MINISTRY OF EDUCATION AND SCIENCE OF KYRGYZ REPUBLIC

OSH STATE UNIVERSITY

INTERNATIONAL MEDICAL FACULTY

DEPARTMENT OF "CLINICAL DISCIPLINES - 2"

ACADEMIC PROGRAM

Syllabus

Specialty (Program):	**General Medicine**	**Course Code:**	
Language of Instruction:	English	**Course Title:**	**Advanced Methods Clinical Research (ACR)**
Academic Year:	2025-2026	**Number of Credits:**	**3**
Instructors:	Lazokatkhan Dzhumaeva Makhabat Bugubaeva Zhainagul Abdirasulova Jazgul Abjamilova	**Semester:**	**10**
E-Mail	ldjumaeva@oshsu.kg mbugubaeva@oshsu.kg jazgul@ajamedeng.ru iimfoshsu@gmail.com anuralieva@oshsu.kg	**Schedule:**	**Mon–Sat**
Consultations:	DIMEDUS 106 classroom 09:00-17:00	**Location:**	**DIMEDUS** **106 classroom**
Mode of Study:	**Full-time**	**Course Type:**	**C** **Elective course**

Prepared by: PhD L.M. Dzhumaeva
Teacher: J.A. Abjamilova

Head of the General Medicine Program
Medical candidate, associate professor M.M. Bugubaeva

Osh, 2026

Course Description

The discipline “Advanced Methods Clinical Research (ACR)” is an elective course for fifth – year - students within the professional cycle of the General Medicine curriculum of IMF of Osh State university.

Course Goals

To prepare students to perform the systematic design, methodology, and structural framework used to evaluate the safety, efficacy, and outcomes of medical interventions. As a result, to manage complex clinical trials, ensuring regulatory compliance, scientific validity, and patient safety.

Course Objectives

- Develop knowledge of the fundamentals of organizing and conducting scientific research based on the principles of evidence-based medicine and scientific and medical ethics.
- Develop skills in finding answers to professional questions from scientific information sources, and in understanding, analyzing, and interpreting research results.
- Foster an interest in science, motivation for continuous learning, and self-development.

Learning skills or learning ability:

1. Independent Research Project: Completion of a supervised, high-quality original research project.
2. Manuscript Submission: Preparation and submission of research findings to a peer-reviewed journal.
3. Clinical Trial Management: managing or coordinating clinical trials.

Learning outcomes (LOD) and student competencies formed in the process of studying the discipline "Faculty Pediatrics"

In the process of learning discipline student must achieve the following learning outcomes(LO) and will have appropriate **competencies:**

Code of LO in the GEP and its wording	Competencies of GEP	Code of LO of the discipline (LOd) and its wording
LO- 7 Able to apply basic knowledge in the field of diagnostic activities to solve professional problems	PC-14 - Capable and ready to make a diagnosis based on the results of biochemical and clinical studies, taking into account the course of pathology by organs, systems, and overall.	LOd -1: Capable and ready to make a diagnosis for a sick child based on the results of biochemical and clinical studies, taking into account the course of pathology by organs, systems, and the body as a whole, as well as age.
	PC-15 - Able to analyze the functioning patterns of individual organs and organ systems, use knowledge of the anatomical and physiological characteristics, basic methods of clinical-laboratory examination, and assess the functional state of the body in adults and children.	LOd -2: Able and ready to conduct and interpret interviews, physical examinations, clinical examinations, the results of modern laboratory and instrumental studies, and write a medical record for an outpatient and inpatient sick child, taking into account his/her age.

LO-8 Able to apply basic knowledge in the field of medical activity to solve professional problems	PC-17 - Able to perform basic therapeutic measures and prescribe adequate treatment for children depending on their age for the most common diseases and conditions.	POd -3: Able to perform basic therapeutic measures and prescribe adequate treatment for children depending on their age for the most common diseases and conditions.
LO-11 is able to apply basic knowledge in the field of scientific research to solve professional problems	PC-18 - Able and ready to analyze and publicly present medical information based on evidence-based medicine.	POd -4: Able and ready to analyze and present medical information based on evidence-based medicine.

3. Prerequisites: Internal Medicine, Pediatrics, Surgery, biostatistics, basic epidemiology and bioethics.

4. Post requisites: Good Clinical Practice (GCP) guidelines (ICH-GCP), FDA regulations, and patient safety protocols.

Lecture Plan

week #	**Lecture topics**	**Lecture hours**	**Tests or tasks in MOOC**	**Weeks**
	1-модуль			
1.	Research Methodology: An Introduction https://youtu.be/GSeeyJVD0JU?si=qG-D6Yb9rUIaecvp	2	3	1week
2.	Types of clinical trials. Goals and role of the physician.	2	3	2week
3.	Planning a clinical trial from idea to protocol. https://youtu.be/QB6Fdw-LDiI?si=NUl9Jj1Q5uXRKl04 https://youtu.be/IwJVnfw44SU?si=irhidPXJb5rJEW4g	2	3	3week
4.	Ethics of clinical research.	2	3	4week
5.	Statistics in medical research. https://youtu.be/xmlfzDJUgzA?si=xbvOdaF62HbLt1T5 https://youtu.be/G5pItsGsvyo?si=_xxaaXlDvY-0-gRK	2	3	5week
6.	Analysis and critical evaluation of scientific publications. How to read articles and apply the information in practice. https://youtu.be/_zyN3Wa_a7c?si=af4E3TjpICJcil6q https://youtu.be/LBQqGKY2dJ0?si=1JjnJjqN1cdX0BsB	2	3	6week
7.	Research in real clinical practice	2	3	7 week
Total hrs / average points		**14**	**21**	**7**

Plan for practical classes

№ week	Practical class topics	Class hours	Points Tests or tasks in MOOC	Weeks
1.	Clinical Research Architecture	4	3	1week
2.	From Clinical Question to Hypothesis: PICO/PEO Methodology.	3	3	2week
3.	Research Design , Sampling Design Process	3	3	3week
4.	Bioethics and Patient Rights: Development of Documentation.	3	3	4week
5.	Information Sources and Critical Appraisal of Clinical Studies	3	3	5week
6.	Methods of Data Collection and Digital Solutions.	3	3	6week
7.	Independent Study Project and Integrative Analysis. **Module** Presentation of own work	3	3	7 week
	Total hrs / average points	**22**	**18**	**7**

Plan for IWS

1. Review the summary of the CAST (Cardiac Arrhythmia Suppression Trial) using available open-access resources. Note that this study was conducted in two phases: the first phase investigated antiarrhythmic drugs commonly used at that time, while the second phase tested alternative medications with a similar mechanism of action.

Based on your review, answer the following questions:

1. Identify the Surrogate Endpoint. What specific measurement did the investigators use to assume the treatment was working effectively during the initial phase?
2. Identify the Clinical Outcome**.** What was the actual, real-world result that led to the premature termination of the study?
3. Explain in 2–3 sentences why "making the ECG look beautiful" (suppressing arrhythmias) failed to translate into saving lives.
4. Can you think of another example in medicine where a "good lab result" or a positive "surrogate marker" might not necessarily mean the patient’s overall health is improving?

2. Review the most common cognitive biases encountered in clinical practice: Anchoring Bias, Confirmation Bias, Availability Bias, and Premature Closure. For this assignment, choose one of these biases and complete the following analysis:

1. Describe a hypothetical scenario where this bias might occur. What factors contribute to it? (e.g., high workload, lack of experience, or over-reliance on initial data).
2. The Dual-Outcome Analysis: The "Lucky Intuition" Scenario: Provide an example where following this bias might accidentally lead to the correct diagnosis (e.g., the most obvious explanation happens to be true). The "Medical Error" Scenario: Provide an example

where this bias leads to a serious diagnostic mistake (e.g., different diseases presenting with identical symptoms).

Example:

Scenario: "A patient presents with chronic back pain and visible poor posture (kyphosis). The physician immediately attributes the pain to the postural issues—the first clinical sign observed—and ceases further diagnostic exploration. The doctor fails to investigate other critical 'red flags,' such as the patient's mention of recent, unexplained weight loss."

1. Which specific bias is most prominent here? (Anchoring Bias or Premature Closure).
2. **The "Lucky Intuition" (Correct):** In what case would the doctor be right? (e.g., if the weight loss is due to a new diet and the pain is truly muscular). **The "Medical Error" (Incorrect):** What serious condition could be missed? (e.g., metastatic cancer or spinal infection where back pain and weight loss are primary symptoms).

3. The Research Ladder.
Imagine you have observed an unusual phenomenon in your daily practice. For example: Patients who regularly drink a specific herbal tea seem to have consistently lower blood pressure. You may use this example or invent your own clinical observation based on a drug side effect, a lifestyle habit, or a unique diagnostic sign.

Your task is to create a step-by-step research roadmap to prove your hypothesis. Complete the following four steps:

Step 1. Case Report. Describe the clinical case of 1 specific patient.

Step 2. Case Series. Describe your next move to show this wasn't just a coincidence. How many similar patients would you look for, and what common data points would you collect to suggest a pattern?

Step 3. Observational Study. (How would you compare «tea-drinkers» vs. others?)

Step 4. RCT. (What would the "Gold Standard" experiment look like? How would you randomize patients? What would the Placebo (control) look like?)

Course Policy

- Academic integrity: no plagiarism, no cheating.
- Deadlines: late work is penalized, missing work = no exam admission.
- Classroom behavior: respectful, no bullying, no texting in class.
- Conflict resolution: first with teacher, then program head if unresolved.

Grading System

The grading is modular: 50 points for Module, and 50 points for the final exam.

The minimum score for admission to the exam is 30.
The semester grade for the current assessment is calculated automatically, based on the average of the current assessments for the semester.

Educational Resources	
E-Resources (I)	1. SCOPUS – Electronic bibliographic and abstract database https://www.scopus.com/home.uri 2. SJR (Scimago Journal Rank) – Free electronic platform that collects information on indexed journals and ranks them according to authority https://www.scimagojr.com/index.php 3. PubMed – Electronic search system for biomedical research https://pubmed.ncbi.nlm.nih.gov/ 4. Web of Science – Paid electronic search platform combining multiple bibliographic and abstract databases https://clarivate.com/cis/solutions/web-of-science/ 5. Library of Congress (USA) – Electronic catalog http://catalog.loc.gov 6. New York Public Library – Electronic catalog http://catalog.nypl.org 7. British Library – Electronic catalog http://explore.bl.uk/primo_library/libweb/action/search.do 8. Bodleian Library (Oxford) – Electronic catalog http://www.bodleian.ox.ac.uk/bodley#search-in-catalogue 9. Harvard catalog http://library.harvard.edu. 10. Educational web platform https://www.coursera.org
General Resources (O)	1 Research methodology. Methods & technique : Kothari. C.R., 2nd edition, 2004, -418 p. Https://drive.google.com/file/d/1463in52ult7bl9s4qtvxlx-xkf8ukv06/view?usp=sharing 2 Research methodology: tools and techniques dr. Prabhat Pandey dr. Meenu Mishra Pandey © bridge center, 2015 bridge center https://drive.google.com/file/d/1shn1ef-_wik8apmoqlq34nesujmvx8e7/view?usp=sharing 3 Research Methodology, Dr Meena Pandey, 2013 https://drive.google.com/file/d/1PH3y9SlvMPpBwq1B9PrtjkHf_xq2FDaT/view?usp=sharing 4 Designing clinical research, Stephen B. Hulley, md, mph 4th ed. 2013 https://drive.google.com/file/d/1eisnaaxzbgjhcvtgutzmxtezyekej_cd/view?usp=sharing

	(Д-Дополнительная литература) 1. Research Methods Handbook Introductory guide to research methods for social research. Stuart MacDonald & Nicola Headlam, CLES, 2019 https://drive.google.com/file/d/1X0g_jm8RluKEtHTyDXsoj-Q3_l3T_r4W/view?usp=sharing 2. Fundamental of research methodology and statistics by Yogesh Kumar Singh 2006 https://drive.google.com/file/d/1psfwqbrumw-l6pmk1pxeqijy3kwrzgoi/view?usp=sharing 3. Research Methods Creswell, John W., 2009 https://drive.google.com/file/d/1LsSrq8SIvMKtHD7Z5odHHTsHlUJclf4-/view?usp=sharing

Card of accumulation of points

Subject	**Credit**	**Aud. Classes**	**ISW/** ISWT	**Module (50 points)**		
		60%	40%	Auditory classes		IWS
				lec	pr	
ACR	3	22	90	21	21	10
Point Accumulation Card		5	5	3	3	5
Module and exam results				(example=tcp.+r+s) before 25 / 25	(example=tcp.+r+s) before 25 / 25	
Module and exam results Final grade				Pass mark = M1 >30		

Аннотация программы по дисциплине
„Advanced Clinical Research“

Специальность:
Дисциплина: Advanced Clinical Research
Общая трудоемкость: 3 кредитов
Уровень: 5-й курс

Задачи дисциплины:
Формирование углубленных знаний, умений и компетенций, необходимых для планирования, реализации, анализа и интерпретации современных клинических исследований с применением последних методических подходов, включая адаптивные дизайны, информационные технологии и методы искусственного интеллекта.

Общая характеристика курса

Advanced Clinical Research — это профильный курс, направленный на развитие практических и теоретических навыков в области клинических исследований человека. Студенты освоят современные стратегии проектирования, управления, анализа данных и интерпретации результатов клинических исследований в условиях быстро меняющейся научной среды.

Цели обучения

Студент в результате освоения дисциплины должен:

- Понимать основные этапы клинического исследования: от формирования гипотезы и дизайна до отчетности и публикации результатов.
- Освоить современные инновационные методы исследования, включая адаптивный дизайн и предиктивное моделирование.
- Получать практический опыт работы с данными и инструментами, применяемыми в клинических испытаниях.
- Владеть навыками критической оценки научной литературы и результатов исследований.
- Ориентироваться в регуляторных и этических требованиях к клиническим исследованиям.

Перечень формируемых компетенций:
ПК-14, ПК-17,ПК-18, ПК-32.

Виды учебной работы: Лекционные и практические занятия

Экзамен

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E-Mail	ldjumaeva@oshsu.kg mbugubaeva@oshsu.kg jazgul@ajamedeng.ru iimfoshsu@gmail.com anuralieva@oshsu.kg	**Schedule:**	**Mon–Sat**
Consultations:	DIMEDUS 106 classroom 09:00-17:00	**Location:**	**DIMEDUS** **106 classroom**
Mode of Study:	**Full-time**	**Course Type:**	**C** **Elective course**

Prepared by: PhD L.M. Dzhumaeva
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Osh, 2026