**SYLLABUS**

**Fall semester 2020-2021 academic years**

**on the educational program “7M05114-Virology”**

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| **Discipline’s code** | **Discipline’s title** | **Independent work of students (IWS)** | **No. of hours per week** | | | | | **Number of credits** | **Independent work of student with teacher (IWST)** |
| **Lectures (L)** | **Practical training (PT)** | | **Laboratory (Lab)** | |
| **UVZ5208** | Viral disease management | 98 | 15 | 30 | | 0 | | 5 | 5 |
| **Academic course information** | | | | | | | | | |
| **Form of education** | **Type of course** | **Types of lectures** | | | **Types of practical training** | | **Number of IWS** | | **Form of final control** |
| Online/combined | Elective | Module technology  Problem lectia | | | analysis | | 5 | | Orally examination, assignments |
| Lecturer | Abdimadiyeva A. E. | | | | | |  | | |
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| Telephone number | 8 701 703 9601 | | | | | |
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| **Academic presentation of the course** |

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| **Aim of course** | **Expected Learning Outcomes (LO)**  As a result of studying the discipline the graduate will be able to: | **Indicators of LO achievement (ID)**  (for each LO at least 2 indicators) |
| **In this course, we will use a case-study approach to investigate the biology of human pathogenic viruses, focusing in particular on factors that impact the outbreak and spread of human viral diseases.** | 1. Describe the basic structures and replication strategies of the major classes of human viral pathogens; | 1.1 Knowledge of the features of general viral structure, genome, and life cycle |
| 1.2 Fundamental differences between each viral pathogens |
| 2. Explore and analyze the political, social, economic and biological factors that impact the outbreak and spread of viral diseases; | 2.1 Knowledge of outbreak and spread of viral diseases |
| 2.2 Skills in determining different factors that impact outbreak and spread |
| 3. Demonstrate familiarity with the specialized vocabularies and fundamental concepts of the various disciplines involved in the epidemiological analysis of viral disease outbreaks; | 3.1 Basic knowledge about the main stages of epidemiological analyses |
| 3.2 Ability to determine viruses disease outbreaks with specialized concepts |
| 4. Show an appreciation of how different academic disciplines can supplement and reinforce one another in the study of viral disease outbreaks and their causes; | 4.1 Evaluate different control measures of spread and outbreak of viral diseases |
| 4.2 Knowledge of use the disciplines under study for advanced analysis of viral disease outbreaks in a way that is not normally available to each discipline alone. |
| 5. Apply the acquired knowledge, skills and competencies in research activities | 5.1 Professional competence of a research scientist in the field of "Viral disease management" |
| 5.2 Ability as a research scientist in the field of "Viral disease management" |
| **Prerequisites** | Microbiology | |
| **Post requisites** | Dissertation for master degree | |
| **Information resources** | Base literary sources:   1. 1. Flint, S.J., Enquist, L.W., Krung, R. Racaniello, VR. And Skalka, A.M. Principles of Virology, Molecular Biology, pathogenesis and control, ASM Press, Washinton D.C. 2. 2. Collier, L., Kellam, P., and Oxford J. (2011). Human Virology. Fourth Edition. Oxford University Press, U.K 3. 3. Emerging Infectious Diseases journal   4. Virology: Principles and Applications by Carter and Saunders, 2nd edition (Wiley, paperback ISBN 978-1-119-99142-7, etext ISBN 978-1-118-62976-5)  5. Centers for Disease Control, World Health Organization, Epidemiology and Prevention of Vaccine-Preventable Diseases: The CDC "Pink Book", International Committee on the Taxonomy of Viruses (ICTV) Website  6. Journals: Journal of Medical; Virology Journal of Clinical Virology; Journal of Virology; Journal of General Virology  7. “Understanding viruses” Teri Shors. 2nd ed. Burlington: Jones & Bartlett Learning, cop. 2013 | |

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| **Academic policy of the course in the context of university moral and ethical values** | **Academic Behavior Rules:**  All students have to register at the MOOC. The deadlines for completing the modules of the online course must be strictly observed in accordance with the discipline study schedule.  ATTENTION! Non-compliance with deadlines leads to loss of points! The deadline of each task is indicated in the calendar (schedule) of implementation of the content of the curriculum, as well as in the MOOC.  **Academic values:**  - Practical trainings/laboratories, IWS should be independent, creative.  - Plagiarism, forgery, cheating at all stages of control are unacceptable.  - Students with disabilities can receive counseling at e-mail: aiymmun2013@gmail.com  Compulsory attendance in the classroom, the impermissibility of late attendance. Without advance notice of absence and undue tardiness to the teacher is estimated at 0 points. Submission of assignments (Independent work of students, midterm control, laboratory tasks, projects and etc.) prior to the deadlines. The violation of submission deadlines leads to the deduction of penalty points.   * Appropriate timing of homework or projects may be extended in the event of extenuating circumstances (such as illness, emergencies, emergency, contingency, etc.) in accordance with the University's academic policies. Student participation in discussions and exercises in the classroom will be taken into account in its overall assessment of the discipline. Design issues, dialogue and feedback on the subject matter of discipline are welcomed and encouraged in the classroom, and the teacher in the derivation of the final grade will take into account the participation of each student in the class.   Academic values:  Academic honesty and integrity: independent performance of assignments; inadmissibility of plagiarism, forgery, cheating at all stages of the knowledge control, and disrespectful attitude towards teachers. (The code of KazNU Student’s honor)  1. Each classroom work you have to prepare in advance, according to the schedule below. Theoretical preparation for classes must be completed before the classroom. Letting practical tasks based on the passed new material must pass to the next class after the passage of the new material.  2. Home work will be distributed throughout the semester, as shown in the graph of discipline.  3. Homework includes the amount of material that you have listened and passed on almost seminars. Search IWS appropriate learning resources may be required to study the language necessary inquiries.  4. All individual tasks IWS in the case of coincidence of the responses - reducing the assessment to be both students.  5. In all seminars during the semester assignments and individual assignments for PWS must give up strictly according to plan, syllabus, no postponing deadlines for the delivery of jobs there.  When homework subject to the following rules:  • Аssignments IWS should be performed within a specified time. Later homework will not be accepted.  • Homework should be done on one side of a sheet of A4 paper, and pages should be secured by the order of the questions. Questions must be numbered, and definitive answers (if necessary) must be provided. (Homework, do not meet these standards will be returned with an unsatisfactory evaluation).You do not have to take all the jobs in the computer version, simply write it by hand; you do not need to enter it in the computer. |
| **Evaluation and attestation policy** | **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 work activity in an audience (at a webinar); assessment of the completed task.  Evalution:  95% - 100%: А 90% - 94%: А-  85% - 89%: В+ 80% - 84%: В 75% - 79%: В-  70% - 74%: С+ 65% - 69%: С 60% - 64%: С-  55% - 59%: D+ 50% - 54%: D- 0% -49%: F |

**CALENDAR (SCHEDULE) THE IMPLEMENTATION OF THE COURSE CONTENT:**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| weeks | Topic name | LO | ID | amount of hours | Maximum score | Form of Knowledge Assessment | The  Form of the lesson  / platform |

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| Module **1** | | | | | | | |
| 1 | **L.1** Introduction to Viruses and Epidemiology | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
| 1 | **PT 1** Emerging Infectious Diseases: Who, What, Where, When and Why? | LО 1 | ID 1.2. | 2 | 8 | Analysis | Webinar  in MS Teams |
| 2 | **L.2** Principles of viral diseases | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
| 2 | **PT 2** Viral pathogenesis, mode of transmission | LО 2 | ID 2.2. | 2 | 8 | Analysis | Webinar  in MS Teams |
| 3 | **L.3** Virus Structure and Replication - An Overview | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
| 3 | **PT 3** Virus Structure and Replication, Continued | LО 1 | ID 1.2. | 2 | 9 | Analysis | Webinar  in MS Teams |
| 3 | **IWSP 1 Consultation on the implementation of IWS1** | LО 2 | ID 2.1. |  |  |  | Webinar  in MS Teams |
| 3 | **IWS 1.** Problem-oriented tasks for IWS on the thematic block 1. Look the file with the IWS tasks. Forms of representation of results of performance of IWS: protection orally. | LО 2 | ID 2.1. |  | 25 | Logic task |  |
| **Module П** | | | | | | | |
| 4 | **L.4** Principles of bio-safety, containment facilities, maintenance and handling of laboratory animals and requirements of virological laboratory | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
| 4 | **PT 4** dsRNA viruses, dsDNA viruses  (+) strand RNA viruses | LО 3 | ID 3.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
| 5 | **L.5** Virus Vaccines and Antiviral Agents | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
| 5 | **PT 5** Specific Viral Infections  General properties of human viruses | LО 3 | ID 3.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
| 5 | **IWSP 2 Consultation on the implementation of IWS2** | LО 4 | ID 4.1. |  |  |  | Webinar  in MS Teams |
| 5 | **IWS 2.** Problem-oriented tasks for IWS on the thematic block Look the file with the IWS tasks. | LО 4 | ID 4.1. |  | 30 | Logic task |  |
| **5** | **MT 1** | **LО 1** | **ID 1.1.** |  | **100** |  |  |
| 6 | **L.6** The Impact of Communication on Disease Outbreaks | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
| 6 | **PT 6** Virus-cell interactions | LО 3 | ID 3.2. | 2 | 8 | Analysis | Webinar  in MS Teams |
| 7 | **L.7** Theoretical aspects of virus effects on cells and organisms including viral cytopathic effects, virus diagnosis and virus-induced immune cell proliferation. | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
| 7 | **PT7** Virus-host interactions | LО 5 | ID 5.1. | 2 | 8 | Analysis | Webinar  in MS Teams |
| 8 | **L.8** The diagnosis of a viral infection | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
| 8 | **PT 8** What main virus groups and the human viruses causing the most important diseases | LО 1 | ID 1.1. | 2 | 9 | Analysis | Webinar  in MS Teams |
| 8 | **IWSP 3 Consultation on the implementation of IWS3** | LО 5 | ID 5.1. |  |  |  | Webinar  in MS Teams |
| 8 | **IWS 3** Problem-oriented tasks for IWS on the thematic block Look the file with the IWS tasks. | LО 5 | ID 5.1. |  | 25 | Logic task |  |
| 9 | **L.9** What is the elementary features of a virus to be successful | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
| 9 | **PT 9** Paper discussion | LО 3 | ID 3.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
| 10 | **L.10** How viruses manage to expand within a host organism and avoid immune-mediated destruction | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
| 10 | **PT 10** Resistance of the human body to virus infections (interferons) | LО 1 | ID 1.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
| 10 | **IWSP 4 Consultation on the implementation of IWS4** | LО 5 | ID 5.1. |  |  |  | Webinar  in MS Teams |
| 10 | **IWS 4** Problem-oriented tasks for IWS on the thematic block Look the file with the IWS tasks. | LО 5 | ID 5.1. |  | 30 | Problem task |  |
| **10** | **МТ (Midterm Exam)** | **LО 1** | **ID 1.1.** |  | **100** |  |  |
| 11 | **L.11** Use of viruses for medical benefit (i.e. gene therapy and anti-cancer treatment). | LО 1 | ID 1.1. | 1 |  |  |  |
| 11 | **PT 11** Paper discussion | LО 1 | ID 1.2. | 2 | 12 | Analysis | Video lecture  in MS Teams |
| 12 | **L.12** Determine features of proliferating immune cells by CFSE staining and analysis of the dye distribution amongst cell generations | LО 1 | ID 1.1. | 1 |  |  | Webinar  in MS Teams |
| 12 | **PT 12** Nucleic acid based diagnosis: Nucleic acid hybridization, polymerase chain reaction, microarray and nucleotide sequencing | LО 1 | ID 1.2. | 2 | 12 | Analysis | Video lecture  in MS Teams |
| 12 | **IWSP 5 Consultation on the implementation of IWS5** | LО 5 | ID 5.1. |  |  |  | Webinar  in MS Teams |
| 12 | **IWS 5** Problem-oriented tasks for IWS on the thematic block Look the file with the IWS tasks. | LО 5 | ID 5.1. |  | 40 | Problem task |  |
| 13 | **L.13** Some fundamental mechanisms of viral-induced pathogenesis | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
| 13 | **PT 13** Paper discussion | LО 1 | ID 1.2. | 2 | 12 | Analysis | Webinar  in MS Teams |
| 14 | **L.14** Visualize cytopathic effects of viruses | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
| 14 | **PT 14** Paper discussion | LО 1 | ID 1.2. | 2 | 12 | Analysis | Webinar  in MS Teams |
| 15 | **L.15** How different viruses utilize the target cell for amplifying their genomes and to expand in numbers | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 15** Paper discussion | LО 1 | ID 1.2. |  | 12 | Analysis | Webinar  in MS Teams |
|  | **RC 2** | **LО 4** | **ID 4.1.** |  | **100** |  |  |

[Abbreviations: QS - questions for self-examination; TK - typical tasks; IT - individual tasks; CW - control work; MT - midterm.

Comments:

- Form of L and PT: webinar in MS Teams / Zoom (presentation of video materials for 10-15 minutes, then its discussion / consolidation in the form of a discussion / problem solving / ...)

- Form of carrying out the CW: webinar (at the end of the course, the students pass screenshots of the work to the monitor, he/she sends them to the teacher) / test in the Moodle DLS.

- All course materials (L, QS, TK, IT, etc.) see here (see Literature and Resources, p. 6).

- Tasks for the next week open after each deadline.

- CW assignments are given by the teacher at the beginning of the webinar.]

**Dean Zayadan B.K.**

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