

REPUBLIC OF UZBEKISTAN
MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATIONS
CHIRCHIK STATE PEDAGOGICAL UNIVERSITY



MODERN BIOLOGY EDUCATION AND INTERNATIONAL TEACHER
TRAINING

CURRICULUM (SYLLABUS)

Field of knowledge:	100,000 – Education
Field of study:	110000 - Education
Course of Study:	60510100-Biology

The curriculum (syllabus) was approved by the report No. 1 of "29"
08, 2024 of the board of Chirchik State Pedagogical University.

Developer:

To'ychiboyev J.I Teacher of the "Biology" department of CHDPU

Reviewers:

Shaxmurova G.A Professor of the Department of "Zoology and Anatomy" TDPU named after Nizomi, doctor of biological sciences

Safarov I.V

ChDPU "Biology" department, etc. associate professor

The curriculum (syllabus) of Chirchik State Pedagogical University, Faculty of Natural Sciences, "Biology" Department, was reviewed and recommended for approval at the meeting numbered 1 on "28" 08, 2024.

Head of the department:



d.b.s., prof. Fayziyev V.B

The curriculum (syllabus) was discussed at the 1 th meeting of the Council of the Faculty of Natural Sciences of Chirchik State Pedagogical University on 28 08, 2024.

Dean of the faculty:



d.p.s., prof. Raximov A.K

STUDY PROGRAM
(SYLLABUS)
Faculty of Natural Sciences
60510100-Biology

General information		
Subject title: MODERN BIOLOGY EDUCATION AND INTERNATIONAL TEACHER TRAINING		
Science code:	Amount of credit: 4	Semester: 5
Department name: Biology		
Science teacher: Xoldorov Javlonbe Xusanjon o'g'li		
Email: javlonbekxoldorov0208@gmail.com		
Type of subject: Elective subject		
Form of education:	Daytime	
Evaluation form:	Exam	
Science language:	English	

Summary of science
"Modern biological education and international teacher training" subject involves teaching biology using modern methods and training teachers according to international standards. This subject provides students with biological knowledge using modern pedagogical technologies, interactive methods and advanced focuses on learning to deliver with the help of educational tools. There is also an emphasis on the development of theoretical and practical skills in the preparation of highly qualified biology teachers who meet international educational standards. The content of the subject covers the following main directions: Main directions of modern biological education: new approaches, technologies and tools in teaching biology. International education standards: international biology programs (eg Cambridge IGCSE, A-Level, IB) and their corresponding teaching methods. Interactive methods in teaching students: experiments, research projects, project-based learning and digital tools in the study of biology. International Teacher Training: Internationally Certified Teacher Training Programs and Practices. Pedagogical and Didactic Skills: This subject allows teachers to teach biology to students in the most effective and interesting ways, as well as to develop the necessary skills to become an internationally competitive teacher.

Learning outcomes:
Students who completed the course: - Students know and can use modern teaching methods, digital technologies and advanced pedagogical approaches. This allows them to teach biology to students in an effective and interesting way; - Students acquire skills in teaching biology using experiments, project-based learning, digital tools, and interactive activities; - Students acquire knowledge of international programs such as Cambridge IGCSE, A-Level, IB and develop the ability to develop and teach educational materials suitable for these programs; - Become competent in teaching biology using digital tools. They can use simulations, educational platforms and other modern learning tools. Competencies to be acquired as a result of the course: - to have in-depth knowledge of the basic concepts and theories of modern biological science and their practical application. Ability to understand and develop relevant materials for international biology programs such as Cambridge IGCSE, A-Level, IB. Ability to effectively use pedagogical and didactic methods used in teaching modern biology (KK-1); - participates in the implementation of scientific-research works (KK-4).

Science content
Form of training: lecture (L)
M1 Cell division and nucleic acids
M2 Chromosomes, genes, proteins
M3 Movable tissues.
M4 Intracellular and extracellular transport
M5 Principles of the body
M6 Enzymes and its mechanism.
M7 Energy and gas exchange
M8 Photosynthesis
Current control
M9 Effect of external factors on the body
M10 Immunity and poisoning
M11 Interaction of ecology and anthropogenic factor
M12 Metabolism of substances and energy
M13 "International Assessment"
M14 "Principles of using command words in international evaluation"
M15 Comparative analysis of teaching processes in Uzbekistan and developed countries
Form of training: Laboratory training (L)

A1	Mechanism of intercellular transport. Permeability in the cytoplasmic membrane
A2	Determination of threshold strength in neuromuscular preparations. Relative fatigue of nerve fibers. Study of the state of parabiosis
A3	PCR reactions and their application procedure. Cell structural components. Cytomorphological signs of cell cycle, apoptosis, necrosis, inflammation
A4	Structure of chromosomes, complex of genes. Modern diagnosis of chromosomes and genes
A5	The phenomenon of homeostasis and adaptation in the organism. The mechanism of implementation of the functional system
A6	Mutations in enzymes and their biological role. Catalytic mechanism of enzymes
A7	Measurement of respiration and respiration coefficient. Stages of energy exchange.
A8	Determining the quantitative analysis of pigments. Determining the quantitative and qualitative analysis of light and dark phase substances
Current control	
A9	Preparation of histological preparation. Integration of organism with antibiotic and vaccine
A10	Antigen response of the organism. Poisoning of the organism and its prevention measures.
A11	The effect of chemical substances on the body. To find out the secret of modern ecology and green economy, to learn how to measure the patient's pulse and blood pressure.
A12	Obesity, GMO products. Creating a diet
A13	Assessments in different international education systems and their differences. Use of assessment methods and their impact on students.
A14	Analysis of command words and their use. Determining the size of types.
A15	Preparation for lessons and use of modern platforms (Problem-based learning)

Teaching and learning methods

The module is organized through lectures and practical classroom training, as well as independent educational activities of students. Lectures provide theoretical information necessary for analyzing the topics of Modern Biology Education and the International Teacher Training Course. In practical classroom sessions, problems (examples and problems) of Modern Biology Education and International Teacher Training Course are presented and students are given the opportunity to practice the application of physiological methods and techniques necessary to solve them. In independent educational activities, students should study the topics in depth and analyze the topics using literature and scientific journals and sources. Students discuss the topic in small groups, thereby creating an opportunity to further

consolidate knowledge and deepen understanding. Students work on problems aimed at identifying, analyzing and finding solutions to real-life biological problems.

Type of training	A dedicated hour
Lecture	
Practical training	30
Independent education	30
Total hours of study and teaching of students	60
	120

Criteria for evaluation and control of student knowledge in science

- Monitoring and evaluation of students' knowledge is carried out through student activity, mid-term control, final control, and evaluation of independent education.
- Midterm control** is an important stage of assessment by the professor-teacher of the student's knowledge and practical skills acquired in the first part of the module, and is an indicator of future mastery of this subject. Assessment of students' knowledge in mid-term control is carried out through oral question-and-answer and written work. The student's theoretical knowledge and level of thinking are taken into account. If the student does not pass the midterm examination, he will be given the opportunity to retake it 2 more times. **20 percent of the total evaluation.**

- Assessment of independent education** - it is carried out by students' performance of practical projects given in a collective order and individually. Each student is given one team project and two individual projects. The student studies and conducts research on the given issue, understanding the goals and objectives of the assigned project. Analyzes the obtained results, prepares presentations with conclusions and defends them. The number, subject, content of the projects, methods of implementation and deadlines are fully disclosed in the program of the working science. In addition, in this section, the student's practical skills are evaluated and 20% of the total evaluation is allocated to it, and 30% is allocated to independent education. **50% of the total evaluation.**

- Final control** is a summative stage of evaluation of the knowledge and practical skills of the student by the professor-teacher. Final control is conducted in the form of a written work. **30 percent of the total evaluation.**

Evaluation, intermediate and final control tasks (tasks) are developed by the professors and teachers of the course, pre-moderated and approved by the head of the department.

The content of the assignments for the control types should allow for an objective, transparent and accurate assessment of the student's learning.

A student must not engage in any activity that may lead to academic misconduct. For example, plagiarism, collusion, falsification of results, violations during the examination process, i.e. use of notes and handouts, telephone and other means of communication, communication with others inside or outside the

examination room are prohibited. Students who are guilty of this will be removed from the control or examination process, and their grade will be zero.

Depending on the characteristics of the subject (course), changes and additions may be made to the evaluation and control criteria.

Basic literature	
1.	"Modern biology" Author(s): Hold, Rinehard and Winston.
2.	Cambridge IGCSE Biology Coursebook" Author(s): Mary Jones and Geoff Jones. 2012 year. p 460
Tavsiya qilinadigan qo'shimcha adabiyotlar	
3.	Cambridge International AS and A Level Biology Coursebook" by Mary Jones and Richard Fosbery Print/online bundle. April 2020
4.	Cambridge International AS & A Level Biology Coursebook with Digital Access (2 Years) 5ed. Cambridge AS and A Level Author(s): Mary Jones, Richard Fosbery, Dennis Taylor, Jennifer Gregory Print/online bundle. April 2020

Sources of web addresses:

1. <http://www.cspul.uz>
2. www.cabridge.org
3. <http://ziyonet>
4. [Medika.ru](http://medika.ru)
5. <http://mendeley>