals of the	4

	legislation on health care of Ukraine". The main provisions of the Law "On state financial guarantees of medical care". The main provisions of the Civil Code of Ukraine as the main source of medical law. The main provisions of the Labor Code. Application of the handbook of qualification characteristics Volume 78. Health care. Order of the Ministry of Health "Some issues of continuous professional development of doctors. The role of the World Health Organization (WHO) in the implementation of the rule of law and the elimination of all types of health inequalities.	
2.	<i>Organization of medical care to the population by levels and degrees of complexity.</i> Types of medical care: Primary (PMC), secondary (SMC), tertiary (TMC), palliative; provision of medical care with the use of telemedicine; providing medical care in urgent and extreme situations. Choice of doctor and health care institution. The procedure for providing medical care by doctors and other medical staff and the procedure for referring patients to a health care institution that provides appropriate medical care. Organization of emergency medical care (EMC), its institutions. Organization of obstetric and gynecological care for urban and rural populations. Maternity hospital, its functions, structure. Women's consultation, structure. Functions, performance indicators. The role of women's counseling in antenatal care of the fetus. Organization of medical and preventive care for children, the main types of institutions.	4
3.	<i>Medical examinations.</i> Types of medical examinations: Medical and social examination of disability and permanent limitations of life; Military medical examination; Forensic and forensic psychiatric examinations; Pathological autopsies; Alternative medical expertise. The procedure for referral to various types of medical examination.	2
4.	<i>Methods for determining the medical, social and economic efficiency of health care facilities.</i> Indicators and criteria of medical efficiency of health care facilities. Social efficiency, its criteria. Determining and analyzing the economic efficiency of health care facilities: Study of economic losses in temporary disability caused by morbidity and injuries. Economic effect: direct and indirect. Economic efficiency. Direct costs and indirect losses related to morbidity and disability. The purpose of pharmacoeconomic analysis. The Donabedian Triad: resource assessment; assessment of health care system technologies; assessment of consequences (results). Cost minimization analysis. Cost-effectiveness analysis. Cost-benefit analysis. Analysis of the total cost of the disease. Analysis of the effectiveness of the public health system.	4
5.	<i>Methods of financial analysis of economic activity of a medical enterprise.</i> The essence of financial analysis in health care. Analysis of the financial condition of the medical enterprise. Determining the main indicators of the effectiveness of financial activities of medical production enterprises in order to make management decisions.	2
6.	<i>Organization of health insurance as a mechanism of protection against financial and social risks.</i> Types of social insurance. Content and types of health insurance and features of their organization. The economic essence of health insurance. Economic analysis of health insurance systems in some developed countries. The place and role of general practitioners in the health insurance system. Organization of quality control of medical services in terms of insurance medicine. Financial reliability of the insurer. Insurance reserves. Methods of determining the insurance rate. Methods for determining the insurance rate for voluntary health insurance.	4
	Preparation for the final modular control.	4

	<b>Total hours per module 3</b>	<b>50</b>
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### **Individual tasks:**

**Module 1.** For each topic of practical training and for the topic of independent work provides for the implementation of an individual situational task for the calculation of statistical values, the choice of methods of statistical analysis and their interpretation, drawing up a plan of statistical research.

**Module 2.** For each topic of practical training and for the topic of independent work it is provided to perform an individual situational task based on population health indicators (birth rate, mortality, natural population growth, morbidity and disability) and interpretation of the obtained data; drawing up a plan and program of an advocacy company, drawing up a plan of lectures, interviews, drawing up questionnaires to study the health of the population and its well-being.

### **Module 3.**

- calculation and assessment of indicators that characterize the health of the population;
- calculation and evaluation of indicators that characterize the performance of health care institutions;
- examination of temporary incapacity for work at different levels of the organization of medical care;
- filling in accounting and reporting documentation, analysis of reporting forms of medical institutions
- drawing up a business plan for a health care institution.
- modeling of management decisions.

### **The list of theoretical issues for preparing students for final module control and semester final certification:**

#### **The list of theoretical issues for final module control № 1 «Biostatistics»**

1. Social medicine and public health as a science: Tasks and methods.
2. Evidence-based medicine. History of development. Hierarchy of evidence of clinical trials.
3. Organization of Cochrane cooperation.
4. The subject and objectives of medical statistics. Descriptive and analytical statistics.
5. Biostatistics as a science.
6. Design of clinical and epidemiological studies.
7. The concept of the null hypothesis in statistics.
8. Testing of the statistical hypothesis. Errors of the first and second type.
9. Empirical and experimental epidemiological studies. The "gold standard" of research.
10. Case-control study, cohort study.
11. Theory and concept of statistical observation, stages of its implementation.
12. Sources of statistical information.
13. Data types. The concept of measurement scales.
14. Statistical tables, their characteristics, types, rules of construction.
15. Selective observation as a source of statistical information.
16. Types of statistical observation according to time and completeness of accounting.
17. Methods of collecting statistical material.
18. Types of statistical values.
19. Relative values, types and purpose of application.
20. Graphic methods of data analysis. Types of diagrams, rules for their construction.
21. Average values in clinical and epidemiological studies, their types, practical significance, calculation methods.
22. The concept of variation, its meaning.

23. Types of distribution.
24. Variability of population parameters, estimation methods.
25. The rule of three sigma.
26. Evaluation of the probability of research results.
27. Parametric criterion for assessing the probability of the Student.
28. Confidence limits, the actual value of the indicator within the general population
29. Substantiation of cases of using nonparametric methods of probability assessment. The concept of connected and independent sets.
30. Nonparametric methods for estimating the probability of difference in results.
31. Methods of application of the Criterion of signs
32. Methods of application of the method of Kolmogorov-Smirnov
33. Methods of application of the Chi-square criterion
34. Methods of applying of the Mann-Whitney test.
35. Methods of applying of the method of Kruskal-Wallis,
36. Methods of application of the paired Wilcoxon test.
37. Methods of application of ANOVA
38. Functional and correlation connection. Types of correlation coefficients and their analysis.
39. Regression analysis, regression coefficient, regression equation.
40. ROC-curve: choice of method, interpretation of results.
41. Methods of standardization, stages of the direct method of standardization.
42. Basic rules of construction and analysis of time series. Methods of time series alignment, the concept of extrapolation and interpolation.
43. The concept of risk in epidemiological studies.
44. The main risk factors affecting health.
45. Risk indicators, calculation and evaluation methods.
46. Odds ratio, calculation and evaluation methods.
47. Screening. The main characteristics of screening tests.
48. Specificity and sensitivity of the screening test.
49. Requirements for the formation of "clinical issue".
50. The concept of systematic reviews and meta-analysis.
51. Organization of the service of medical statistics in Ukraine.
52. Electronic databases.
53. Electronic document management.
54. Tasks of the information-analytical department of the health care institution.
55. The concept of accounting and reporting documentation.
56. Types of scientific works.
57. The order of presentation of scientific works: registration, publication, speech, presentation.
58. Scientometrics and scientometric databases.

#### **The list of theoretical issues for final module control № 2 «Public health»**

1. Population health: individual and population level.
2. Mental well-being of the population
3. Social well-being of the population.
4. Assessment of quality of life.
5. Indicators that characterize the health of the population.
6. Determinants of health, their types and structure.
7. Social determinants of health.

8. Contextual level of health determinants
9. Structural level of the determinant of health
10. Proximal level of health determinants
11. Controlled and uncontrolled factors affecting public health.
12. Public health functions.
13. Public Health Service in Ukraine, its tasks and content of activity.
14. World practice of promoting of public health. International documents and charters.
15. The purpose and objectives of the World Health Organization (WHO), its structure, forms of activity.
16. Disease control services: world practice.
17. Surveillance of the health of the population.
18. Subject and content of demography, the importance of demographic data for health care practice.
19. Volume and structure of the population.
20. Estimation of demographic aging of the population on the scale of J. Bozio-Garnier-E. Rosetta. Demographic load.
21. Mechanical movement of the population. Types of migration. Importance of migration processes for medical practice.
22. Methods of studying the natural movement of the population, sources of information, indicators.
23. Birth rate, calculation methods, its levels in Ukraine. Factors influencing the birth rate.
24. Fertility of the population, methods of calculation, its levels in Ukraine.
25. Mortality. Methods of calculating general and special indicators. Features and causes of mortality in different population groups. Dynamics of this indicator in different regions, individual countries and Ukraine.
26. Infant mortality. Age features. Leading reasons, factors influencing its formation. Medico-social aspects of reducing infant mortality.
27. Life expectancy, the relationship with the Human Development Index (HDI). Trends in the dynamics of life expectancy in some regions of the world, countries and Ukraine.
28. The concept of morbidity, its medical and social significance. Methods of studying morbidity.
29. International statistical classification of diseases and related health problems
30. International statistical classification of diseases, injuries and causes of death, principles of its construction and significance.
31. Hospitalized morbidity. The concept, the feasibility of special accounting, units of observation, methods of studying the main indicators.
32. Morbidity with temporary disability, sources and methods of study. Incidence rates with temporary disability.
33. Medical and social significance of the most important non-epidemic diseases.
34. Disability. Indicators of disability. The main trends in disability in Ukraine.
35. The structure of risk factors that make up the "global burden of disease".
36. STEPS methodology for studying the prevalence of risk factors among the population.
37. A set of indicators DALE, QALE. Lost years of life.
38. Methods of sociological research: interviews and questionnaires. Methodology of conducting.
39. Prevention in the public health system: population, group, individual.
40. Types of prevention: primary, secondary, tertiary. Organization and evaluation of results.
41. The results of preventive examinations as a source of information about the health of the population, their types.
42. Public health partner organizations: governmental and non-governmental.
43. Definition of "health promotion", "healthy lifestyle", "prevention".

44. Components of the concept of "lifestyle" that affect the health of the population.
45. Behavior related to health. Behavioral risk factors.
46. Correction of behavioral risk factors among the population. Levels of influencing factors. Questionnaire as a method of researching risk factors.
47. Public health emergencies: their prediction and prevention.
48. Communication and social mobilization for health.
49. Information and explanatory activity (advocacy). Advocacy targets.
50. Principles of health promotion.
51. Press releases and communication with the media.
52. Problems and possible errors of communication measures.
53. Informatization of public health.
54. WHO EDB "Family of Health Database" (WHO).
55. Visualization and effective presentation of health data.
56. Injustice and inequality in health. Forms of health inequalities. Methods of overcoming them.
57. Social gradient.
58. Stigmatization. Ways to overcome it.

**The list of theoretical issues for final module control № 3 «Organization and economics of health care»**

1. Theoretical foundations of health care in Ukraine.
2. Principles for the development of national health systems in accordance with WHO recommendations.
3. Organization of epidemiological surveillance of public health
4. Objects and units of observation in the epidemiological study
5. Choice of design of epidemiological research.
6. Application of the method of descriptive statistics (absolute, relative and average values, analysis of process dynamics).
7. Visualization of statistical data.
8. Application of methods of analytical statistics in health care (standardization method, correlation-regression analysis, parametric and non-parametric assessment of the reliability of research results).
9. Selection and evaluation of parametric statistics
10. Selection and evaluation of non-parametric statistics. Показники, що характеризують здоров'я населення.
11. Determinants of health, their types and structure.
12. Determining the source of information, calculation and evaluation of demographic indicators.
13. The impact of indicators of mechanical movement of the population on the organization of health care.
14. Infant and maternal mortality rates as integrated indicators of the quality of health care in the country.
15. Determining the source of information, calculation and evaluation of prevalence and morbidity.
16. Determining the source of information, calculation and assessment of morbidity with temporary disability. The role of evaluation of management decision-making indicators.
17. Determining the source of information, calculation and evaluation of infectious diseases. The role of evaluation of management decision-making indicators.
18. Determining the source of information, calculation and assessment of disability indicators. The role of performance evaluation in management decision making.
19. Determining the source of information, calculation and evaluation of hospital morbidity. The role of evaluation of management decision-making indicators.
20. Determining the source of information, calculation and evaluation of performance indicators of health care facilities.
21. The role of evaluation of management decision-making indicators.
22. Definition of "primary health care" (PMC). Basic principles of PMC.

23. Accounting for the work of outpatient clinics, methods of study and analysis of indicators of their activities.
24. Accounting for hospitals, methods of study and analysis of indicators of their activities.
25. Classification of risk factors that affect health, methods of their study.
26. The structure of risk factors that make up the "global burden of disease".
27. Application of the methodology for studying the prevalence of risk factors among the population (STEPS, etc.).
28. The role of evaluation of DALE, QALE indicators in the organization of preventive activities of health care institutions.
29. Organization of the electronic health care system. Electronic records, electronic registers.
30. Organization of work with the medical information system (MIS).
31. Development of management decisions aimed at improving public health.
32. Current legislation of Ukraine on health care and regulations governing the activities of health care institutions;
33. Classification of health care facilities by areas of activity.
34. Executive bodies that implement state policy in the areas of sanitary and epidemiological well-being of the population.
35. The main accounting and reporting documentation of treatment and prevention facilities, the rules of its design
36. Organization of statistical accounting, methods of calculation and analysis of statistical indicators;
37. Features of medical care of the rural population; factors that affect it.
38. Organization of emergency medical care (EMC), its institutions.
39. Organization of obstetric and gynecological care for urban and rural populations.
40. Maternity hospital, its functions, structure. Women's consultation, structure. Functions, performance indicators. The role of women's counseling in antenatal care of the fetus.
41. Organization of medical and preventive care for children, the main types of institutions.
42. The purpose of medical examination and its types. Institutions conducting examination of the appropriate type.
43. Types and degree of disability
44. Tasks of medical institutions for medical and social examination of working capacity.
45. Temporary disability and its types. Stages of examination of temporary incapacity for work.
46. Documents certifying temporary disability. Functions of the certificate of disability.
47. The role of the Medical Advisory Commission (MDC) and the Medical and Social Commission (MSEC) in the examination of temporary incapacity for work and the documents certifying it.
48. Criteria and groups of disability.
49. International classification of functional limitations.
50. Documentation and key indicators used in the work of MSEC.
51. Sources of funding for health care
52. New approaches to the financing system in Ukraine
53. The essence of entrepreneurship and its features in health care.
54. Legal bases of business activity in health care.
55. Organizational and legal forms of entrepreneurial activity.
56. Business plan as a tool for regulating business activities.
57. Regularities of formation, functioning and features of the healthcare market. Health services market conditions: demand, supply, price, competition. Price elasticity of demand as a tool for rational use of limited resources of the industry.
58. Medical services and their properties.
59. Competition (rivalry), types of competitive structures.
60. The essence, principles, functions, objectives and purpose of marketing. The process of marketing research.
61. Analysis of market opportunities for medical services. Strategy and tactics of marketing activities.
62. Means of dissemination of information and evaluation of the effectiveness of advertising.
63. Marketing control.
64. The content of health insurance. Types of health insurance and features of their organization.

65. The essence and significance of economic analysis for the health care system, medical enterprise.
66. Methods of economic evaluation as a tool for the rational use of industry resources: "cost minimization", "cost-effectiveness", "cost-benefit", "cost-utility".
67. The essence of financial analysis in health care.
68. Analysis of the financial condition of the medical enterprise.
69. Determining the main indicators of the effectiveness of financial activities of medical production enterprises in order to make management decisions.
70. Management as a science and practice of management.
71. Methods of making managerial decisions, technology of their implementation.

### **List of practical skills for final module control:**

#### **Module 1. Biostatistics**

1. Formation of a research question.
2. The choice of research design according to the hypothesis.
3. Drawing up a plan and program of statistical research.
4. Construction of the layout of statistical tables.
5. Calculation of relative values
6. Calculation of averages.
7. Application of the rule of three sigma ( $\delta$ )
8. Assessment of process dynamics.
9. Choice of graphic representation of statistical data.
10. Assessment of the normality of data distribution.
11. The choice of method for assessing the reliability of research results and interpretation of data
12. Draw conclusions from the results of the standardization method.
13. Calculation of the correlation coefficient and interpretation of results.
14. Identification of sources of information for the study.

#### **Module 2. Public health**

1. Determining the source of information to assess the health of the population.
2. Calculation and evaluation of fertility rates.
3. Calculation and evaluation of a special birth rate.
4. Calculation and evaluation of mortality rates
5. Calculation and evaluation of special mortality rates.
6. Calculation and assessment of infant mortality rates
7. Calculation and evaluation of maternal mortality rates
8. Determining the type of population
9. Calculation and evaluation of demographic aging.
10. Determining the type of infant mortality
11. Calculation and assessment of overall morbidity
12. Calculation and evaluation of hospital morbidity.
13. Calculation and evaluation of infectious diseases
14. Calculation and evaluation of non-communicable diseases
15. Calculation and assessment of morbidity with temporary disability.
16. Calculation and assessment of disability indicators
17. Drawing up a plan of sociological research.
18. The choice of method of visualization of public health data depending on the target audience.
19. Drawing up a plan of the advocacy company to promote the health of various contingents of the population.

#### **Module 3. Organization and economics of health care**

1. Calculation for the analysis of fertility rates
2. Calculation for the analysis of mortality rates (general, special)
3. Calculation for the analysis of morbidity indicators
4. Calculation for the analysis of disability indicators



5. Calculation of indicators and analysis of health care facilities.
6. Carrying out examination of temporary disability.
7. Completion of documents certifying disability
8. Drawing up a management plan to address the identified situation.
9. The use of methods of evidence-based medicine in making management decisions.
10. Calculation of the price for medical service.

**The form of the final module control of academic studying** is the final modul control (FMC).

*Current and final control system*

At each lesson, the student receives a grade according to standardized generalized criteria for assessing students' knowledge:

For 4-point scale	Score in EKTC	Evaluation criteria
5 (perfect)	A	The student shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations, possesses not less than 90 % knowledge of the topic both during the survey and all types of control.
4 (well)	B	The student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standardized situations, independently corrects errors, the number of which is insignificant, has at least 85% knowledge of the topic as during the survey, and all types of control .
	C	The student is able to compare, summarize, systematize information under the guidance of a scientific and pedagogical worker, in general, independently apply it in practice, control their own activities; to correct mistakes, among which there are significant ones, to choose arguments to confirm opinions, has at least 75% of knowledge on the topic both during the survey and all types of control.
3 (satisfactorily)	D	The student reproduces a significant part of theoretical material, shows knowledge and understanding of the basic provisions with the help of a researcher can analyze educational material, correct errors, among which there are a significant number of significant, has at least 65% knowledge of the topic, and during the survey, and all types of control.
	E	The student has the educational material at a level higher than the initial, a significant part of it reproduces at the reproductive level. has at least 60% knowledge of the topic both during the survey and all types of control.
2 (unsatisfactorily)	FX	The student has the material at the level of individual fragments that make up a small part of the material, has less than 60% knowledge of the topic both during the survey and all types of control.
	F	The student has the material at the level of elementary recognition and reproduction of individual facts, elements, has less than 60%

		knowledge of the topic as during the survey, and all types of control.
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When studying the discipline, the student is obliged to keep a protocol of the lesson (according to the thematic plan) which defines the basic concepts of the topic, and the student indicates the procedure for calculating the situational problem with a mandatory conclusion to it. At the end of the lesson the teacher checks the protocol and records it with his signature. Protocols are kept neatly and kept until the end of the discipline. Presence of training protocols is mandatory for admission to the FMC.

In the last lesson, the teacher calculates the average score of the current student performance and then converts points according to the table. A student who has not scored the minimum number of points (3.0) is not allowed to the final module control.

The maximum number of points assigned to students when mastering the module (credit) - 200 points, including for current educational activities - 120 points, according to the results of the module final control - 80 points.

The final modular control of the discipline is subject to full attendance of lectures and practical classes, obtaining the minimum amount of points for current educational activities. In the study of PMC 2. Public health provides for the development of practical skills. Students who have defended practical skills for a positive assessment are admitted to the FMC.

A student who has completed the curriculum and received at least 72 points for current activities is admitted to the final module control.

The form of final control is standardized and includes control of theoretical and practical training. In the last lesson (FMC), the student receives a booklet containing test questions with one correct answer and situational tasks (according to the condition of the task it is necessary to calculate and evaluate the statistical coefficient and calculate the indicator that characterizes the health of the population).

#### **Correspondence of the average score of current performance on the traditional 4-point scale to the total assessment of current performance per module**

Average score for current performance (A)	Points for current success in the module (A * 24)	Points for FMK from the module (A*16)	Points for the module (A*24 + A*16)	EKTC	For 4-point scale
2	48	32	80	<b>F FX</b>	<b>2 (unsatisfactorily)</b>
2,1	50	34	84		
2,15	52	34	86		
2,2	53	35	88		
2,25	54	36	90		
2,3	55	37	92		
2,35	56	38	94		
2,4	58	38	96		
2,45	59	39	98		
2,5	60	40	100		
2,55	61	41	102		
2,6	62	42	104		
2,65	64	42	106		

2,7	65	43	108		
2,75	66	44	110		
2,8	67	45	112		
2,85	68	46	114		
2,9	70	46	116		
2,95	71	47	118		
3	72	50	122	E	3 (satisfactorily)
3,05	73	50	123		
3,1	74	50	124		
3,15	76	50	126		
3,2	77	51	128		
3,25	78	52	130	D	
3,3	79	53	132		
3,35	80	54	134		
3,4	82	54	136		
3,45	83	55	138		
3,5	84	56	140	C	4 (well)
3,55	85	57	142		
3,6	86	58	144		
3,65	88	58	146		
3,7	89	59	148		
3,75	90	60	150		
3,8	91	61	152		
3,85	92	62	154		
3,9	94	62	156		
3,95	95	63	158		
4	96	64	160	B	
4,05	97	65	162		
4,1	98	66	164		
4,15	100	66	166		
4,2	101	67	168		
4,25	102	68	170		
4,3	103	69	172		
4,35	104	70	174		
4,4	106	70	176		
4,45	107	71	178		
4,5	108	72	180	A	5 (perfect)
4,55	109	73	182		
4,6	110	74	184		
4,65	112	74	186		
4,7	113	75	188		
4,75	114	76	190		
4,8	115	77	192		
4,85	116	78	194		
4,9	118	78	196		
4,95	119	79	198		
5	120	80	200		

### **Teaching methods**

- verbal (lecture, explanation, story, conversation, instruction);
- visual (observation, illustration, demonstration);
- practical (solving situational problems, drawing up a plan and program of statistical research, drawing up a plan of prevention programs).

### **Control methods**

when studying the discipline there are: oral control, written, test control, checking the solution of situational problems, as well as methods of self-control and self-assessment.

### **Methodical support**

1. Working curriculum
2. The syllabus of discipline
3. Test questions to the topics of practical classes
4. The list of questions to the final modular control
5. Tasks for current and final control of knowledge
6. List of tasks for independent work
7. Lectures of the department with multimedia support.

### **Recommended Literature**

#### ***Basic:***

1. Oxford Textbook of Global Public Health, 6 edition. Edited by Roges Detels, Martin Gulliford, Quarraisha Abdool Karim and Chorh Chuan Tan. – Oxford University Press, 2017. – 1728 p.
2. Medical Statistics at a Glance Text and Workbook. Aviva Petria, Caroline Sabin. – Wiley-Blackwell, 2013. – 288 p.

#### ***Additional:***

- Board Review in Preventive Medicine and Public Health. Gregory Schwaid. - ELSEVIER., 2017. – 450 p.
- Donaldson`s Essential Public Health, Fourth Edition. Liam J. Donaldson, Paul Rutter – CRC Press, Taylor&Francis Group, 2017 – 374 p.
- Jekel`s epidemiology, biostatistics, preventive medicine and public health. Fourth edition. David L. Katz, Joann G. Elmore, Dorothea M.G. Wild, Sean C. Lucan. – ELSEVIER., 2014. – 405 p.
- Oxford Handbook of Public Health Practice, Fourth Edition. Charles Guest, Walter Ricciardi, Ichiro Kawachi, Iain Lang. – Oxford University Press, 2012. – 656 p.
- Primer of Biostatistics, Seventh Edition. Stanton A. Glantz – McGraw-HillEducation, 2012. – 320 p.
- Health economics: textbook. – Vinnytsia: Nova Knyga, 2010. – 112 p.

#### ***Information resources:***

1. World Health Organization - <https://www.who.int>
2. European Health for All database- <http://www.euro.who.int/en/home>
3. Cochrane Center for Evidence-Based Medicine - <https://www.cochrane.org/news/cochrane-launches-cochranes-evidence-essentials-introduction-evidence-based-medicine>
4. Cochrane Library - <https://www.cochranelibrary.com/?cookiesEnabled>
5. US National Library of Medicine – MEDLINE <https://www.ncbi.nlm.nih.gov/pubmed>
6. Center for Disease Control and Prevention - <https://www.cdc.gov/>
7. British Medical Journal [www.bmj.com](http://www.bmj.com)

8. Evidence-Based Medicine [www.evidence-basedmedicine.com](http://www.evidence-basedmedicine.com)

**Developer:**

The syllabus was prepared and compiled  
by an associate professor of department, Ph.D.

M.V.Khorosh