**SYLLABUS**

**Spring semester 2022-2023 academic years**

**on the educational program «Modern problems of theoretical and practical biology»**

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| **Discipline’s code** | **Discipline’s title** | **Iindependent work of students (IWS)** | **Number of credits** | **Number of credits** | **Independent work of student with teacher (IWST)** |
| **Lectures (L)** | **Practical training (PT)** | **Laboratory (Lab)** |
| **SPTPB 5207** | Modern problems of theoretical and practical biology | 98 |  3 | 9 | - | 5 | 7 |
| **Academic course information** |
| **Form of education** | **Type of course**  | **Types of lectures** | **Types of practical training**  | **Form of final control** |
| Full-time | Theoretical, Practical | Problematic | Problematic solving, Situational tasks |
| Lecturer  | Ashirova Zhadyra Berdimuratovna |  |
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| Teacher of practical lessons | Kenzheeva Zhanar Kuralbayevna |

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| **Aim of course**  | **Expected Learning Outcomes (LO)\***As a result of studying the discipline the undergraduate will be able to: | **Indicators of LO achievement (ID)**(for each LO at least 2 indicators) |
| To develop the principles, concepts and issues related to the use of digital technologies to support learning and create a new digital contents and apply them in educational practice | 1. knows the achievements and prospects of development in modern problems of theoretical and practical biology; | 1.1. General biological theoretical and practical education from the main departments of biology and formation of theoretical and practical thinking.1.2 Explains general theoretical axioms and specific features of biosystems. |
| 2. Implement the application of information and communication technologies of biology training in practice; | 2.1. To examine how and why new technologies can be used to support students ' learning and challenges2.2. Defines how and why new technologies has used in their practice to support learning and promote learning, with reference to relevant concepts, principles and theories. |
| 3. Apply methodological foundations for the design and implementation of field and laboratory biological research using modern equipment and computing complexes, | 3.1. To develop the ability to find and choose appropriate theoretical and practical education and related activities to increase and motivate students to support specific learning goals3.2. Apply modern theoretical and practical education to solve research and production and technical tasks of professional activity in education process  |
| 4. Find and evaluate the modern distance learning technologies in learning biology practice;  | 4.1. Increases the ability to plan, execute, and evaluate learning episodes using theoretical and practical education. 4.2. Evaluates digital technologies to support learning and support learning.4.3.  |
| 5. Mastering the skills of computer processing of experimental results | 5.1 Create a short-term projects in order to master the skills in administrating learning process 5.2. Find and evaluate different platforms, sites, programs, gadgets for composing lessons for biology learning process  |
| **Prerequisites** | Information and communication technologies |
| **Post requisites** | Methods of teaching biology |
| **Information resources \*\*** | **Main Literature:\*\***1. 1. Teaching and Digital Technologies: Big Issues and Critical Questions Paperback. January 8, 2016 by Michael Henderson (Editor), Geoff Romeo (Editor)
2. 2. Forsyth, E. (2016). Using videoconferencing for professional development and meetings. Computers in Libraries, 36(7), 11-14.
3. 3. Remis, K. K. (2015). LMS enhances K12 instruction: Systems increase engagement, provide quick access to digital resources and help teachers with administrative tasks. District Administration, Digital Edition, May 27, 2015<http://www.districtadministration.com/article/lms-enhances-instruction>
4. 4. Dominic, M. (2016). Handbook of Research on Mobile Learning in Contemporary Classrooms. Hershey, PA: IGI Global.
5. **Additional Literature:**
6. 5. Korakakis, G. G., Pavlatou, E. A., Palyvos, J. A. and Spyrellis, N. N. (2009) “3D visual ization types in multimedia applications for science learning: A case study for 8th grade studen ts in Greece”, Computers & Education, Vol 52, pp 390‐401.
7. 6. Biancarosa, G., & Griffiths, G. C. (2012). Technology tools to support reading in the digital age. The Future of Children, 22(2), 139-160.<http://www.jstor.org/stable/23317415?seq=1&cid=pdf-reference#page_scan_tab_contents>
8.

Internet resources (at least 3-5)1. <http://elibrary.kaznu.kz/ru>
2. <https://expresswriters.com/digital-content-strategy-guide/>
3. <https://prezi.com/>
4. <https://www.clearslide.com/>
5. <https://voicethread.com/>
6. <https://tophat.com/>
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| **Academic policy of the course in the context of university moral and ethical values** | **Academic Behavior Rules:** All students are required to register for the MOOC. The deadlines for completing the modules of the online course must be strictly observed in accordance with the schedule for studying the discipline. Leave in case of current MOOC or SPOC courses.**ATTENTION!** Failure to meet deadlines results in loss of points! The deadline for each task is indicated in the calendar (schedule) for the implementation of the content of the training course, as well as in the MOOC. Leave in case of current MOOC or SPOC courses.**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 \*\*\*\*\*\*\*@gmail.com. |
| **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:**

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| --- | --- | --- | --- |
| **week** | Topic name | Number of hours | Max.score\*\*\* |
| **Module 1 Nature and importance of theoretical and practical biology****(the number of modules, the name of the topics, as well as their distribution by week is set by the teacher)** |
| 1 | **Lec 1.** The purpose, objectives and relationship of the subject of theoretical and practical biology in biological education with other sciences | 1 |  |
| Sem 1. To determine how and why theoretical and practical biology in biological education can be used in their practice, with reference to relevant concepts, Principles and theories | 2 | 10 |
| 2 | **Lec 2.** New technologies in the Educational system. | 1 |  |
| **Sem 2.** STEM learning environments: a study of instructor and student behaviors in biology courses | 2 | 10 |
| 3 | **Lec 3.** Using information and communication technology (ICT) to the maximum: learning and teaching biology with limited digital technologies | 1 |  |
| **Sem 3.** Understand the problems associated with the use of digital technologies in biological education and apply them in their own practice (using the example of Microsoft excel) | 2 | 10 |
| **IWS 1.**  **Consultation on the implementation of IWS1 on the topic:** Development of scientific publications on Master's topics using Microsoft programs**.** Development of a structural and logical scheme of the studied material.ATTENTION: (number of IWS (2-5), IWST (6-7)Independent work of students (IWS, colloquium, etc.) is estimated at 55-60% of the total points. | 1 | 40 |
| 4 | **Lec 4.** Physiological and biochemical significance of life | 1 |  |
| **Sem 4.** Planning, preparing and conducting classes using one or more  technologies | 2 | 6 |
| **IWST 2. Colloquium – logical task** Development of glossary of the course material. | 1 | 4 |
| 5 | **Lec 5.** The importance of using new technologies in active and inclusive learning | 1 |  |
| **Sem 5.** Demonstrate how you can develop an active learning and inclusive learning environment using technologies, as well as engage and motivate students to learn. | 2 | 10 |
| **Module 2. Application of theoretical laws in practice** |
| 6 | **Lec 6.** Stages and concept of composition of the electronic textbookshttps://stud.kz/referat/show/96732 | 1 |  |
| **Sem 6.** Research of electronic textbook compiling programs | 2 | 10 |
| 7 | **Lec 7.** Different tools for writing an e-book.  |  |  |
| **Sem 7.** Ways to add and edit video and audio recordings to an e-book or texts |  |  |
| **IWST 3. Consultation related to IWS 2. task** | 1 |  |
|  |  **LEVEL CONTROL 1** |  | **100** |
| 8 | **Lec 8.** Psychology of personality and interpersonal relationships in biological education using a new technologies | 1 |  |
| **Sem 8.** Possibilities to assess students' knowledge | 2 | 8 |
| **IWS 2.** Effective Teaching Strategies in Biological Education: Present and Future ProspectsWritten Essay with practical explanation with examples, references and summary. Word file no less than 2 pages, New Roman shrift #12.  |  | 18 |
| 9 | **Lec 9.** Formation of information and communication competence in biological education | 1 |  |
| **Sem 9.** Selection of appropriate technologies for the design of learning activities specific to the development of different skills | 2 | 8 |
| 10 | **Lec 10** Effective methods of using ICT technologies in biology lessons | 1 |  |
| **Sem 10.** Identify strengths and directions in designing educational | 2 | 8 |
| **IWST 4. Colloquium Consultation on the implementation of IWS3** | 1 |  |
| **Module 3 Overview of the system of means of teaching of biology** |  |  |
| 11 | **Lec 11** . Classification teaching methods: verbal, visual and practical | 1 |  |
| **Sem 11.** Other innovation teaching methods in biology | 2 | 8 |
| 12 | **Lec 12** Methods of formation of skills in biology | 1 |  |
| **Sem 12.** Management of the intellectual development of pupils in the process of their learning of biology | 2 | 8 |
| **IWST 5. Consultation questions-answers session**  | 1 |  |
| 13 | **Lec 13** Technique of formation and development of biological concepts | 1 |  |
| **Sem 13.** . Characteristics of different types of visual aids in biology | 2 | 8 |
| **IWS 3.** Problem learning: pedagogical Technology and methods of trainingBiologyReport in presentation format made in Power point, no less than 10 slides with conclusion and used resources. |  | 18 |
| 14 | **Lec 14** Teaching methods in biology education and sustainability education including outdoor education for promoting sustainability | 1 |  |
| **Sem 14.** Discussion of outdoor education | 2 | 4 |
| **IWST 6. Colloquium** Make a structural and logical diagram of the read material – logical task  | 1 | 4 |
| 15 | **Lec 15** Lesson – the basic form of teaching biology. | 1 |  |
| **Sem 15.** Calendar-thematic lesson planning in biology | 2 | 8 |
|  | **IWST 7. Consultation on examination preparation** | 1 |  |
|  |  **LEVEL CONTROL 2** |  | **100** |

Dean \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Zayadan B.K.

Head of Department \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Kustubaeva A.M.

Lecturer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Ashirova Zh.B.

**NOTE:**

 The total volume of the syllabus is no more than 5 pages, font 10, Times New Roman

\* LO is based on cognitive (1-2), functional (2-3), systemic (1-2) competencies, total 4-7.

The types and number of competencies (out of 5) are compiled according to the level of education.

\*\* Give no more than 5-7 sources of literature (full bibliographic description), in depth for the last 10 years. (in exceptional cases, 20-30% of irreplaceable classical textbooks), for natural directions - 10 years. Humanitarian direction -5 years

Literature and resources:

1. Basic literature

2. Additional reading

3. Software

4. Internet resources

5. Professional databases

\*\*\*Spreading the assessment of students' knowledge is at the discretion of the compilers of the syllabus.

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