SYLLABUS
Fall Semester
2020-2021 Academic Year
Educational program: «7M10104 –Medicine Physician-researcher»

Discipline's code	Discipline's title	Independent work of students (IWS)	No. of hours			Number of credits	Independent work of students with guidance from the teacher (IWST)
			Lect.	Pract.	Lab.		
DM 5207	Evidence-Based Medicine	98	15	30	-	5	7

Type of learning	Type of the course	Types of lectures	Types of practical class	No. of IWS	Form of final control
Online	Theoretical	mixed	Webinar	3	Test / Exam
Lecturer	Iskakova Farida				
e-mail	iskakova.farida@kaznu.kz				
tel	+77011013086				

Academic presentation of the course

Aim of course:	Expected learning outcomes (LO) As a result of studying the discipline, the student will be able to:	Indicators of achievement LO (IA) (for each LO at least 2 indicators)
To build ability in learners skills and competencies of conducting scientific research based on the principles of evidence-based medicine for their application in clinical practice.	1. Identify health problems, formulate clinical questions, and search for information in scientifically proven databases.	1.1 formulates different types of health clinical questions (diagnostic, etiological, prognostic and therapeutic) with PICOT components.
		1.2 Defines scientifically proven databases (PubMed, MedLine, Cochrainlibrary).
		1.3 Works with keyword search operators (terms and definitions)
		1.4 selects publications with a high level of evidence to address various clinical issues.
	2. Conducts a selection of epidemiological research methods based on the level of evidence for solving diagnostic, etiological, prognostic and theoretical challenges to public health.	2.1 Distinguishes between types of epidemiological studies
		2.2 Distinguishes scientific research by credibility
		1 Conducts selection of research method based on the hierarchy of evidence.

	3. Plans and conducts epidemiological studies	3.2 Creates research design to address research questions.
		3.3. Defines comparison groups for epidemiological studies.
		3.4 Determines the primary, secondary, tertiary endpoints (outcomes, efficacy, adverse reactions) of randomized controlled trials.
	4. Analyzes the study	4.1 Evaluates the evidence of research results using the GRADE system.
		4.2 Formulates conclusions for presenting research results (publications, dissertation defense, clinical guidelines)
		4.3 Compares the research findings with previous national and global research.
	5. Evaluate clinical practice guidelines and recommendations with using the AGREE system.	5.1 Uses the AGREE system when reviewing clinical guidelines and recommendations.
		5.2 Uses the AGREE criteria to develop clinical guidelines.
Prerequisites	Bio2215, OE3216	
Post-requisite	RBDONI6206, NIRM 4, EE5307	
Literature and resources	**Literature:** 1. Trisha Trinhalk. Bases of Evidence-based Medicine, 2010.-222 p. 2. AGREE II VERSIONS & UPDATES AGREE II Original Public Release and Publication Date: 2009/2010 AGREE II Update: September 2013 AGREE II Update: December 2017 3. Evidence-Based Medicine Guidelines. John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England.- 2005.- 1343 p. 4. Users' Guides to the Medical Literature: Essentials of Evidence-Based Clinical Practice, Third Edition (Uses Guides to Medical Literature) by Gordon Guyatt, 2015.-402 p. **Additional Literature:** 5. Key topics. Evidence-based medicine. D.P.V. MqGoverin, R.M. Valori, W.S.M. Summerskill, M. Levi, 2001.-167 p. 6. AGREE II. Instrument. The AGREE next steps consortium, 2017.- 52 p. 7. Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, RW Scott: Evidence based medicine: what it is and what it isn't. Editorial. BMJ 1996; 312: 71–2. 8. REVIEW ARTICLE Critical Appraisal of Scientific Articles Part 1 of a Series on Evaluation of Scientific Publications Jean-Baptist du Prel, Bernd Röhrig, Maria Blettner 9. Evidence Based Medicine – New Approaches and Challenges Izet Masic, Milan Miokovic, Belma Muhamedagic Faculty of Medicine, University of Sarajevo, B&H/PROFESSIONAL PAPER vol 16 no 4 DECEMBER 2008 **Electronic sources:** 10. www.who.org 11. www.cdc.gov	

<table>
<tr><td></td><td>12. www.medline
13. www.cockraine.library
14. www.PubMed.</td></tr>
<tr><td>Academic policy of the course in the context of university moral and ethical values</td><td>Academic Behavior Rules:
The deadlines for completing the online course modules must be strictly observed in accordance with the schedule for studying the discipline.
ATTENTION! Failure to meet deadlines results in loss of points! The deadline for each assignment is indicated in the calendar (schedule) for the implementation of the content of the training course.
Academic values:
– Practical class, IWS should be independent, creative
– Unacceptable plagiarism, forgery, the use of cheat sheets, cheating at all stages of knowledge control
– Students with disabilities may receive counseling at the e-mail address: akylbek.saktapov@kaznu.kz</td></tr>
<tr><td>Evaluation and attestation policy</td><td>Criteria-based evaluation: assessment of learning outcomes in relation to descriptors (verification of the formation of competencies in midterm control and exams).
Summative evaluation: assessment of the presence and activity of work in the audience (webinar); assessment of the completed task.
The overall grade will be calculated as:
$$\frac{\text{BC1}+\text{MT}+\text{BC2}}{3} \cdot 0{,}6 + \text{FC} \cdot 0{,}4,$$
where, BC – boundary control; MT – midterm; FC – final control (exam).

<table>
<tr><td>Grade</td><td>The digital equivalent</td><td>Range of scores (%)</td><td>Traditional system score</td></tr>
<tr><td>A</td><td>4,0</td><td>95-100</td><td>Excellent</td></tr>
<tr><td>A-</td><td>3,67</td><td>90-94</td><td></td></tr>
<tr><td>B+</td><td>3,33</td><td>85-89</td><td>Good</td></tr>
<tr><td>B</td><td>3,0</td><td>80-84</td><td></td></tr>
<tr><td>B-</td><td>2,67</td><td>75-79</td><td></td></tr>
<tr><td>C+</td><td>2,33</td><td>70-74</td><td></td></tr>
<tr><td>C</td><td>2,0</td><td>65-69</td><td>Satisfactory</td></tr>
<tr><td>C-</td><td>1,67</td><td>60-64</td><td></td></tr>
<tr><td>D+</td><td>1,33</td><td>55-59</td><td></td></tr>
</table>
</td></tr>
</table>

	D-	1,0	50-54	
	FX	0,5	25-49	Fail
	F	0	0-24	

Calendar (schedule) the implementation of the course content:

Week	Topic title	LO	IA	Number of hours	Maximum score	Knowledge assessment form	Lesson form / platform
Module 1.							
1	Lecture 1. Principles of Evidence-based medicine. Role of Evidence-based medicine in Public Health.	LO1	IA 1.1 IA 1.2	1		PL	Webinar /Zoom
	Seminar 1. Definition and principles of Evidence-based medicine. History of development and role of Evidence-based medicine in Public Health. World experience.	LO1	IA 1.1 IA 1.2	2	10	TT	Webinar /Zoom
2	Lecture 2. 5-step process in Evidence-Based Practice. First step - Asking answerable clinical questions or a clinical problem by using the PICO principle. PICOT.	LO1	IA 1.1 IA 1.2	1		IL	Webinar /Zoom
	Seminar 2. 5-step process in Evidence-Based Practice. First step of EBM – Asking answerable clinical question or a clinical problem by using the PICO principle. Create a clinical example (task) on a given topic.	LO1	IA 1.1 IA 1.2	2	10	TT	Webinar /Zoom
3	Lecture 3. Second step of EBM – Acquiring the highest quality evidence available by using the Internet and an Electronic Database.	LO1	IA 1.3 IA 1.4	1		IL	Webinar /Zoom
	Seminar 3. Find information or evidence to answer question from the Internet and an Electronic Database. Database: Cochrane library, Trip Database, PubMed, Medline.	LO1	IA 1.3 IA 1.4	2	10	TT	Webinar /Zoom
	IWST 1. Consultation on IWS 1: Database organization in MS Access	LO1	IA 1.1 IA 1.2 IA 1.3 IA 1.4	2,3			SDO Moodle.kaznu

Week	Topic title	LO	IA	Number of hours	Maximum score	Knowledge assessment form	Lesson form / platform
4	Lecture 4. Clinical trails' Procedures and Design.	LO2 LO3	IA 2.1 IA 2.2 IA 2.3 IA3.1 IA3.2	1	10	IL	Webinar /Zoom
	Seminar 4. Clinical trails' design: types, pyramid of evidence-based researches. Scope, interpretation of results, strength and limitation of Cross-Sectional, Cohort and Case-Control studies.	LO2 LO3	IA 2.1 IA 2.2 IA 2.3 IA3.1 IA3.2	2	10	TT	Webinar /Zoom
5	Lecture 5. Clinical trails' design.	LO3	IA 3.1 IA 3.2 IA 3.3 IA 3.2	1		IL	Webinar /Zoom
	Seminar 5. Clinical trials' design: Scope, Interpretation of results, strength and limitation of Randomized Clinical Trails.	LO3	IA 3.1 IA 3.2 IA 3.3 IA 3.2	2	10	TT	Webinar /Zoom
	IWS1. Database organization in MS Access	LO3	IA 3.1 IA 3.2 IA 3.3 IA 3.2		50	IT	SDL Moodle.kaznu
BC 1					100		
Module 2.							
6	Lecture 6. Diagnostic Test: sensitivity and specificity. Likelihood ratio and prognostic value (negative and positive).	LO3 LO4	ИД 3.2 ИД 4.2 ИД 4.3	1		IL	Webinar /Zoom
	Seminar 6. Estimation of sensitivity and specificity of tests in Clinical Trials. Prognostic value of a negative and positive result.	LO3 LO4	ИД 3.2 ИД 4.2 ИД 4.3	2	10	TT	Webinar /Zoom

Week	Topic title	LO	IA	Number of hours	Maximum score	Knowledge assessment form	Lesson form / platform
7	Lecture 7. The practical application of principles of Evidence-Based Medicine in diagnostic, etiological (risk assessment), prognostic and therapeutic purposes in medicine.	LO1 LO4	ИД 1.2 ИД 4.1 ИД 4.2 ИД 4.3	1		IL	Webinar /Zoom
	Seminar 7. The practical application of principles of evidence-based medicine in diagnostic, etiological (risk assessment), prognostic and therapeutic purposes in medicine.	LO1 LO4	ИД 1.2 ИД 4.1 ИД 4.2 ИД 4.3	2	12	TT	Webinar /Zoom
8	Lecture 8. Systematic review	LO1 LO4 LO5	ИД 1.4 ИД 4.3 ИД 5.1	1		IL	Webinar /Zoom
	Seminar8. Definition and content of systematic review. Traditional literature review and systematic review. Evidence and weaknesses in systematic reviews.	LO1 LO4 LO5	ИД 1.4 ИД 4.3 ИД 5.1	2	10	TT	Webinar /Zoom
	IWST 2. Consultation on IWS 2	LO1 LO4 LO5	ИД 1.4 ИД 4.3 ИД 5.1	2,3			Webinar /Zoom
9	Lecture 9. Meta analysis.	LO3 LO4	ИД 3.3 ИД 3.4 ИД 4.1 ИД 4.2 ИД 4.3	1		IL	Webinar /Zoom
	Seminar 9. Meaning of meta-analysis. Cochrane Collaboration. Cochrane library. Systematic and random errors.	LO3 LO4	ИД 3.3 ИД 3.4 ИД 4.1 ИД 4.2 ИД 4.3	2	10	TT	Webinar /Zoom

Week	Topic title	LO	IA	Number of hours	Maximum score	Knowledge assessment form	Lesson form / platform
10	Lecture 10. Grading of evidence and levels of recommendation.	LO3 LO4	ИД 3.3 ИД 3.4 ИД 4.1 ИД 4.2 ИД 4.3	1		IL	Webinar /Zoom
	Seminar10. Evidential value of various clinical trials' design. Classification of scientific research. The hierarchy of evidence. Levels of evidence: A, B, C, D. Classes of recommendations: I, II, II-a, II-b, III.	LO3 LO4	ИД 3.3 ИД 3.4 ИД 4.1 ИД 4.2 ИД 4.3	2	10	IT	Webinar /Zoom
	IWS 2. Checking the distribution of a quantitative trait using statistical criteria in SPSS "(practical task)	LO3 LO4	ИД 3.3 ИД 3.4 ИД 4.1 ИД 4.2 ИД 4.3		50	IT	SDO Moodle.kaznu
MT (Midterm Exam)					100		
Module 3.							
11	Lecture 11. Step 3 of EBM.	LO4	ИД 4.1 ИД 4.2	1		IL	Zoom
	Seminar 11. Step 3 of EBM – Appraising the clinical relevance and validity of the evidence in the current clinical environment. Critical appraisal and analysis of scientific publications from the perspective of evidence-based medicine. Tools of evaluation.	LO4	ИД 4.1 ИД 4.2	2	10	TT	Webinar /Zoom
12	Lecture 12. Steps 4 and 5 of EBM.	LO2 LO4	ИД 2.2 ИД 4.1 ИД 4.2 ИД 4.3	1		IL	Webinar /Zoom
	Seminar 12. Step 4 of EBM- Applying evidence-based interventions in the current clinical environment. Step	LO2 LO4	ИД 2.2 ИД 4.1 ИД 4.2	2	10	TT	Webinar /Zoom

Week	Topic title	LO	IA	Number of hours	Maximum score	Knowledge assessment form	Lesson form / platform
	5 of EBM – Assessing the efficacy and utility of EBM practice.		ИД 4.3				
	IWST 3. Consultation on IWS 3	LO2 LO4	ИД 2.2 ИД 4.1 ИД 4.2 ИД 4.3	2,3			Webinar /Zoom
13	Lecture13. Clinical practical guidelines: definition, principles of development and using in Medicine.	LO4 LO5	ИД 4.1 ИД 4.2 ИД 4.3 ИД 5.1	1		IL	Webinar /Zoom
	Seminar 13. Principles of EBM in development of Clinical Practical guidelines and recommendations. Types of clinical practical guidelines. Requirement and stages of development of Clinical Practical Guidelines and Recommendations. Strength and limitation of Clinical Practical Guidelines.	LO4 LO5	ИД 4.1 ИД 4.2 ИД 4.3 ИД 5.1	2	10	TT	Webinar /Zoom
14	Lecture 14. AGREE system and evaluation of Clinical Practical Guideline.	LO4 LO5	ИД 4.1 ИД 5.1 ИД 5.2	1		IL	Webinar /Zoom
	Seminar 14. Evaluation of Clinical Practical Guideline with using AGREE system.	LO4 LO5	ИД 4.1 ИД 5.1 ИД 5.2	2	10	TT	Webinar /Zoom
15	Lecture 15. Tests' sensitivity and specificity. Likelihood ratio and prognostic value (negative and positive).	LO5	IA 5.1 IA 5.2	1		IL	Webinar /Zoom
	Seminar 15. Estimation of sensitivity and specificity of tests in clinical trials. Prognostic value of a negative and positive result.	LO5	IA 5.1 IA 5.2	2	10	TT	Webinar /Zoom
	IWS3.	LO5	IA 5.1 IA 5.4		50	IT	SDO Moodle.kaznu
BC 2					100		

[Abbreviations: STQ – Self-Test Questions; TT – typical tasks; IT – individual task; T – test; BC – Boundary control]

Dean of the Faculty _____ Zh.A. Kalmatayeva

Chairman of the Faculty
Methodical Bureau _____ A.Y. Ualiyeva

Head of the Department _____ S.A. Mamyrbekova

Lecturer _____ A.K. Saktapov