Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University

Institute of Medicine

educational division (faculty/institute/academy) as higher education program developer

COURSE SYLLABUS

EPIDEMIOLOGY

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 General Medicine

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

General Medicine

higher education programme profile/specialisation title

2024

1. COURSE GOAL(s)

The goal of the course is to develop the student's theoretical and practical skills about antiepidemic and preventive measures in various medical institutions at individual, group and population levels as for the period of epidemiologically safe situation as in emergency.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) "Epidemiology" is aimed at the development of the following competences /competences in part: UC-1. (UC-1.1., UC-1.2.); (GPC)- GPC-6. (GPC-6.1.); PC-5. (PC-5.2., PC-5.6., PC-5.7., PC-5.8., PC-5.9., PC-5.11.)

Table 2.1. List of competences that students acquire through the course study

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
Systems and critical thinking	UC-1. Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	UC-1.1. Analysing scientific and technical literature and regulatory documents of medical institutions.
		UC-1.2. Assessing in a critical way the reliability of information sources, working with contradictory
Primary health care	GPC-6. Being able to organize patient care, provide primary health care, arrange work and make professional decisions in emergency conditions at the prehospital stage, in emergency situations, epidemics and in foci of mass destruction	GPC-6.1. Mastering the algorithm for providing first aid in emergency conditions, including in extreme conditions and foci of mass destruction.
PC-5	Being able to carry out preventive measures and measures to promote a healthy lifestyle and sanitary and hygiene education among population and monitor their effectiveness	PC-5.2. Being able to organize and monitor the immunization of the adult population against infectious diseases in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.
		PC-5.6. Being able to monitor observing preventive measures.
		PC-5.7. Being able to determine medical indications to introduce restrictive measures (quarantine) and indications for referral to a medical specialist in the event of infectious parasitic) diseases.

Competence code	Competence descriptor	Competence formation indicators (within this course)
		PC-5.8. Being able to issue and send an emergency notification to the territorial body of the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing when an infectious or occupational disease is detected.
		PC-5.9. Being able to carry out anti-epidemic measures in the event of the occurrence of a focus of infection, including quarantine measures when especially dangerous (quarantine) infectious diseases are detected.
		PC-5.11. Being able to assess the effectiveness of preventive patient care.

3.COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
UC-1.	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	Biology, Immunology, Pathophysiology, Hygiene	Infectious diseases, Internal medicine, Phthisiology
GPC-6.	Being able to organize patient care, provide primary health care, arrange work and make professional decisions in emergency conditions at the prehospital stage, in emergency situations, epidemics and in foci of mass destruction	General surgery, Emergency conditions	Anesthesiology, resuscitation, intensive care, Infectious diseases, Catastrophe medicine

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
PC-5.	Being able to carry out preventive measures and measures to promote a healthy lifestyle and sanitary and hygiene education among population and monitor their effectiveness	Histology, Embryology, Cytology, Microbiology, Virology	Infectious diseases, Hospital therapy, Clinical pharmacology

* To be filled in according to the competence matrix of the higher education programme.

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course is 3 credits (108 academic hours)..

*Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)**

Type of academic activities		Total academic hours	Semesters/training modules			
			7			
Contact academic hours		**72**	**72**			
including:						
Lectures (LC)		2	2			
Lab work (LW)						
Seminars (workshops/tutorials) (S)		60	60			
Self-studies		36	36			
Evaluation and assessment (exam/passing/failing grade)		12	12			
Course workload	academic hours_	**108**	**108**			
	credits	**3**	**3**			

* To be filled in regarding the higher education programme correspondence training mode.

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Module 1 General epidemiology. Epidemiological method and evidence-	**1.1.** A brief history of the epidemiology development: the pre-bacteriological period and period of bacteriological discoveries. Impact of bacteriological discoveries on the development	LC

Course module title	Course module contents (topics)	Academic activities types
based medicine. Epidemiological studies.	of the theory and practice of epidemiology. Epidemiology in the system of medical education, the relationship of epidemiology with other medical sciences.	
	1.2. Epidemiological method. Epidemiological diagnosis. Epidemiological analysis (descriptive analysis). Epidemiological way of thinking. Epidemiological studies: experimental and observational.	LC**, SC**
Module 2 Epidemic process. Epidemiological surveillance.	**2.1.** The role of L.V. Gromashevsky in the development of the doctrine of epidemic process. Three elements of epidemic process: source of infection, mode of transmission and susceptible organism. Manifestations of the epidemic process. Control measures.	S
	2.2. Three groups of control measures: measures applied to the source of infection (infected host), measures directed at interrupting transmission (vectors, objects of the environment), measures applied to the susceptible organism.	S
	2.3. Principles of infectious disease prevention. Prevention through actions at primary, secondary and tertiary levels. Epidemiological surveillance is the foundation for immediate and long-term strategies for combating infectious diseases.	S
Module 3 Natural focal disease theory. Sapronoses.	**3.1.** Natural focal disease theory by E.N. Pavlovsky. Natural, synanthropic and anthropurgic foci of infectious diseases (definitions). Reservoirs of natural focal diseases. The role of wild, semi-synanthropic, synanthropic mammals, and birds in the formation of natural and anthropurgic foci.	S
	3.2. Specific vectors of causative agents of natural focal diseases. The environment as a reservoir of sapronoses. Technogenic and ecological niches of sapronose pathogens. Epidemiological surveillance of natural focal diseases.	S
Module 4 Disinfection. Sterilization.	**4.1.** Definition of disinfection. Types of disinfection: prophylactic and focal (current and final). Mechanical, physical and chemical methods of disinfection. Requirements for disinfectants. The groups of chemicals used as disinfectants. Disinfection for different groups	S

Course module title	Course module contents (topics)	Academic activities types
	of infections. Disinfection chambers. Quality control of disinfection.	
	4.2. Definition of sterilization. Stages of pre-sterilization cleaning of medical devices. Quality control of pre-sterilization cleaning. Methods of sterilization. Sterilization quality control. Definition of disinsection. Types of disinsection: prophylactic and extermination. Mechanical, physical and chemical methods of disinsection. Definition of deratization (pest control). Preventive and exterminatory deratization. Mechanical, physical and chemical methods of pest control.	S
Module 5 Immunoprophylaxis.	**5.1.** Definition of immunoprophylaxis. The role of E. Jenner, L. Pasteur, P. Ramon, I.I. Mechnikov, L.S. Tsenkovsky, N.F. Gamaleya, A.A. Smorodintsev, P.F. Zdrodovsky and M.P. Chumakov in the development of the doctrine of immunoprophylaxis of infectious diseases. Active and passive immunoprophylaxis. Emergency immunoprophylaxis. Immunization programme management. The national schedule of immunoprophylaxis. Contraindications for immunization. Vaccines, toxoids, sera and immunoglobulins. "Cold chain".	S
	5.2. The expanded programme on immunization (EPI). History facts, implementation, evaluation and results of EPI.	S
Module 6 Epidemiology of infectious diseases.	**6.1.** Epidemiology of enteric infections (typhoid fever, cholera, viral hepatitis A and E). Characteristics of water-born, food-born and household contact outbreaks. Prevention and control measures in a focus of enteric infections.	S
	6.2. Epidemiology of respiratory infections (influenza, measles, mumps, diphtheria, whooping cough, meningococcal infection and tuberculosis). Prevention and control measures in a focus of respiratory infections. Herd immunity.	S
	6.3. Epidemiology of parenteral infections (HIV-infection, viral hepatitis B, C, D, G). The role of social factors in epidemic process of parenteral infections. Epidemiological surveillance, control and prevention of parenteral infections.	S

Course module title	Course module contents (topics)	Academic activities types
	6.4. Epidemiology of vector-borne diseases (malaria, typhoid fever). Epidemiological surveillance, control and prevention of vector-borne diseases.	S
Module 7 Nosocomial infections (healthcare-associated infections, HAI)	**7.1.** What is a nosocomial infection (HAI)? Epidemiology of nosocomial infections. Nosocomial pathogens. Colonization and infection. Risk factors determining nosocomial infection. Reservoirs and sources (patient's microflora, patient and staff, environment).	S
	7.2. Exogenous and endogenous infections. Types of nosocomial infections. Transmission of HAI. Epidemiological surveillance, control and prevention of nosocomial infections. Preventing infections among healthcare workers. Basic concepts of HAI prevention. Bundle approach for prevention and control of HAI. Procedures and practices for infection prevention and control (standard precautions, transmission-based precautions). Control of the environment.	S

* - to be filled in only for **full** -time training: *LC - lectures; LW - lab work; S - seminars.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	**Classroom equipment**	**Specialised educational / laboratory equipment, software, and materials for course study** (if necessary)
Lecture	Auditorium for lectures equipped with a set of specialized furniture; board (screen) and technical means of multimedia presentations.	Academic Activity Type – Lecture/Seminars/Computer Lab/Self-studies Classroom equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), Skype
Seminar	Auditorium for conducting seminars, group and individual consultations,	Set of specialized furniture; whiteboard; a set of devices

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
	assessment control and intermediate certification, equipped with a set of furniture and technical means for multimedia presentations.	includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release)
Self-studis	Auditorium for self-study (can be used for seminars and student consultations), equipped with set of furniture and computers with access to the virtual materials.	Set of furniture; technical support including Internet access. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release

* The premises for students' self-studies are subject to **MANDATORY** mention

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Bojdani, Ermal. 2017. "Essential Epidemiology: An Introduction for Students and Health Professionals, Third Edition." The Yale Journal of Biology and Medicine 90 (2): 345. Permanent link http://nrs.harvard.edu/urn-3:HUL.InstRepos:3349070
2. Oxford Handbook of Tropical Medicine, Second Edition Michael Eddleston, Robert Davidson, Robert Wilkinson and Stephen Pierini Oxford University Press, Oxford, UK, 2004. ISBN 0-19-852509-5. £24.95, 712 pp.
3. Gordis Epidemiology, 6th Edition 2019
4. Epidemiology 101 (Essential Public Health) – 2017 by Robert H. Friis
5. The CDC Field Epidemiology Manual by Sonja A. Rasmussen (Editor), Richard A. Goodman (Editor). Oxford University Press; illustrated edition (December 18, 2018); 528 pages.
6. Gordis Epidemiology by David D Celentano ScD MHS (Author), Moyses Szklo MD (Author). Elsevier; 6th edition (December 10, 2018); 433 pages.
7. Epidemiology for Public Health Practice (Kindle Edition) Robert H. Friis, Thomas Sellers 2020
8. Foundations of Infectious Disease A Public Health Perspective: A Public Health Perspective David P Adams 2020
9. Essential Readings In Infectious Disease EpidemiologyManya Magnus 2008
10. Harrison's infectious diseases by Dennis Kasper and Anthony S Fauci. McGraw Hill / Medical; 3rd edition (December 8, 2016); 1328 pages.
11. Medical Microbiology and Infection at a Glance by Stephen H. Gillespie Kathleen B. Bamford. Wiley-Blackwell; 4th edition (April 23, 2012); 128 pages.

12. Essential Tuberculosis by Giovanni Battista Migliori (Editor), Mario C. Raviglione (Editor). Springer; 1st ed. 2021 edition (August 11, 2021); 446 pages.
13. Infectious and Tropical Diseases: A Handbook for Primary Care by Tao Sheng Kwan-Gett (Author), Charles Kemp (Author), Carrie Kovarik (Author). Mosby; 1st edition (November 8, 2005); 832 pages.

Additional readings:

1. International Journal of Epidemiology | Oxford Academic (oup.com)
2. National guidelines for infection prevention and control in healthcare facilities. National CDC (January 2020).
3. Oxford Textbook of Global Public Health by Roger Detels (Editor), Martin Gulliford, Quarraisha Abdool Karim, and Chorh Chuan Tan. Oxford University Press; 6th edition (February, 2015).
4. Oxford Handbook of Infectious Diseases and Microbiology by Estee Torok , Ed Moran
5. Paniker's Textbook of Medical Parasitology C. K. Jayaram, M.D. Paniker, Sougata, M.D. Ghosh
6. Infectious Diseases in Critical Care Medicine...Burke A. Cunha
7. Microbial Diseases! All Parts Combined! Philip Carey
8. Johns Hopkins HIV Guide 2012
9. Understanding Hepatitis James L. Achord, M.D

Internet (based) sources:

1. Electronic libraries with access for RUDN students:
- RUDN Electronic Library – RUDN EL http://lib.rudn.ru/MegaPro/Web
- University Electronic Library» http://www.biblioclub.ru
- http://www.biblio-online.ru
- Student library (consult) www.studentlibrary.ru
- Lan http://e.lanbook.com/
- Trinity Bridge

2. Databases and search engines:
- electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex search engine https://www.yandex.ru/
- Google search engine https://www.google.ru/
- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

Learning toolkits for self- studies in the RUDN LMS TUIS *****

1. Guidelines for the implementation and completion of self-study and assessment - https://esystem.rudn.ru/course/view.php?id=7179

*Training toolkit for self- studies to master the course *:*

1. The set of lectures on the course “Epidemiology”

2. The laboratory workshop (if any) on the course “Epidemiology”

3. The guidelines for writing a course paper / project (if any) on the course “Epidemiology”.

4. ……

* The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS’ COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system* to evaluate the competences formation level (UC-1, GPC-6, PC-5) upon the course study completion are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

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HEAD OF DEPARTMENT:

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HEAD of the Higher Education Program:

First Deputy Director of MI for Academic Affairs		I.V. Radysh
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