INTERNATIONAL HIGHER SCHOOL OF MEDICINE
Department: PUBLIC HEALTH

SYLLABUS
Discipline: Public Health 1

2025-2026 academic year

For students of medical faculty
V semester
6 credits (180 h, including108 class hours, 72 hours of independent study)
form of control (in the discipline's work program)

PH_1: Introduction to Public Health

Lecturer:	Lecturer: Dr. Kenesh O. Dzhusupov, MD, Ph.D., Associate Professor +996 770 153154 (WhatsApp) Email: k.dzhusupov@ism.edu.kg Dr. Artur Buyuklianov, MD, Ph.D. Acting Associate Professor +996 555 500594 (WhatsApp) Email: abuiuklianov@yahoo.com
Venue:	Zoom
Practical classes:	Dr. Kenesh O. Dzhusupov, MD, Ph.D., Associate Professor +996 770 153154 (WhatsApp) Email: k.dzhusupov@ism.edu.kg
Venue:	
Practical classes:	Dr. Artur Buyuklianov, MD, Ph.D. +996 555 500594 (WhatsApp) Email: abuiuklianov@yahoo.com
Venue:	
Practical classes:	Dr. Zhohongir Dzhaliev, MD, +996 551 116116 (WhatsApp) Email: dzhaliev99@gmail.com
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Practical classes:	Dr. Sultan ulu Ermek +996 0555727561 (WhatsApp) Email: sultan.ermek2901@gmail.com
Venue:	Rooms 502,523 (5th floor) 1F, Intergelpo street, IHSM Main building (Bishkek)

PH_1: Economics

Lecturer:	Asel Usupbekova phone +996 505 999363 (Whatsapp) Email: asel88.usup@gmail.com Aigerim Dzumashalieva Phone 0772181711 (Whatsapp) Email; Smile_aigerim@mail.ru
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Venue:	Rooms 505,511 (5th floor) 1F, Intergelpo street, IHSM Main building (Bishkek)
PH_1: Fundamentals of Biostatistics	
Lecturer:	Dr. Kenesh O. Dzhusupov, MD, PhD, Associate Professor, +996 770 153154 (WhatsApp) Email: k.dzhusupov@ism.edu.kg
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Venue:	Rooms 515,517 (5th floor) 1F, Intergelpo street, IHSM Main building (Bishkek)
PH_1: Bioethics	
Lecturer:	Aigul Asanbaeva 0 501 350 542 phone (Whatsapp) Email: 19aika61@mail.ru
Venue:	Zoom
Practical classes:	Aigul Asanbaeva 0 501 350 542 phone (Whatsapp) Email: 19aika61@mail.ru
Venue:	Room 519 (5th floor) 1F, Intergelpo street, IHSM Main building (Bishkek)

The Syllabus is considered
at the meeting of the department of Public Health
Protocol № 1 dated 3 September 2025
Head of the department _____Dr. Kenesh O. Dzhusupov

Content

Оглавление

Course Objective:
to develop in the specialist an integrated system of knowledge, practical skills, and professional competencies in the fields of public health, health economics, biostatistics, and bioethics, necessary for the systematic analysis of population health status, the planning, economic evaluation, and monitoring of preventive and therapeutic programs, informed decision-making based on statistical evidence, and adherence to ethical standards in clinical and public health practice.

After study of the discipline the student must:

1. to develop analytical skills for assessing population health status, including the collection and interpretation of epidemiological data, identification of priority health issues, and determination of key risk factors.
2. to train students in evidence-based clinical and managerial decision-making, utilizing statistical evidence and economic indicators in the selection of therapeutic and preventive interventions.
3. to enhance economic literacy in healthcare, including the ability to estimate program costs and benefits and to conduct basic economic evaluations (e.g., cost-effectiveness analysis, budget planning).
4. to develop competencies in biostatistical data analysis, including model construction, calculation of incidence and prevalence rates, confidence intervals, application of statistical tests, and interpretation of results.
5. to foster ethical awareness and professional responsibility grounded in the principles of bioethics in both clinical practice and public health.
6. to ensure understanding of the role of screening and preventive programs in improving the quality and safety of healthcare, as well as the ability to evaluate and implement such programs.
7. to develop communication skills for effective interaction with patients, healthcare administrators, public organizations, and health authorities.
8. to cultivate readiness for work in multidisciplinary teams and to develop leadership competencies for coordinating projects and preventive campaigns.
9. to provide foundational training in research methodology and critical thinking, including formulating research questions, designing basic studies, and critically appraising scientific literature.
10. to support the expansion of graduates' career opportunities across healthcare systems, as well as in scientific and educational institutions.
11. to prepare specialists for practical activities aimed at the development and implementation of programs that reduce disease incidence, increase coverage of preventive measures, and promote the efficient use of healthcare resources.

Pre-requisites.

- Medical Biology
- Anatomy (Macro- and Microanatomy)
- Normal Physiology
- General Hygiene
- History of Medicine
- Philosophy
- Law (Jurisprudence)
- Microbiology, Virology, and Immunology
- Medical Physics and Higher Mathematics
- Informatics

Post-requisites.

- Clinical Disciplines
- Epidemiology
- Medical Genetics
- Qualitative Research Methods
- Evidence-Based Medicine

THEMATIC PLAN OF LECTURES

Unit	№	Theme of lectures	Hours	Date
1	1.	Course overview. Health Concepts. Individual and Population's Health. Social medicine and Public Health concepts	2	
	2.	Social Determinants of Health. Inequalities in Health	2	
	3.	Demography and Health Measuring and Evaluation Health	2	
2	4.	Fundamentals of Economics and Healthcare	2	
	5.	Healthcare Systems	2	
	6.	Market Mechanisms in Healthcare	2	
3	7.	Introduction. What are Statistics? Descriptive and Inferential Statistics. Terminology and Symbols. Sampling Methods. Types of Data. Probability	2	
	8.	Distribution of data. Measures of central tendency & variability. Z-test	2	
4	9.	Inferential statistics. Central limit theorem. Estimating the mean of a population	2	
	10.	Hypothesis testing	2	
	11.	ANOVA. Non-parametric methods	2	
	12.	Correlational Techniques	2	
5	13.	Bioethics. Introduction. Historical foundations of bioethics	2	
	14.	Principles and rules of biomedical ethics.	2	
	15.	The rights and moral obligations of physicians and patients.	2	
	16.	Medical ethics and medical deontology. The basic model of moral relationship between doctor and patient.	2	
	17.	Ethics of biomedical research. Ethical Committees.	2	
6	18.	Ethical issues of abortion and new reproductive technologies. Bioethical aspects of surrogate motherhood	2	
	19.	Bioethical problems of medical genetics.	2	
	20.	Moral and legal problems of human organs and tissues donation and transplantation.	2	
	21.	Problems of death and dying. The moral and ethical problems of euthanasia.	2	
		Total	42	

THEMATIC PLAN OF PRACTICAL CLASSES

Unit	№	Themes of classes	Hours	Date
1	INTRODUCTION TO PUBLIC HEALTH			
	1.	Health concepts. Major social concepts of health	2	
	2.	Social determinants of health. Inequity and inequality in health	2	
	3.	Indices of nation's health. Medical and demographic processes	2	
	4.	Global and International Health	2	
	5.	Global Burden of Disease.	2	
	6.	Students' presentations. Unit control 1.	2	
2	FUNDAMENTALS OF ECONOMICS AND HEALTHCARE			
	7.	Introduction to Health Care Economics	2	
	8.	Health Care Systems	2	
	9.	Medical Services Market: Basics	2	
	10.	Medical Services Market: Regulation and Competition	2	
	11.	Market Economy and Its Limitations in Healthcare	2	
	12.	Unit control 2	2	

3	FUNDAMENTALS OF BIOSTATISTICS. DESCRIPTIVE STATISTICS.			
	13.	Probability theory. Sampling methods	2	
	14.	Descriptive Statistics. Types of variables. Case study	2	
	15.	Distribution of data. Measures of central tendency and variability	2	
	16.	Normal distribution. Z score	2	
	17.	Control Unit 3	2	
4	FUNDAMENTALS OF BIOSTATISTICS: INFERENTIAL STATISTICS			
	18.	Inferential Statistics. Central limit theorem.	2	
	19.	Estimation of the population mean	2	
	20.	Hypothesis testing	2	
	21.	Analysis of variance (ANOVA test)	2	
	22.	Parametric and Non-parametric techniques	2	
	23.	Correlation and regression techniques	2	
	24.	Control Unit 4	2	
5	BIOETHICS 1			
	25.	Principles of biomedical ethics:	2	
	26.	The rights and moral obligations of physicians. Patient's rights and duties.	2	
	27.	Medical ethics and Bioethics. Medical deontology. Important aspects of the relationships between doctor and patient.	2	
	28.	Medical errors and reasonable risks: concept and responsibility.	2	
	29.	Control Unit 5	2	
6	BIOETHICS 2			
	30.	Ethical issues of abortion and new reproductive technologies. Bioethical aspects of surrogate motherhood.	2	
	31.	Moral and legal problems of organs and tissues donation and transplantation.	2	
	32.	The moral problems of death and dying. Ethical issues of euthanasia.	2	
	33.	Control Unit 6	2	
		Total	66	

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

Unit	№	Theme of independent work -	Hours	Date
1		Reading	4	
		SIW	8	
	1.	Analysis and presentation of scientific articles on the Global Burden of Disease		
	2.	Analysis and presentation of topics on Demographics and Health		
	3.	Analysis and presentation of topics on Social Determinants of Health		
2		Reading	8	
		SIW	4	
	4.	Essay: “Economy and Health: The Relationship”		
	5.	Comparative analysis of two countries’ healthcare systems (table format)		
	6.	Table: classification of medical services (primary, specialized, high-tech)		

	7.	Essay: *"Why is the healthcare market not perfect?"*		
	8.	Presentation: *"Competition in the Healthcare Market"*		
	9.	Problem set: calculation of medical service costs		
3		Reading	4	
		SIW	8	
	10.	Solution of 12 situational problems		
4		Reading	4	
		SIW	8	
	11.	Solution of 12 situational problems		
5		Reading	6	
		SIW	8	
	12.	Bioethics and universal values.		
	13.	Biomedical ethics in the professional activity of a doctor.		
	14.	Modern models of the relationship between the doctor and the patient.		
	15.	The problem of justice in medicine and health care.		
	16.	Bioethics and religious morality.		
	17.	Codes of ethics in medicine ("The Nuremberg Code", the Council of Europe Convention "On Human Rights and Biomedicine", etc.).		
	18.	Ethics committees and scientific research.		
6		Reading	4	
		SIW	6	
	19.	Problems of the beginning of life in bioethics		
	20.	Ethical problems of new "technologies of conception".		
	21.	The use of stem cells in medicine, problems and prospects.		
	22.	Ethical problems of transplantology and xenotransplantation.		
	23.	AIDS: moral and ethical problems.		

References for the discipline:

Basic:

Unit	№	Title
1	1.	Richard Riegelman Brenda Kirkwood Public Health 101: Improving Community Health: Improving Community Health 2019 Jones & bartlett learning
	2.	Mary-Jane Schneider, Advantage Access for Introduction to Public Health, Sixth Edition, 2020, Jones & Bartlett Learning
	3.	Walley J., Whright J., Hubley J., Public Health: An action guide to improving health in developing countries, 2001, Oxford University Press
2	4.	McConnell, Brue / McGraw-Hill Inc. Essentials of economics 2014 New-York
	5.	Drummond M.F., Sculpher M.J., Claxton K., Stoddart G.L., Torrance G.W. Methods for the Economic Evaluation of Health Care Programmes. — Oxford: Oxford University Press, 2015.
3-4	6.	K. Dzhusupov, A. Aidaraliev Four Lessons on Biostatistics. 2020 Bishkek: NeoPrint
	7.	S. Manzhikova. Bases of Statistical Analsyis of Medical and Biological Data Using MS Excel 2015 Bishkek: NeoPrint
5-6	8.	Amy E. Caruso Brown, T.R. Hobart, C.B.Morrow «Bioethics, Public Health, and Social Sciences for the Medical Professions» 2019 Springer, 1 st. Edition
	9.	C.M. Francis «Medical Ethics» 2004 New Delhi, 2 Edition
	10.	A.Campbell, D.Gillett, G.Jones «Medical Ethics» 2004 Georgetown University Press

Additional:

Unit	№	Title
1	11.	Moh. Naveed Alam Community Medicine. 9th Edition 2016 Faisalabad, Panjab
	12.	Mahajan and Gupta Textbook of Preventive and Social Medicine, 4th Edition.

	13.	Mary-Jane Schneider, Advantage Access for Introduction to Public Health, Sixth Edition 2020, Jones & Bartlett Learning
2	14.	Economics of Health and Medical Care (7-е издание)// Lanis Hicks /2020
	15.	Health Economics: An International Perspective (4-е издание)/Graham McPake, Anne Nolan.
	16.	McConnell, Brue, Flynn / McGraw-Hill Inc., Economics: principles, problems and policies 2008New-York
	17.	A.U.Dzhumashalieva - Health Economics / Bishkek, 2024. New-York
	18.	Martin Green, Interactive e-course The Economics of Health Care, 1999,
3-4	19.	Bernard Rosner Fundamentals of Biostatistics20168th Edition. CENGAGE Learning
	20.	Vivek Jain, Review of Preventive and Social medicine (Including Biostatistics). 2015, 7th Edition. The Health Sciences Publisher
	21.	Arun Bharda Khanal Mahajan's Methods in Biostatistics for Medical Students and Research Workers 20168th Edition. The Health Sciences Publisher
5-6	22.	Beauchamp, Tom; Childress, James «Principles of Biomedical Ethics» 2001Oxford University Press
	23.	Bruse Jennigs «Encyclopedia of Bioethics» 20144th edition Yale University
	24.	Peter A., Viens, A.M. Cambridge Textbook of Bioethics, 2008Cambridge University Press
	25.	Raymond J. Devettere «Practical Decision Making in Health Care Ethics» 20022nd Edition. WashingtonD.C. Georgetown University Press
	26.	UNESCO «Universal Declaration on Bioethics and Human Rights» 2005
	27.	Council of Europe «Convention on Human Rights and Biomedicine» 1999
	28.	UNESCO «International Declaration on Human Genetics Data» 2003

Grading policy and procedures for all types of work

For the period of studying the discipline, the student gains points for the relevant parameters (per unit):
Current score - 40 points
Independent work - 20 points
Control score (final assessment of knowledge per unit) - 40 points
Maximum score - 100 (40+20+40)

Grading system for student's achievements

Criteria for grading for the discipline				
Maximum score	Intervals			
	"unsuccessful."	" satisfying ."	"Fine"	"Great"
Current control – 40	0-23	24-30	31-35	36-40
	The student lacks knowledge of a significant portion of the program material, makes significant and gross errors; the main content of the material is not covered; the terminology is poor; the necessary theoretical knowledge is lacking. A "fail" grade is given if the student refuses to answer	The student has mastered only the basic program material, but does not know certain features and details; makes inaccuracies; disrupts the sequence in the presentation of the program material; the material is not systematized, is incorrectly formulated; has a minimum	The student demonstrates developed competencies, possesses a sufficient level of professional terminology, presents their answers correctly, logically, and to the point, and avoids significant errors and inaccuracies when answering questions. Their presentation is	The student demonstrates the development of competencies and can apply them in professional activities; presents the answer comprehensively, consistently, competently, and logically, without errors; the answer does not require additional questions; good speech, fluent in

	the questions asked.	sufficient level of competence	sufficiently systematic and consistent.	professional terminology
Independent work – 20	0-11	12-15	16-17	18-20
	The student did not fully review any of the independent work assignment questions (main and/or additional). He did not prepare the independent work assignment.	The student has mastered the required course material within the program, but the answers to the questions are not sufficiently comprehensive and accurate; the answers are based solely on data from the primary literature on the subject.	The student has studied the basic and is familiar with additional literature on the program and uses this knowledge when answering questions; when answering additional questions, the material is presented correctly, but without sufficient logical consistency.	The student has studied the primary and secondary literature on the subject and competently applies this knowledge in their answers; in their answers, they utilize course materials from related disciplines and provide various examples to support their answers.
Control work (module) – 40	0-23	24-30	31-35	36-40
	Number of correct answers < 59%	Number of correct answers 60%-75%	Number of correct answers 76%-89%	Number of correct answers 90%-100%

Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work).
- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-5 points.

Academic Ethics Policy.
- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-5 points.

GUIDELINES FOR THE LESSONS OF THE DISCIPLINE

UNIT 1. INTRODUCTION TO PUBLIC HEALTH

Class 1: Health concepts. Social medicine. Public Health. 2h

Key questions

1. Health definitions. Health concepts. Concept of holistic health including concept of spiritual health and the relativeness & determinants of health
2. Social medicine as a science: definition, goals, the scope
3. Concept of Public Health. Definition of public health. Winslow's definition.
4. Evolution of public health development. Components of public health.
5. The modern concept of health protection.
6. Preventive medicine. Prevention. Modes of prevention. Interventions at various levels of prevention
7. Health determinants.
8. Concept of mental Health. National Mental Health program. Mental issues among individuals, families and communities.

Home assignments

1. Prepare a PowerPoint presentation on any topic from the class 2 (select from the questions for discussion for 2nd class).
2. Upload it to Moodle **https://moodlephd.ism.edu.kg/login/index.php or** submit your work to the instructor by e-mail

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Reference:

[1] pp. 146-241. [2] pp. 146-241, [3] pp. 1-51. [11] pp. 4-9

Useful links:
https://www.publichealth.org/
https://www.who.int/

Class 2:Social determinants of health. Inequity and inequality in health. 2h

Key questions

1. Social determinants of health. Definition. Concept.
2. Fundamental social determinants of health: natural environment, macrosocial factors, and inequalities
3. Intermediate social determinants of health: social context factors, built environment factors
4. Proximate social determinants of health: health behaviors, stressors & buffers, social integration & support factors
5. Well-being and health outcomes group of social determinants of health
6. Health and development. Human development index. Lates planetary human development. SDoH and human development
7. Basic social, economic, political (civil), and cultural human rights. Health as a human right.
8. Inequity and inequality in health
9. Cultural differences in health. Religion and health.

Home assignments

1. Prepare a presentation on one of the topic "Current medical and demographic processes in your country" or "National program for elderly in your country"
2. Upload it to Moodle **https://moodlephd.ism.edu.kg/login/index.php** or submit your work to the instructor by e-mail

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Reference:

[1] pp. -146-241.[3] pp1-51, 608-667, 705-788, 803-838.. [12] pp. 4-9, 11-433, Lecture

Useful links:
https://www.annalsofglobalhealth.org/
https://jamanetwork.com
https://www.ijph.in/

Class 3:Indices of nation's health. Medical and demographic processes. 2h

Key questions :

1. Indices of population's health status. Individual and population's health. Indicators , Morbidity , Disability
2. Primary conditions and factors of the population health
3. Classification of disease and death causes: content and importance
4. Medical demography. Definitions. Population dynamics. Types of population dynamics. Interaction between demography and healthıo Age types of the population: progressive, regressive, and static
5. Concept of Geriatric services. Health problems of aged population. Prevention of health problems of aged population. National program for elderly in India and Pakistan
6. Demographic transition, Epidemiological transition.
7. Global demographic trends. Current medical and demographic processes in India, Pakistan, Nepal, Russia and Kyrgyzstan. Comparative information on a range of countries

Home assignments

1. Draw up ten multiple-choice questions on the subject of the 4th class.
2. Compile a glossary on the subject of the class.
3. Upload it to Moodle **https://moodlephd.ism.edu.kg/login/index.php** or submit your work to the instructor by e-mail

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Reference:
[1] pp. -146-241.[3] pp479-607. [12] pp459-475, 605-632, 637-641, Lecture

Useful links:
https://www.gapminder.org/
https://www.gapminder.org/dollar-street

Class 4: Global and International Health. 2h

Key questions

1. What is Globalization? What is Global Health? Current situation.
2. What is International Health? Main international health actors. Differences between the terms of "public health," "international health," and "global health."Concept of a social disease. Global social diseases.
3. Heart and circulatory diseases: social and medical matter, factors influencing on their origin, spreading. Medical approaches of help. Cancer: the history of the issue, social matter, epidemiology.
4. Millennium Development Goals (MDG) and Sustainable Development Goals (SDG)

Home assignments can be viewed on Moodle **https://moodlephd.ism.edu.kg/login/index.php**)

Reference:
[2] pp. -969-1007, [3] pp 918-925. [12] pp 654-662, [13] pp 842-854, Lecture

Useful links:
www.healthdata.org
https://www.annalsofglobalhealth.org/

Class 5: Global Burden of Disease. 2h

Key questions

1. The concept of burden of disease.
2. YLL and YLD
3. DALY and QALY
4. Global burden of diseases. State of the art in the global burden of social diseases

Home assignments.

Find an article on global burden of diseases. Prepare a PowerPoint presentation of the results of this study and present in the class.

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Reference:

[1] pp. -254-258, [3] pp 925-956.. [12] pp 662-674,, lecture

Useful links:

www.healthdata.org

Class 6: Students' presentations. Unit control 1. 2h

Key questions

1. Discussion on the topics of 1-5 lessons
2. Students' Presentations.
3. Multiple Choice Questions for the UNIT 1.

Samples of the tests can be viewed on Moodle. https://moodlephd.ism.edu.kg/login/index.php

UNIT 2. FUNDAMENTALS OF ECONOMICS AND HEALTHCARE

Class 7: Introduction to Health Care Economics 2 h

Key questions

1. What is the definition of economics?
2. How are health and economics interconnected?
3. What is the subject matter of health care economics?
4. How does medical assistance relate to economic systems?
5. Why is the study of economics important for health care?
6. How do basic economic principles apply to the healthcare sector?
7. What are the main factors that influence the demand for healthcare services?
8. What are the differences between public and private healthcare financing?

Reference:

[4] pp 18-32, [5] pp 8-15, [17] pp 10-36

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 8. Health Care Systems. 2h

Key questions

1. What are the main goals of health care strategy?
2. What are the key functions of health policy?
3. How does the health care system in Kyrgyzstan compare to other countries?
4. What are the strengths and weaknesses of different health care systems?
5. Why is comparative analysis of health systems important?

Reference:

[4] pp. -32-54, [5] pp 16-52. [17] pp 37-41, lecture

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 9. Medical Services Market: Basics 2h

Key questions

1. What are the basic principles of market economy (demand, supply, equilibrium)?
2. What are the main causes of market inefficiency in health care?
3. What are the characteristics of the medical services market?
4. How does competition affect health care provision?
5. What role does regulation play in health care markets?
6. What is the relationship between healthcare spending and population health outcomes?

Reference:
[4] pp. 55-67, [5] pp 58-65. [17] pp 42-56, lecture

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 10. Medical Services Market: Regulation and Competition, 2h

Key questions:

1. What methods exist for paying service providers?
2. How are primary health care and hospital services paid for?
3. What is the economic definition of price?
4. What are the main functions and types of medical service prices?
5. What modern approaches to pricing in health care exist?

Reference:
[4] pp. -68-88, [5] pp 66-75. [17] pp 58-65, lecture

Class 11. Market Economy and Its Limitations in Healthcare. 2h

Key questions.

1. What are the key models of health care financing?
2. How do modern financing methods differ from traditional ones?
3. What are the features of public medical insurance?
4. How does private medical insurance function?
5. What are the main methods of payment in insurance medicine?

Reference:
[4] pp. -89-102, [5] pp 76-92. [17] pp 68-88, lecture

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 12. Unit control 2. 2h

Key questions.

1. Repeat QQ of 7-11 lessons
2. Students' Presentations.
3. Multiple Choice Questions for the UNIT 2.

Samples of the tests can be viewed on Moodle. https://moodlephd.ism.edu.kg/login/index.php

Methodological instructions for the implementation of independent work on the Unit 2

Writing assignments must be presented in the following format, 12-font, and double-spaced. Projects and presentations must be completed or turned in on the assigned due date. **No** late assignments will be

accepted. If you know in advance that you will have to miss a class in which an assignment is due, you may plan with the instructors to turn the assignment in early.

Assignments for Working off missed class are mandatory (max – 20 for class activity only, an excused absence is still an absence): Prepare the abstract or Power Point presentation on the topic of missed classes and answer the questions

Requirements for the implementation of the abstract:

✓To be submitted in electronic and printed form / 2 slide on page and short notes,

✓To be typed in Times New Roman 12, 1.5 interval / avoid long texts in slides of the ppt.

✓The first page / slide should contain the full name of the student, group, semester, the name of the abstract, the data of teacher, the filing date of the abstract.

✓Contain parts: introduction, main part, findings / conclusions, list of references, resource.

✓The total essay 6 - 7 pages

UNIT 3. FUNDAMENTALS OF BIOSTATISTICS. DESCRIPTIVE STATISTICS.

Class 13:**Probability Theory. Sampling methods**

Key questions

1. Statistics, biostatistics, medical statistics - definition, purposes.
2. Descriptive and Inferential Statistics. Statistics and parameters
3. Population, samples, and elements.
4. Probability.

Required readings: [6] pp. 4-30, [7] pp. 1-20, [19] pp. 1-14, [20] pp. 1-26, [21] pp. 1-10, 17-26

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 14:Descriptive Statistics. Types of Variables. Case Study. 2h

Key questions

1. What is data?
2. Types of variables.

Reference*:* [6] pp.30-41, [7] pp. 20-32, [19] pp. 15-28, [20] pp.27-35, [21] pp 37-38, 42-48.

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 15:Distribution of Data. Measures of Central Tendency and variability. Z-test. 2h
Key questions

1. Frequency distributions. Normal distribution.
2. Representativeness.
3. Measures of central tendency. Mean, median, mode
4. Measures of variability.
5. Z score
6. Familiarisation with the SPSS program. Entering data. Calculation of measures of central tendency and variability. Drawing diagrams. Exercises

Reference*:* [6] pp.42-56, [7] pp.33-48, [19] pp. 29-42, [20] pp.36-45, [21] pp 49-56.

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 16:Normal Distribution. Z-score. 2h

Questions to discuss:

1. Normal distribution.

2. Z-score.
3. Exercises

Reference*:* [6] pp.57-68, [7] pp.49-86, [19] pp. 43-56, [20] pp.78-95

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 17: Control Unit 3. 2h

Key questions.

1. Discussion on the topics of classes 13-16
2. Multiple Choice Questions for the Control UNIT 3.
   Samples of the tests can be viewed on Moodle. https://moodlephd.ism.edu.kg/login/index.php

UNIT 4. FUNDAMENTALS OF BIOSTATISTICS: INFERENTIAL STATISTICS

Class 18: Inferential Statistics. Central limit theorem. Estimating the mean of population. 2h
Questions to discuss:

1. Inferential statistics.
2. Central limit theorem

Reference*:* [6] pp.69-76, [7] pp.87-115, [19] pp. 68-77, [20] pp.96-111 [21] pp 65-78

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 19: Estimation of the population mean. 2h
Questions to discuss:

1. Estimating the mean of population:
   a. Confidence limits
   b. Precision and accuracy
   c. Estimating the standard error
   d. *t* scores. Degrees of freedom and *t* tables

Reference*:* [6] pp.76-86, [7] pp.115-125, [19] pp. 77-87, [20] pp.111-121 [21] pp 78-88

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 20: Hypothesis testing. 2h

Key questions

1. Stating the null and alternative hypotheses
2. Selecting the decision criterion. Establishing the critical values
3. Drawing a random sample from the population and calculating the mean of that sample
4. Calculating the standard deviation and estimated standard error of the sample
5. Calculating the value of the test statistic t that corresponds to the mean of the sample and comparing. Accepting or rejecting the null hypothesis
6. The meaning of statistical significance
7. Type I and type II errors. Power of statistical tests. Directional hypothesis
8. t-distribution.
9. t-test for one sample mean
10. Differences/relationships between Z & t tests
11. t-test for related samples
12. t-test for the difference between two independent sample means

Reference*:* [6] pp.87-98, [7] pp.126-135, [19] pp. 88-98, [20] pp.122-145 [21] pp 89-97

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 21: Analysis of variance (ANOVA test). 2h

Key questions

1. Testing for differences between groups
2. Analysis of variance (ANOVA)
3. The F-ratio
4. Graphical presentation of ANOVA data
5. One-way and Two-way ANOVA
6. Repeated measures ANOVA
7. Assumptions for ANOVA
8. Computing ANOVA test in SPSS.

Reference*:* [6] pp.99-124, [7] pp.136-145, [19] pp.112-125, [20] pp.146-157, [21] pp 98-114

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 21 : Parametric and Non-parametric techniques . 2h

Key questions

1. Chi-square test. Two types of χ^2 tests
2. Contingency table analysis
3. Computing the Chi-Square Statistics
4. Parametric and Non-parametric tests. The most popular non-parametric tests
5. The Mann-Whitney U Test
6. Wilcoxon Signed Ranks Test
7. The Kruskal-Wallis Test
8. Computing tests in SPSS.

Reference*:* [6] pp.125-132, [7] pp.146-154, [19] pp.126-134, [20] pp.157-174, [21] pp 115-124

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 23: Correlation and Regression Techniques. 2h

Key questions

1. Concept of correlation. Scattergrams and bivariate distributions
2. Types of correlation coefficient
3. Coefficient of determination. Regression. Multiple regression
4. Choosing an appropriate inferential or correlational technique
5. Exercise. Calculation of correlation coefficients and regression analysis by SPSS program

Reference*:* [6] pp.133-145, [7] pp.156-168, [19] pp.135-165, [20] pp.175-187, [21] pp 125-135

Home assignments can be viewed on Moodle https://moodlephd.ism.edu.kg/login/index.php)

Class 24: Control Unit 4. 2h

Key questions.

1. Discussion on the topics of classes 18-23
2. Multiple Choice Questions for the Control UNIT 4.

Samples of the tests can be viewed on Moodle. https://moodlephd.ism.edu.kg/login/index.php

UNIT 5. BIOETHICS 1

Class 25. Principles of biomedical ethics. 2h
Key questions

1. Principles of bioethics. Introduction.
2. Basic ethical principles: respect for autonomy, beneficence, non-maleficence, the principle of justice.
3. General principles of bioethics: truthfulness and honesty, dignity, informed consent, confidentiality

Reference*:* [8] pp.12-14. 20-27, lecture

Class 26. The rights and moral obligations of physicians. Patients rights and duties. 2h

Key questions:

1. The rights and moral obligations of physicians.
2. The patient's right to refuse medical intervention. Informed consent of competent patients is limited (teens, etc.).
3. Medical secrecy (confidentiality). The Hippocratic Oath, and promise to preserve patient confidentiality.
4. The patient's right to information. The elements of informed consent. The notion of competent and incompetent patients.
5. The right, duty, the possibility and expediency always be truthful in the relationship of doctors with patients. Truthfulness and incurable patients. "The holy lie." Placebo. The patient's right to receive truthful information.

Reference: [10] 66-70, lecture

Class 27. Medical ethics and medical deontology. The basic model of moral relationship between doctor and the patient. 2 h

Key questions:

1. Medical ethics. Principles and norms of conduct of medical staff. Professional ethics of the doctors.
2. Deontology. Medical deontology.
3. The basic model of moral relationship between doctor and patient.
4. Liability and medical errors.

Reference: [9] pp 1-12, lecture

Class 28 Medical errors and reasonable risks: concept and responsibility- 2 h

Key questions:

1. The problem of medical errors. The history of the issue. The history of yatrogenic concept and its modern sense.
2. Classification of errors (diagnostic, tactical, organizational, deontological, etc.).
3. Medical error and accident. Relation of ethical and legal aspects.
4. Reasons for increase in modern medicine claims of patients to doctors. The problem of compensation caused the patient harm. Insurance of medical errors.

Reference*:* [9] chapter IX, [10] pp 27-42 , lecture

Class 29: Control Unit 5. 2h

Key questions.

1. Discussion on the topics of classes 25-28
2. Multiple Choice Questions for the Control UNIT 5.

Samples of the tests can be viewed on Moodle. https://moodlephd.ism.edu.kg/login/index.php

UNIT 5. BIOETHICS 2

Class 30. Ethical issues of abortion and new reproductive technologies. Bioethical aspects of surrogate motherhood.- 2 h

Key questions :
1. Reproductive health. Reproductive choice. Reproductive rights.
2. Abortion and its species. The moral status of pre-embryos, embryos and fetuses. Abortion and religious morality.
3. The moral and ethical issues of contraception. Contraception, sterilization and religious morality.
4. "Surrogate Motherhood." Children's health. The discrepancy between biological and social parenthood and the problem of identification of the child, the child's right to know his parents.

Reference*:* [9] pp 73-80. 80-91 , lecture

Class 31. Moral and legal problems of organs and tissues donation and transplantation 2 h

Key questions:
1. Transplantology, indroduction.
2. Moral issues of transplantation: from living donors, organs and tissues from corpses, fetal organs and tissues.
3. Trends of the commercialization in transplantology. Moral restrictions on trade in organs and tissues for transplants.
4. The problems of incompetent donors (children, mentally ill persons), the donors with restriction of freedom of choice (prisoners sentenced to death). Ethics of the recipient.

Reference*:* [10] pp 145-153, lecture

Class 32. The moral problems of death and dying. Ethical issues of euthanasia. 2 h

Key questions:
1. The problem of criteria and definitions of death. The death of the brain. The value of professional the independence of physicians in the diagnosis of brain death.
2. The controversy over the concept of "right to die." Quality of life for the dying. The fear of death. Start and stop life-saving and life-supporting treatment
3. Euthanasia: terminology. Types of euthanasia: voluntary and involuntary, active and passive, direct and indirect, forced.
4. Morality of euthanasia: active, voluntary euthanasia – arguments "for" and "against" .

Reference*:*[9] chapter VII, [10] pp 91-102, 103-111, lecture 7

Class 33: Control Unit 6. 2h

Key questions.
1. Discussion on the topics of classes 30-32
2. Multiple Choice Questions for the Control UNIT 6.

Samples of the tests can be viewed on Moodle. https://moodlephd.ism.edu.kg/login/index.php

Methodological instructions for the implementation of independent work on the units 5-6
Each student will be assigned 2 topics by their teacher (1 for each unit). Students are required to prepare structured, evidence-based presentations that demonstrate understanding of key principles in bioethics and their application in medical practice. Each presentation should include: a title slide, learning objectives, introduction, main content, discussion, conclusion, and references. Content must be clear, concise, and supported by credible sources, with slides designed for readability and effective communication. Presentations should be delivered professionally within the allocated time, demonstrating critical thinking and the ability to justify ethical decisions.