

PRIVATE HIGHER EDUCATIONAL INSTITUTION  
"INTERNATIONAL ACADEMY OF ECOLOGY AND MEDICINE"  
Department of Social Medicine and Preventive Medicine

SYLLABUS  
EDUCATIONAL DISCIPLINE  
"SOCIAL MEDICINE, PUBLIC HEALTH  
and basics of evidence-based medicine "

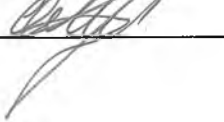
Biostatistics module

*LEVEL OF HIGHER EDUCATION Second (master's) level*

*DEGREE OF HIGHER EDUCATION Master*

*FIELD OF KNOWLEDGE 22 Healthcare*

*SPECIALTY 221 Dentistry*

Considered and approved  
at a meeting of the Department of Social Medicine  
and preventive medicine  
Protocol № 1 from " 01 " 09 2020  
Head of Department  C. Mikhailenko

Kyiv 2020

<b>1. General information</b>	
<b>Subjects</b>	"Social medicine, community health", module 1 "Biostatistics"
<b>Teacher (s)</b>	Krushinska Z.
<b>Teacher's contact phone number</b>	098-677-81-55
<b>Teacher's e-mail</b>	(hidden)
<b>Discipline format</b>	Normative / vibirkova
<b>The scope of discipline</b>	90
<b>Link to the distance learning site</b>	
<b>Consultations</b>	
<b>2. Discipline abstract</b>	
<p>The subject of study of discipline is the modern principles of evidence-based medicine, theoretical and methodological foundations of biostatistics, laws of health of the population, health care system, its organization and economics.</p> <p>Social medicine, public health »As a discipline:</p> <ul style="list-style-type: none"> <li>- is based on studying students of disciplines: history of medicine, computer science, ethics, hygiene and ecology, epidemiology, sociology and medical sociology, the foundations of economic theories;</li> <li>- lays the basics of studying the organization of the medical and diagnostic process, as well as assessing its scope and quality when studying clinical disciplines;</li> <li>- ensures the study of legal and organizational principles of health care;</li> <li>- promotes the formation of preventive direct activity of future doctors, taking into account the possible impact on the health of the population of factors of different origin, risk assessment in the development of comprehensive medical and social measures in cooperation with the system of public health;</li> <li>- - promotes the formation of economic outlook and the main competence characteristics of the methodology of economic analysis of medical institutions in modern conditions.</li> </ul>	
<b>3. The purpose and objectives of the discipline</b>	
<i>The purpose of studying the discipline "Life safety":</i>	
<p>The purpose of studying the discipline "Social Medicine, Public Health" is mastering the necessary knowledge, skills and acquisitions of competencies on research, analysis and assessment of the health indicators, organization, resource support and activities of the health care system, development from the positions of evidence. Medicine recommendations for the prevention and elimination of malicious influence of factors on health and to improve the organization of medical care to the population and public health system.</p>	
<i>Problems of discipline "Life safety":</i>	
<ul style="list-style-type: none"> <li>- assimilation of theoretical bases of biostatistics;</li> <li>- mastering modern principles of evidence-based medicine;</li> <li>- familiarization with methods for determining and analyzing basic biostatic indicators and criteria;</li> <li>- assimilation of the methodological and theoretical bases of formation of statistical aggregates for their further adequate analysis;</li> <li>- assimilation of methods for determining, analyzing and evaluating the main indicators of population health by individual criteria and interconnection with factors that affect it;</li> <li>- assimilation of laws and peculiarities of formation of population health;</li> <li>- assimilation of the principles of development of measures to preserve and strengthen the health of the population and its individual contingents;</li> <li>- assimilation of theoretical bases and legal principles of the health care system, its functions and strategic directions of development;</li> <li>- assimilation of principles, directions, objectives of the public health system;</li> <li>- assimilation of the basics of organization of medical care, principles for assessing the organization and quality of provision of various types of medical care to the population in conditions of reforming the health care system;</li> <li>- Formation of knowledge on expertise of disability, its types, order of organization and actions of medical workers regarding specific situations of expertise of disability;</li> <li>- assimilation of principles of development of managerial decisions aimed at improving the activities of health care institutions;</li> <li>- mastering the basics of economic analysis of the activity of a medical institution;</li> <li>- assimilation of the principles of analysis and assessment of financial and economic indicators of economic activity of medical institutions in order to rational use of existing resources;</li> <li>- formation of knowledge on pricing policy, strategic and tactical planning of economic development of a medical</li> </ul>	

institution;

- familiarization with the development of a business plan of entrepreneurial activity in the health care system.

#### 4. Learning outcomes (competencies)

As a result of studying discipline, students must:

KNOW:

- Knowledge of methods of epidemiological (descriptive, analytical) and medical and statistical research.
- Knowledge of requirements for diagnostic tests that can be used for screening research.
- Knowledge of risk indicators and methods of their calculation Principles, methods and means of ensuring safe life;
- Knowledge of standard procedures, including modern computer information technologies regarding the processing of medical information.
- Knowledge of socio-economic and biological determinants that affect the health of the population

BE ABLE TO:

- To evaluate the relationships between health and the influence of harmful and hazardous factors.
- Provide negative effects of hazardous factors on human body.
- To determine the basic security principles in providing normal human life.
- Cut interconnections between health and the influence of harmful hazardous factors.
- Provide negative effects of hazardous factors on human body.
- Recognize typical models of psychological reactions of the body in extreme situations.
- Apply traditional and non-traditional methods of improving the body.
- To possess methods of quantitative and qualitative determination of pollution of food and water.
- possess methods for reducing the number of pollutants in food products.

List of compulsory skills for future practice

- own standard methods of descriptive, analytical epidemiological and medical and statistical studies.
- Be able to count and evaluate indicators of individual and population health, in dynamics and in comparison with medium static data.
- Be able to determine the source of finding the desired information; Ability to carry out statistical processing of material and analysis of the information received.
- Be able to assess the connection and influence of socio-economic and biological factors on the health of individuals, families, populations

#### 5. Organization of the study of the discipline

*The volume of the course*

Type of lesson	Total number of hours	90
Lectures		10
Seminars		30
Independent work		50

*Signs of the course*

Semester	Specialty	Course (year of study)	Normative / selective
6	221 Dentistry	3	Normative

*Course topics*

Theme, plan	literature	Tasks, hours	Estimation weight	Deadline
Social Medicine and Public Health as Science Social medicine and public health as a science and subject of teaching. Global Health Trends, Modern Challenges and Threats. Health Systems: Strategic Development.	1-4,7	Abstract	15	According to the schedule
Biostatistics as a methodological basis for analyzing and assessing the health of the population and health care system. Fundamentals of evidence-based medicine Methodology of analysis and population assessment. Definition of the concepts "Biostatistics", "Proven Medicine", "Clinical Epidemiology". The main stages of biostatic development. Outstanding scientists and their contribution to the development of biostatistics. Basic principles of evidence-based medicine. Triad of evidence-based medicine. Theory and practice of evidence-based medicine. Evident medicine and quality of clinical research. The notion of end results. Evidence medical and health care quality. Standardization of medical care: clinical protocols, standards and recommendations.	1-4,7	Abstract	15	According to the schedule
Methodical bases of organization of statistical research Methodological bases, forms and methods of statistical observation and data collection. Accuracy of observations.	1-4,7	Abstract	15	According to the schedule

Types of data. Methods of collecting statistical material Types of data, qualitative and quantitative data. Using various measurement scales: absolute, ordinal, interval, relationships. Methods of collecting statistical material: direct registration, digging, survey. Types of questionnaires, their characteristics. Marketing and sociological surveys, types of questionnaires, problems of organizing surveys in health care.	1-4,7	Abstract	15	According to the schedule
Assessment of probability of research results Assessment of the probability of results obtained. The notion of internal and external validity. Level of significance of statistical criteria. Zero and alternative hypotheses. Checking hypotheses. Average average and relative value error, confidence interval. Assessment of the probability of difference: T-criterion Student, calculation method, its assessment, typical use errors. Paired and multiple comparisons. Keyls criterion, Teuki criterion. Fisher's accurate criterion. Features of the use of nonparametric criteria: Manna-Whitney, Kraskal-Wallis.	1-4,7	Abstract	15	According to the schedule
Characteristics and analysis of statistical errors Error I-th and II. Typical errors in research stages. Random and systematic error	1-4,7	Working in pairs	20	According to the schedule
Epidemiological research in health care, their classification. Empirical (descriptive and analytical) research Classification of epidemiological research. Comparative characteristics of various types of research, evaluation of the degree of evidence of their results. Retrospective and prospective research. Empirical research (descriptive and analytical). Descriptive epidemiology: description of a separate case and a series of cases. Analytical epidemiological research. Cohort research and research case-control.	1-4,7	(individual tasks)	20	According to the schedule
Characteristics of experimental research. Randomized Clinical Researches - Gold Standard Conducting Research The procedure for conducting randomized clinical trials. "Golden Standard".	1-4,7	2 hours	20	According to the schedule
The concept of risk factors. Indicators of risk factors Risk indicators: absolute, relative and additional population risk. Odds.	1-4,7	Working in pairs	20	According to the schedule
<b>Final control - score.</b>	1-7	Tests 2 hours	20	According to the schedule

### 6. Course evaluation system

The maximum number of points that a student can score for current educational activities for admission to the PC is 120 points.

The minimum number of points that a student must score for the current academic activity for admission to the exam is 72 points. The calculation of the number of points is based on the grades obtained by the student on the traditional (national) scale during the study of the discipline during the semester, by calculating the arithmetic mean (CA), rounded to two decimal places.

Assessment of students' independent work. Students' independent work, which is provided by the topic of the lesson along with the classroom work, is assessed during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final module control.

**Table 1. Conversion of the average grade for current activities in a multi-point scale (for disciplines that end with an exam (differentiated credit))**

4-point scale	120-point scale	4-point scale	120-point scale	4-point scale	120-point scale	4-6point scale	120-point scale
5	200	4,47	179	3,94	158	3,42	137
4,97	199	4,45	178	3,92	157	3,4	136
4,95	198	4,42	177	3,89	156	3,37	135
4, 2	197	4,4	176	3,87	155	3,35	134
4,9	196	4,37	175	3,84	154	3,32	133
4,87	195	4,35	174	3,82	153	3,3	132
4,85	19	4,32	173	3,79	152	3,27	131
4,82	193	4,3	172	3,77	151	3,25	130
4,8	192	4,27	171	3,74	150	3,22	129
4,77	191	4,24	170	3,72	149	3,2	128

4,75	190	4,22	169	3,7	148	3,17	127
4,72	189	4,19	168	3,67	147	3,15	126
4,7	188	4,17	167	3,65	146	3,12	125
4,67	187	4,14	166	3,62	145	3,1	124
4,65	186	4,12	165	3,6	144	3,07	123
4,62	185	4,09	164	3,57	143	3,05	122
4,6	184	4,07	163	3,55	142	3,02	121
4,57	183	4,04	162	3,52	141	3	120
4,55	182	4,02	161	3,5	140	Less 3	Not enough
4,52	181	3,99	160	3,47	139		
4,5	180	3,97	159	3,45	138		

**The maximum number of points that a student can score is 200 points, the minimum number of points is 120 points.**

The grade "passed" is given to a student who worked systematically during the semester, showed sufficient knowledge of the study material, performed the tasks provided by the program, showed solid knowledge of the discipline and is able to update them independently during further study.

The grade "not credited" is given to a student who did not show sufficient knowledge of the basic program material, made fundamental mistakes in performing the tasks provided by the program, does not have the skills of independent work.

#### Assessment of individual student tasks

Points for individual tasks are awarded to the student only if they are successfully completed and defended.

The number of points awarded for different types of individual tasks depends on their scope and significance, but not more than 10-12 points. They are added to the amount of points earned by the student in the classroom during the current academic activity.

#### Assessment of students' independent work

Students' independent work, which is provided by the topic of the lesson along with the classroom work, is assessed during the current control of the topic in the relevant lesson.

The minimum number of points that a student must score when studying the course - 120. The maximum number of points that a student can score for the current success in the study of this discipline - 200.

Practical training	Module 1
Classroom work (Content module 1)	
T 1-9	Amount - 200 (The maximum number of points that a student can score for the current educational activity, the minimum is 120 points).
Control work	20
Test	10
Working in pairs	5
Abstract	10-12
Conditions of admission to the final control	Semester control is provided in the form of credit. Provides a final grade on a 200-point scale as the sum of grades for the current control of knowledge (oral examination, tests, examination of abstracts), the results of the content module.

#### 7. The policy of studying the discipline

The organization of the educational process is carried out with the use of the European Credit Transfer System (ECTS) to assess student performance. The points gained in the current survey, independent work and points of the final control are credited. This must take into account the student's presence in class and his activity during practical work. Inadmissible: absences and late classes; use of a mobile phone, tablet or other mobile devices during the lesson (except for the cases provided by the curriculum and methodical recommendations of the teacher); copying and plagiarism; untimely performance of the task, the presence of unsatisfactory assessments and more submitted theoretical and practical material.

Senior lecturer of the department  Krushinska Z.