**SYLLABUS**

**Fall semester 2021-2022 academic years**

**on the educational program “Virology”**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 | |  | | 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** |
| Distance (online) | Elective | Informative, lecture-discussion | | | Seminar-talk, seminar discussion, analysis, logical task | | 5 | | Orally examination, assignments on msteams or zoom, online |
| Lecturer | Abdimadiyeva A. E. | | | | | |  | | |
| e-mail | aiymmun2013@gmail.com | | | | | |
| Telephone number | 8 701 703 9601 | | | | | |

|  |
| --- |
| **Academic presentation of the course** |

|  |  |  |
| --- | --- | --- |
| **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) |
| to describe the basic knowledge about virus pathogens and diseases. To investigate the biology of human pathogenic viruses, focusing in particular on factors that impact the outbreak and spread of human viral diseases. | 1. To describe the basic structures and replication strategies of the major classes of human viral pathogens; | 1.1 To know of the features of general viral structure, genome, and life cycle |
| 1.2 To differentiate fundamental features between each viral pathogens |
| 2. To explore and analyze the political, social, economic and biological factors that impact the outbreak and spread of viral diseases; | 2.1 To define outbreak and spread of viral diseases |
| 2.2 To determine different factors that impact outbreak and spread |
| 3. To demonstrate familiarity with the specialized vocabularies and fundamental concepts of the various disciplines involved in the epidemiological analysis of viral disease outbreaks; | 3.1 To describe basic knowledge about the main stages of epidemiological analyses |
| 3.2 Ability to determine viruses disease outbreaks with specialized concepts |
| 4. To 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 To evaluate different control measures of spread and outbreak of viral diseases |
| 4.2 To know 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. To apply the acquired knowledge, skills and competencies in research activities | 5.1 To predict professional competence of a research scientist in the field of "Viral disease management" |
| 5.2 To recognize ability as a research scientist in the field of "Viral disease management" |
| **Prerequisites** | Microbiology | |
| **Post requisites** | Thesis defense | |
| **Information resources** | 1. 1. Principles of Virology. By S. Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Anna Marie Skalka, Lynn W. Enquist (2020) 2. 2. Collier, L., Kellam, P., and Oxford J. (2011). Human Virology. Fourth Edition. Oxford University Press, U.K 3. 3. Fields Virology: Emerging Viruses 7th Edition. Peter M. Howley MD, David M. Knipe PhD, Sean Whelan (2019)   4. Virology: Principles and Applications by Carter and Saunders, 2nd edition (2013)  5. Molecular and Cellular Biology of Viruses, 1st Edition. Phoebe Lostroh (2019)  6. “Understanding viruses” Teri Shors. 2nd ed. Burlington: Jones & Bartlett Learning, cop. (2013) | |

|  |  |
| --- | --- |
| **Academic policy of the course in the context of university moral and ethical values** | **Academic Behavior Rules:**  Teaching is carried out as lectures, seminars and IWS, IWST. Participation in seminars is compulsory.  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.  **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 oksana.yurikova@kaznu.kz  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) |
| **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. |

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

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Module **1** | | | | | | | |
| 1 | **L.1** Introduction to Viruses and Epidemiology | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **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 |
|  | **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 |
|  | **PT 3** Virus Structure and Replication, Continued | LО 1 | ID 1.2. | 2 | 9 | Analysis | Webinar  in MS Teams |
|  | IWSP 1 Consultation on the implementation of IWS1 |  |  |  |  |  |  |
|  | **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 5 | ID 5 |  | 25 | Logic task | Webinar  in MS Teams |
| **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 |
|  | **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 |
|  | **PT 5** Specific Viral Infections  General properties of human viruses | LО 3 | ID 3.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
|  | IWSP 2 Consultation on the implementation of IWS2 |  |  |  |  |  |  |
|  | **IWS 2.** Problem-oriented tasks for IWS on the thematic block Look the file with the IWS tasks. | LО 5 | ID 5 |  | 30 | Logic task | Webinar  in MS Teams |
|  | **MT 1** | **LО 1** | **ID 1.1.** |  | **100** |  |  |
| 6 | **L.6** Inrinsic and innate defenses | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 6** The inflammatory response  Natural antibody protects against viral infection | LО 3 | ID 3.2. | 2 | 8 | Analysis | Webinar  in MS Teams |
| 7 | **L.7** Adaptive immunity | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT7** Virus-host interactions | LО 5 | ID 5.1. | 2 | 8 | Analysis | Webinar  in MS Teams |
| 8 | **L.8** Mechanisms of pathogenesis | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **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 |
|  | IWSP 3 Consultation on the implementation of IWS3 |  |  |  |  |  |  |
|  | **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 | Webinar  in MS Teams |
| 9 | **L.9** Acute infections | LО 3 | ID 3.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 9** Acute viral infections  Chronology of an acute infection | LО 3 | ID 3.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
| 10 | **L.10** Persistent infections | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 10** Resistance of the human body to virus infections (interferons) | LО 1 | ID 1.2. | 2 | 10 | Analysis | Webinar  in MS Teams |
|  | IWSP 4 Consultation on the implementation of IWS4 |  |  |  |  |  |  |
|  | **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 | Webinar  in MS Teams |
|  | **МТ (Midterm Exam)** | **LО 1** | **ID 1.1.** |  | **100** |  |  |
| 11 | **L.11** Transformation and oncogenesis | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 11** Paper discussion | LО 1 | ID 1.2. | 2 | 12 | Analysis | Webinar  in MS Teams |
| 12 | **L.12** Vaccines | LО 1 | ID 1.1. | 1 |  |  | Webinar  in MS Teams |
|  | **PT 12** Influenza virus-like particle vaccine. Poliovirus vaccine safety | LО 1 | ID 1.2. | 2 | 12 | Analysis | Webinar  in MS Teams |
|  | IWSP 5 Consultation on the implementation of IWS5 |  |  |  |  |  |  |
|  | **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 | Webinar  in MS Teams |
| 13 | **L.13** Antivirals | LО 1 | ID 1.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 13** A new drug for influenza | LО 1 | ID 1.2. | 2 | 12 | Analysis | Webinar  in MS Teams |
| 14 | **L.14** Evolution | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 14** Virulence – a positive or negative trait for evolution? Increased fidelity reduces viral fitness. Why do viruses cause disease? SARS-CoV-2 variants of concern | LО 1 | ID 1.2. | 2 | 12 | Analysis | Webinar  in MS Teams |
| 15 | **L.15** Therapeutic viruses | LО 2 | ID 2.1. | 1 |  |  | Video lecture  in MS Teams |
|  | **PT 15** Virus Watch: Cancer killing viruses | 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.

Chairman of the methodological council of the faculty Asrandina S.Sh.

Head of the Department Kystaubaeva A.S.

Lecturer Abdimadiyeva A.E.