

SYLLABUS
Spring semester 2025-2026 a.y. for
7M10102 specialty "Public Health"

ID and name of course	Independent work of the student (SIW)	Number of credits			General number of credits	Independent work of the student under the guidance of a teacher (ISWT)
		Lectures (L)	Practical classes (PC)	Lab. classes (LC)		
ME	4	15	90	-	5	6.
ACADEMIC INFORMATION ABOUT THE COURSE						
Learning Format	Cycle, component	Lecture types	Types of practical classes		Form and platform final control	
Offline		yes			Task/exam	
Lecturer - (s)	Farida Iskakova					
e-mail :	iskakova.farida@kaznu.kz					
Phone :	+77011013086					
Assistant - (s)						
e-mail :						
Phone :						
ACADEMIC COURSE PRESENTATION						
To form students' understanding of medical ecology and its importance for public health assessment, and to use the acquired knowledge and skills in their professional activities in the public health system.	1. Identify and describe fundamental ecological problems that pose risks to public health, using core concepts, terminology, and the framework of exposure factors.				1.1 Describes the concepts, basic concepts, and terms used in medical ecology.	
					1.2 Describes environmental changes and their impact on human health, as well as measures to eliminate and prevent health effects.	
	2. Evaluate the influence of key environmental factors on human health and calculate basic epidemiological indicators (e.g., prevalence, incidence, mortality rates).				2.1 Classifies environmental exposures (types, duration, and effect) affecting public health.	
					2.2 Describe observational data indicating negative environmental impacts.	
					2.3 Evaluate the reliability of information related to the environment. issues and their impact on human health.	
	3. Design a structured plan for a basic environmental health study, outlining objectives, methodology, and data collection strategies.				3.1 Draws up a research plan based on the main legislative and regulatory documents related to the quality of atmospheric air, drinking water and soil and the knowledge gained.	
					3.2 Measures the impact of environmental factors on public health using exposure measurement and assessment measures.	
	4. Present and interpret the results of an ecological study using informative epidemiological indicators to assess population health status comparatively.				4.1 Presents results in the form of graphs and tables.	
					4.2Formulates conclusions for presentation in theses, articles, and reports.	
	5. Analyze public health data by applying quantitative statistical methods and relevant information technologies.				5.1. Uses methods of detection, measurement, and quantification of major pollutants to assess the population's environmental and epidemiological well-being.	

				ATTENTION! The deadline for each task is indicated in the calendar (schedule) for the implementation of the content of the course, as well as in the MOOC. Failure to meet deadlines results in loss of points.			
INFORMATION ABOUT TEACHING, LEARNING AND ASSESSMENT							
Score-rating letter system of assessment of accounting for educational achievements				Assessment Methods			
Grade	Digital equivalent points	points, % content	Assessment according to the traditional system	Criteria-based assessment is the process of correlating actual learning outcomes with expected ones, using clearly defined criteria. Based on formative and summative assessments. Formative assessment is a type of assessment conducted during daily learning activities. It is the current measure of progress. Provides an operational relationship between the student and the teacher. It allows you to determine the capabilities of the student, identify difficulties, help achieve the best results, and timely correct the educational process for the teacher. The performance of tasks, and the activity of work in the classroom during lectures, seminars, and practical exercises (discussions, quizzes, debates, round tables, laboratory work, etc.) are evaluated. Acquired knowledge and competencies are assessed. Summative assessment - a type of assessment, that is carried out upon completion of the study of the section by the program of the course. Conducted 3-4 times per semester when performing SIW . This is the assessment of mastering the expected learning outcomes of the descriptors. Allows you to determine and fix the level of mastery of the course for a certain period. Learning outcomes are evaluated.			
A	4.0	95-100	Great				
A-	3.67	90-94					
B+	3.33	85-89	Fine				
B	3.0	80-84		Formative and summative assessment		Points % content	
				1. Activity in discussions of topic in classes		1. 10	
				2. Work in practical classes		2. 10	
				3. Independent work		3. 10	
				4. Design and creative activity		4. 30	
				5. Final control (exam)		5. 40	
B-	2.67	75-79		Activity in discussions of topics in classes		10	
C+	2.33	70-74		Work in practical classes		10	
C	2.0	65-69	Satisfactorily	Independent work		10	
C-	1.67	60-64		Design and creative activity		30	
D+	1.33	55-59	Unsatisfactory	Final control (exam)		40	
D	1.0	50-54		TOTAL		100	
Calendar (schedule) for the implementation of the content of the course. Methods of teaching and learning.							
A week	Topic name					Number of hours	Max. ball
MODULE 1 INTRODUCTION TO MEDICAL ECOLOGY							
	PC 1. Subject of medical ecology as a science and field of practice.					3	8
	PC 2. Modern concepts and trends in medical ecology.					3	7
	ISWT 1. Control work, tests, individual/group projects, essays, situational tasks, testing, portfolio, etc., at the teacher's choice. An estimated 25-30 % of the total points for foreign control. Consultations on the implementation of SIW 1.						
	PC 3. The quality of the human environment.					3	7
	ISWT 2. Choose one health problem and describe using epidemiological questions. Where? When? Who? Why? and How?						
	PC 4. Influence and adaptation of the human organism to ecological environmental factors.					3	7
	ISW 1 on 1-4 seminars topic.						25
	PC 5. Concepts of ‘health risk’ and environmental risk’. Stages of risk assessment. Risk management.					3	7
MODULE 2 ENVIRONMENTAL FACTORS							
	PC 6. Types of environmental monitoring, methods of risk assessment, and impact on Public Health.					3	7
	ISWT 3. Consultations on the implementation of SIW 2						0
	PC 7. Regulatory documents for the assessment of maximum permissible concentrations of harmful substances in water, air, and soil.					3	8
	ISTW 4. Parsing and analyzing an article about an environmental problem.						
	PC 8. Assessment of the impact of environmental pollution on the health of the population.					3	6
	ISW2 on 5-8 seminars topic.						25
Midterm 1							100
	PC 9. Assessment of the hydrosphere and the impact of its pollutants on public health.						7
	ISWT 5. Write an abstract on an environmental problem and medical interventions to reduce harm to public health (review of several articles)..					3	17
	PC 10. Assessment of lithosphere and its polluting factors on public health.					3	7
	ISWT 5						

MODULE 3. OTHER ENVIRONMENTAL FACTORS			
	PC 11. Evaluation and assessment of physical environmental factors and their impact on human health. Action plans to reduce the harmful effects of physical substances.	3	7
	SIW 3 on 9-11 seminars topic.		25
	PC 12. Assessment of chemical environmental factors and their impact on public health. Action plans to reduce the harmful effects of chemicals.	3	7
	PC 13. Assessment of nutrition and the impact of harmful substances associated with their quality and preparation on the population's health.	3	7
	ISWT 6. Overview of research results		
	PC 14. Assessment of indoor spaces and their impact on health.	3	7
	PC 15. Climate change and its impact on public health.	3	8
	ISW 4 on 14-16 seminars topic.		25
Midterm 2			100
Final control (exam)			100
TOTAL for course			100

Dean _____ **S.B. Kalmahanov**

Chairman of the Academic Committee
on the quality of teaching and learning _____ **G.M.Kurmanova**

Head of Department _____ **A.E.Ualiyeva**

Lecturer _____ **F.A. Iskakova**

RUBRICATOR OF THE SUMMATIVE ASSESSMENT

CRITERIA EVALUATION OF LEARNING OUTCOMES

Task name (points, % content from 100% MC, copy from the calendar (graphics) implementation of the content of the training course, methods of teaching and learning

Criterion	"Excellent" Max. weight in %	"Good" Max. weight in %	"Satisfactory" Max. weight in %	"Unsatisfactory" Max. weight in %
	95- 100 %	80-94%	64-79%	<63%

Criterion	"Excellent" 20-25%	"Good" 15-20%	"Satisfactory" 10-15%	"Unsatisfactory" 0-10%
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THEMATIC PLAN AND CONTENT OF PRACTICAL STUDIES

№	Topic	Content	Resources
	2	3	4
1	Introduction to Epidemiology: Definition. Core	Basic concepts and areas of application. Theories of causality and probability. epidemiological triad. Factors related to the infectious agent, the environment, and the susceptible individual. The concept of the epidemic process and ways of transmission of infection. epidemiological approach. Fundamentals of surveillance. Population, sentinel, and syndromic surveillance. Mini presentation. CBL Case study.	<ol style="list-style-type: none"> 1. Gordis, Leon, Epidemiology, 5th Edition, W.B. Saunders Company, 2013, p. 20-54, 55-61, 61-78 2. Principles of Epidemiology in Public Health Practice, 3d Edition, CDC, US Department of Public Health, 2012. Lesson 1-4. 3. High-Yield Biostatistics, Epidemiology, & Public Health, 4th Edition, p.86-96 4. Kaplan USMLE, Lecture Notes, Behavioral Sciences and Social Science, 2017, p.3-10 5. An Introduction to Epidemiology. Wolfgang Ahrens, Klaus Krickeberg, Iris Pigeot, p.3-20 6. CDC-materials https://www.cdc.gov/csels/dsepd/ss1978/lesson5/section2.html
2	Epidemiological Study Design.	Epidemiological methods: descriptive, analytical, and experimental. Case reports (clinical cases), case series (series of cases); ecological, cross-sectional studies, case-control, cohort study. Randomized and non-randomized clinical trials. Measures, bias, and confounders. Advantages and limitations of epidemiological methods. Diagnostic and screening tests.	<ol style="list-style-type: none"> 1. Kaplan USMLE, Lecture Notes, Behavioral Sciences and Social Science, 2017, p.11-14, 17-24 2. Gordis, Leon, Epidemiology, 5th Edition, W.B. Saunders Company, 2013, p.197-232, p.158-194, p.235-247, p.250-280, p.282-296, 346-367 3. An Introduction to Epidemiology. Wolfgang Ahrens, Klaus Krickeberg, Iris Pigeot, p. 29-35

		sensitivity and specificity. Likelihood ratio. Predictive value (negative and positive). The use of epidemiological methods in clinical medicine. Glossary. Mini presentation. CBL - Case study.	4. High-Yield Biostatistics, Epidemiology, & Public Health, 4th Edition, p.57-71, 82-92 5. Wolfgang, A. Handbook of Epidemiology. 5 vol.//Ahrens Wolfgang, Peugeot Iris. - 2 ed.- Springer Reference, 2014, p.187-388
3	Epidemiology of communicable and	Epidemiology of infectious diseases. Occurrence, mechanism, and ways of transmission of infectious diseases. Epidemiological classification of infectious diseases. Standard case definition: presumptive, probable, and confirmed cases. Outbreak investigation. Stages of investigation. Anti-epidemic and preventive measures in the focus of infection. Glossary. Epidemiology of chronic non-communicable diseases: cardiovascular, oncological diseases, COPD, diabetes. Causes and conditions for the occurrence and spread of HND. Measurement of risks, prevalence rates, outcomes and treatment effectiveness. Epidemiology of dental diseases. Glossary. Mini presentation. CBL. case study.	1. High-Yield Biostatistics, Epidemiology, & Public Health, 4th Edition, p.96-100 2. Gordis, Leon, Epidemiology, 5th Edition, W.B. Saunders Company, 2013, p. 54-56, p.328-335 3. Wolfgang, A. Handbook of Epidemiology. 5 vol.//Ahrens Wolfgang, Peugeot Iris. - 2 ed.- Springer Reference, 2014, v.5 4. Cancer Epidemiology: Principles and Methods. Isabel dos Santos Silva. WHO. -1999.-437 p. 5. Communicable disease control in emergencies. A field manual. Edited by M.A. Connolly.2005.-194 p.
4	5 stages of Evidence-Based Medicine. Search and critical analysis of published research.	Principles of Evidence-Based Medicine. The history of the development of Evidence-Based Medicine. World development experience. The value of Evidence-Based Medicine for clinical practice. 5 stages of evidence-based medicine. Formulation and transformation of a clinical problem into a question using the PICOT principle. Finding and identifying the best evidence to answer. Evaluation of the quality and reliability of evidence. Implementation of the results of a critical assessment in clinical practice and evaluation of the results of the work done (audit). Glossary. Select appropriate resources and search for evidence. Medline/PubMed, Cochrane Collaboration Data Base, Cochrane Library, EMBASE. Search strategy: keywords, logical operators (Boolean Operators), phrases (Phrase Search), by author (Author Search), by journal title (Journal Search), subject headings (MeSH) Operations with search results. Mini presentation. CBL Case study.	1. Fundamentals of Evidence-Based Medicine, K Prasad, 2013, 1-7 p, Chapter 2, 19-25 p 2. Essential Evidence-based medicine, D, Mayer, 2010, 9-18 p 3. Evidence-Based Answers to Clinical Questions for Busy Clinicians Workbook- 2009.-26p. 4. Essentials of Evidence-based Clinical Practice. Second Edition. -2008.- 349 p. 5. Medline/PubMed, Cochrane Collaboration Data Base, Cochrane Library, EMBASE

5	Systematic review and meta-analysis. Evaluation of clinical protocols and recommendations. GRADE.	Studies summarizing other studies: a systematic review and meta-analysis. Stages of creating a systematic review. Stages of meta-analysis. Options for presenting meta-analysis results in a systematic review. Search strategy for systematic reviews. Assessing the quality of systematic reviews using the AGREE system. Evaluation of clinical guidelines. Recommendation classes: I, II, II-a, II-b, III. Glossary. Mini presentation. CBL - case studies.	1. Literature Reviews in Social Work. Robin Kiteley and Christine Stogdon.- 2014.-20 p. 2. APPRAISAL OF GUIDELINES FOR RESEARCH & EVALUATION II. The AGREE Next Steps Consortium. - May 2009.-52 p.
6	Research proposal. Create and share questionnaire.	Conceptualization stage of health services research. Select and formulate a research problem. Theories and appropriate theoretical frameworks in health research. Types of research reviews (e.g., information synthesis, literature reviews, and meta-analysis) and their purposes. General categories in research review.	1. Fundamentals of Evidence-Based Medicine, K Prasad, 2013, 27-31 p, 109-112 p 2. Essential Evidence-based medicine, D, Mayer, 2010, 367-377 p 3. Evidence-based medicine, Dermot P.B.McGovern et al, 2005, 62-76 p 4. How to read a paper. T. Greenhalgh. -2003.-240 p. 5. Evidence-Based Answers to Clinical Questions for Busy Clinicians Workbook. - 2009.-26p.
7	Measurement in Epidemiology. Frequencies, rates, ratio.	Counts, frequencies, rates and ratio. Measuring disease incidence, prevalence and mortality rates. Calculation and interpretation of indicators of morbidity, prevalence, mortality of the population. Visual presentation of epidemiological data. Registration of cases. Data collection system. Analysis, interpretation, and presentation of surveillance data. Glossary. Mini presentation. CBL Case study.	1. Epi Info. -176 p. 2. Gordis, Leon, Epidemiology, 5th Edition, W.B. Saunders Company, 2013, p.55-61, p.371-376 3. Principles of Epidemiology in Public Health Practice, 3d Edition, CDC, US Department of Public Health, 2012. Lesson 5. 4. CAPABILITY 13: Public Health Surveillance and Epidemiological Investigation. Public Health Preparedness Capabilities:
8	Summarizing data: Properties and methods of Frequency Distributions. Measures of Central Location and spread.	Data, database. Mean, median and mode. Central location, types. Types of variables. Types of distribution, descriptive statistics. Databases (Excel, SPSS).	1. Fundamentals of Biostatistics. Seventh Edition. Rosner. - 2016.-856 p. 2. Primer of Biostatistics. Seventh Edition. Stanton A. Glantz, Ph.-2009.-297p. 3. Medical Statistics at a Glance Workbook. Front Cover. Aviva Petrie, Caroline Sabin. John Wiley & Sons, 2013 - Medical - 120 p. 4. SPSS Survival Manual 6th edition. Julie Pallant - 2016
9	Types of statistical hypotheses. Hypothesis testing. P-value. Standard error and confidence interval.	Types of statistical hypotheses. Hypothesis testing. P-value. Standard error and confidence interval.	1. Fundamentals of Biostatistics. Seventh Edition. Rosner. - 2016.-856 p. 2. Primer of Biostatistics. Seventh Edition. Stanton A. Glantz, Ph.-2009.-297p. 3. Medical Statistics at a Glance Workbook. Front Cover. Aviva Petrie, Caroline Sabin. John Wiley & Sons, 2013 - Medical - 120 p. 4. SPSS Survival Manual 6th edition. Julie Pallant - 2016

10	Biostatistics: Descriptive statistics. Databases (Excel, SPSS).		
11	Introduction to analytical statistics. Methods for analyzing qualitative variables, independent and related samples (Chi-square test. Fisher's exact test, McNemar's test).	Methods for the analysis of qualitative variables, independent and related samples (Chi-square test. Fisher's exact test, McNemar's test).	<ol style="list-style-type: none"> 1. Fundamentals of Biostatistics. Seventh Edition. Rosner. - 2016.-856 p. 2. Primer of Biostatistics. Seventh Edition. Stanton A. Glantz, Ph.-2009.-297p. 3. Medical Statistics at a Glance Workbook. Front Cover. Aviva Petrie, Caroline Sabin. John Wiley & Sons, 2013 - Medical - 120 p. 4. SPSS Survival Manual 6th edition. Julie Pallant - 2016
12	Parametric Tests (T-tests, ANOVA).	One-sample t-test, Two-sample t-test and Paired t-test., One-way ANOVA.	<ol style="list-style-type: none"> 1. Fundamentals of Biostatistics. Seventh Edition. Rosner. - 2016.-856 p. 2. Primer of Biostatistics. Seventh Edition. Stanton A. Glantz, Ph.-2009.-297p. 3. Medical Statistics at a Glance Workbook. Front Cover. Aviva Petrie, Caroline Sabin. John Wiley & Sons, 2013 - Medical - 120 p. 4. SPSS Survival Manual 6th edition. Julie Pallant - 2016
13	Non-parametric Tests (Mann-Whitney U-test, Wilcoxon U-test, Kruskal-Wallis Test, Friedman Test.	Mann-Whitney U-test, Wilcoxon U-test, Kruskal-Wallis Test, Friedman Test.	<ol style="list-style-type: none"> 1. Fundamentals of Biostatistics. Seventh Edition. Rosner. - 2016.-856 p. 2. Primer of Biostatistics. Seventh Edition. Stanton A. Glantz, Ph.-2009.-297p. 3. Medical Statistics at a Glance Workbook. Front Cover. Aviva Petrie, Caroline Sabin. John Wiley & Sons, 2013 - Medical - 120 p. 4. SPSS Survival Manual 6th edition. Julie Pallant - 2016
14	Correlation (Pearson and Spearman) and regression. Survival analysis Log-rank test.	Correlation. Pearson's correlation coefficient. Spearman's rank correlation coefficient. The sensitivity of the correlation coefficient. Survival curve.	<ol style="list-style-type: none"> 1. Fundamentals of Biostatistics. Seventh Edition. Rosner. - 2016.-856 p. 2. Primer of Biostatistics. Seventh Edition. Stanton A. Glantz, Ph.-2009.-297p. 3. Medical Statistics at a Glance Workbook. Front Cover. Aviva Petrie, Caroline Sabin. John Wiley & Sons, 2013 - Medical - 120 p. 4. SPSS Survival Manual 6th edition. Julie Pallant - 2016
15	Presentation of research work in a thesis	Planning and organization of scientific research. Definition of the research topic, aim and objectives. Formulation of Hypothesis. Definition of research methods. Developing of a questionnaire/patient card. Data collection. Enter data in the SPSS database. Choosing statistical tests and data analysis. Creating tables, formation of conclusions. Graphical representation of data. Preparing a presentation.	<ol style="list-style-type: none"> 1. Radaev V.V. How to organize and present a research project: 75 simple rules. - M.: SU-HSE: INFRA-M, 2011 - 203 p. 2. Ospan E. Academic writing: the basics of writing a research paper., Almaty, 2020.-231 p.

	№	Criterion (point-rating assessment)	10	8	6	4	2
			excellent	above average	acceptable	requires correction	excellent above unacceptable
Oral questioning, discussion	1	Basic knowledge of Epidemiology, Evidence-based Medicine and Biostatistics.	Full assimilation of the programme material. Demonstrated original thinking. Independently used additional literature.	Demonstrated standard thinking with full mastery of programme material.	Mastering of the material with non-principled inaccuracies in answers.	Learning the basics Understanding your mistakes and willingness to correct them.	Fundamental errors Constantly confused in answers, did not work through the core literature.
	2	Knowledge of research design in Epidemiology.					
	3	Knowledge of the epidemiology of communicable and non-communicable diseases.					
	4	Knowledge of searching and critically analyzing publications.					
	5	Organization of research.					
	6	Knowledge and skills of descriptive and inferential methods of Biostatistics.					
	7	Knowledge and skills of academic writing.					
	8	Solving Test Tasks - 20 tests 1 test - 1 point	20	16-18	11-15	6-10	1-5
	9	Group communication skills and professional attitude (especially when using IMO)	Contact and productive team member	Contactful and productive team member, although prefers individual work	Combines team and individual work	Tends to be individualistic	individual

Point-rating assessment of the student's independent work under the guidance of a teacher (maximum, 50 points)

№	Evaluation criteria	10 points	8 points	6 points	4 points
1.	Completeness and accuracy.	Completes the assignment completely. Applies critical thinking and analysis skills in completing the assignment. Effective	Completes the task with some inaccuracies. Shows standardized thinking and reasoning. Applies analysis skills. Good presentation of	Completion of the task with significant errors. Understands his/her mistakes and is ready to correct them. Weak analysis skills.	Failure to complete the assignment. Does not show scientific thinking and practical skills. Weak skills in analyzing and presenting the
2.	Critical thinking				
3.	Analytical skills				
4	Presentation of the assignment				

CPC - creative assignment (maximum 90 points) + bonuses for English language

		20	15	10	5
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1	Relevance of the problem	Very high	High	Sufficiently high	Not high
2	Informativeness				
3	Credibility				
4	Logicality and consistency				
5	Literature analysis				
6	Practical relevance				
8	Applicability in future practice				
9	Presentation				
10	Plagiarism check				
bonus	* - for Kazakh/Russian groups - English language; for groups studying in English - performing the task in Russian or Kazakh language				

Kaplan Medical USMLE Step 1: Behavioral Science Lecture

Notes Paperback – January 1, 2013