

Name of the Discipline	Developmental Biology
Semester(s)	1
Responsible teacher	Berdikulov Khudoyshtur Keldiyorovich , Doctor of Philosophy (PhD) in Agricultural Sciences, teacher Abdullayeva Nilufar Sag'dullayevna, Doctor of Philosophy in Biology (PhD), Associate Professor,
Language of teaching/learning	Uzbek
Connection to the curriculum	Optional
Academic workload (including contact hours and self-study)	Total Workload: 180 hours Contact hours Lectures 30 hours Practical 60 hours Self-study 90
ECTS	6
Prerequisites	Biology, Chemistry, Geography, Physics.
Discipline objectives / Learning Outcomes	<p>The purpose of the discipline is to form a scientific worldview by explaining the patterns of Cytological, Histological structure and embryonic development of plants and animals</p> <p>Learning Outcomes</p> <ul style="list-style-type: none"> - know the types of cells, structures, methods of division, Biochemical and Physiological processes in the cell; - determine gametogenesis and fertilization, stages of embryonic development; - be able to consider the stages of Cellular, Tissue and Embryonic development; - classify Animal Cells and Tissues; - keep a workbook during practical classes using the atlas; - have the skills to conduct Cytological and Histological experiments; - prepare temporary and permanent histological microslides from tissues and organs in the laboratory; -work with a microscope; -recognize permanent microslides; -formulate scientific hypotheses when discussing literature and own data; - work with educational and scientific texts that meet the objectives of professional activity; -develop a caring attitude towards nature and living organisms.
Lessons' contents	<p>Content</p> <ol style="list-style-type: none"> 1.Introduction – goals, objectives, problems, history of development and methods of Developmental Biology. 2.Cell shapes and Evolution. Cell Theory. Chemical composition, Cell properties and Cell Morphology. 3. Biological membranes, plasmalemma, Cell organelles - the structure of the endoplasmic Reticulum, Ribosomes, Golgi apparatus, Lysosomes. 4. Cell organoids - the structure of Mitochondria, Plastids, Centrosomes and Microtubules. Cytoplasmic inclusions. 5.Structure and composition of the Nucleus and Chromosomes. 6. Cell division. Mitosis. Meiosis. 7. Cell Physiology and characteristics of a plant cell 8.Vitas of Gametogenesis, structure of Gametes 9. Fertilization, crushing 10. Gastrulation and Axial organs

	11.Education of the main organs 12. Classification of Fabrics. Single Layer Epithelium 13. Stratified Epithelium 14.Tissues of the Internal Environment. Blood. Actually, connective tissue 15.Dense Fiber and special Connective Tissue 16.Cartilage Tissue 17.Bone Tissue 18. Muscle Tissue 19. Nervous Tissue 20. Nerve endings and reflex pathway.
The exam format	Oral
Teaching/learning and examination requirements	<p>successful development of the science of mastering perfect for science biology to know their test at the time of filing, from the use of the obtained knowledge to get the drug and microscopic atlas "read" you should get. Submit the final assessment for the oral exam.</p> <p>The moment aside from questions for science in the creation of program content does not allow you to out. Yanning questions on each subject will be discussed at the meeting and the chair shall be approved by the bank.</p> <p>The number of tickets in the ticket side and independent concluding the questions of the audience should be in a 50/50 ratio depending on the content of education;</p> <p>at least 1 week before the start of the final evaluation approved by the head of the department, the envelope is sealed by dean laid to 5 minutes before the start of tickets with the participation of students and the exam will be opened.</p> <p>Tickets for students who choose to side and ic 5-10 minutes preparation time will be given 10-15 minutes to answer oral questions. To a student, the average time is 20 minutes.</p> <p>Oral examination of 15 to 1 student to any formation in the composition of the commission, a member of the commission was confirmed. On the side of the students on the same day are placed on the electronic platform of the price.</p> <p>Results from a student who is dissatisfied with side(s) Side from the date the results are announced within 24 hours they can give a written or oral appeal. Given 24 hours after the results are announced from the date of the election commission does not accept complaints.</p> <p>Lessons from this science students and students who gave the exam of the conduct of a teacher does not participate in the process of checking the response.</p>
Bibliography	<p style="text-align: center;">basic literature</p> <ol style="list-style-type: none"> 1. i. a. abdulov, H. Xalbekova cell biology. Methodological guide. Tashkent, 2019. 250 b.; 2. Karp G . Is cell and molecular biology. ITMO, 2013. – P. 850.; 3. Chensov Yu.S. Vvedenie v kletochnoy will biologi. M. MGU, 2014. 4. Badalhojayev i. b., T. Cytology Madumarov // at andizhan, “Life” publishing house, 2019. 252 b. 5. Dilmurodov N. B., F. Z. Normurodova, E. A. Muxtarov. Cytology, histology and embryology. Textbooks. Samarkand.2023.316. b. 6. Mustafayev M. S. In Cytology. Textbooks. Tashkent. 2020. 176 b. 7. N. Sh.. shodiev Cytology, histology and embryology. Tashkent. Textbooks. 2006. 372 b. <p style="text-align: center;">Additional literature</p> <ol style="list-style-type: none"> 8. to assign Sh.M. We will build our great future together and our nation with courage and noble. – Tashkent: “Uzbekistan”, 2017. – 488 b.

	<p>9. I. A. Abdulov, N. Z. Qodirova Cytology. Methodological guide. Tashkent, 2014.132 b.;</p> <p>10. Karimov, K. G., O'. A. Raxmonov. Cytology, histology and embryology. Methodological guide. Samarkand. 2019.80 b.</p> <p>11. The Romanov E. B. Cytology. Uchebnoe posobie. Nizhny Novgorod. 2019. 119 s.</p> <p>12. Qarshibayev. H. k. on the basis of Cytology. Methodological guide. Gulistan. 2022. B 25.</p> <p style="text-align: center;">Information source solutions</p> <p>13. https://unilibrary.uz/</p> <p>14. http://www.ziyonet.uz</p> <p>15. http://www.pedagog.uz.</p>
Scope of assessment criteria and procedure	<p>CURRENT CONTROL</p> <p>Purpose: Determining and assessing the student's level of knowledge, practical skills, and competencies on course topics.</p> <p>Instructions: The student's activity in daily classes is assessed through the student's mastery of course topics, as well as constructively interpreting and analyzing the educational material, developing module-specific skills, acquiring practical skills (in terms of quality and the specified number) and competencies, solving problem situations aimed at applying professional practical skills, working in a team, preparing presentations, etc.</p> <p>Current control form:</p> <ul style="list-style-type: none"> Activity in lessons Preparing educational materials Working with sources within the subject Using educational technologies Working in a team Preparing presentations Working with projects <p>INTERMEDIATE CONTROL</p> <p>Purpose: Assessing the student's knowledge and practical skills and level of mastery of lecture material after completing the relevant section of the course.</p> <p>Form and procedure of intermediate control: Midterm examination is held during the semester during the training sessions after the completion of the relevant module of the curriculum of the subject. Midterm examination is held once in written form within the framework of this subject. Midterm examination questions cover all topics of the subject.</p> <p>Independent learning:</p> <p>Purpose: Independent learning is aimed at fully covering the content of this course, expanding the theoretical knowledge acquired, and establishing independent learning activities for students.</p> <p>Form and procedure of independent education: ndependent work assignments are completed in the form of an educational project, presentation, case study, problem solving, information search, digest, colloquium, essay, article, abstract, etc.</p> <p>Completed assignments for independent study are placed in the electronic system and checked based on the anti-plagiarism program and evaluated by the subject teacher.</p> <p style="padding-left: 40px;">In this case, the uniqueness of the completed assignment should not be less than 60%, otherwise the assignment will not be accepted for assessment.</p> <p style="padding-left: 40px;">The number of independent work assignments, depending on the nature of the subject, should not be less than 3 for one subject (module).</p>

	<p>Independent work assignments account for 60% of the points allocated for current and intermediate control.</p> <p>Independent learning task 1: Preparation of project work based on independent learning topics</p> <p>Independent learning task 2: Preparing sample video lessons based on specialized subject topics.</p> <p>Independent learning task 3: Preparation of open lesson plans in specialized subjects using interactive methods.</p> <p>Independent learning task 4: Analysis of educational normative documents for specialized subjects and preparation of presentations.</p> <p>FINAL CONTROL</p> <p>Purpose: The final examination is held at the end of the semester to determine the level of mastery of the student's theoretical knowledge and practical skills in the relevant subject. The final examination is held at a specified time according to the examination schedule created by the Registrar's Office on the electronic platform.</p> <p>Requirements: The student must have passed the current control, intermediate control and independent learning assignments by the deadline for the final control type in the relevant subject.</p> <p>A student who has not passed the current control, intermediate control and independent learning assignments, as well as who has received a score in the range of "0-29.9" for these assignments and control types, is not included in the final control type.</p> <p>Also, a student who has missed 25 percent or more of the classroom hours allocated to a subject without a reason is excluded from this subject and is not included in the final control type and is considered not to have mastered the relevant credits in this subject.</p> <p>A student who has not passed or was not included in the final control type and has received a score in the range of "0-29.9" for this type of control is considered to be an academic debtor.</p> <p>Final control form: The final examination in this subject will be conducted in written form.</p> <p>If the final examination is conducted in written form, the requirements for assessment must also be reflected.</p>			
Criteria for assessing student knowledge	5 stars	100 points		<p>Evaluation criteria</p> <p>When a student is considered to be able to make independent conclusions and decisions, think creatively, observe independently, apply the knowledge he has gained in practice, understand, know, express, and narrate the essence of the subject (subject), and have an idea about the subject (subject)</p> <p>When the student is considered to be able to observe independently, apply the knowledge he has gained in practice, understand, know, express, and narrate the essence of the subject (subject), and has an idea about the subject (subject)</p> <p>When the student is found to be able to apply the knowledge he has gained in</p>
	5	90-100	Excellent	
	4	70-89,9	Good	
	3	60-69,9	Satisfactory	

				practice, understands, knows, can express, and narrate the essence of the subject (subject), and has an idea about the subject (subject)		
	2	0-59,9	Unsatisfactory	When it is determined that the student has not mastered the science program, does not understand the essence of the science (subject), and does not have an idea about the science (subject)		
Course evaluation criteria and procedure	Control type		Total points allocated	Control (task) form	Distribution of points	Qualifying score
	Current control		30 points	System tasks	20 points (divided by the number of tasks)	18 points
				Student activity (in seminars, practical, laboratory classes)	10 points	
	Intermediate control		20 points	Supervision: Written work	10 points	12 points
				System tasks	10 points (divided by the number of tasks)	
	Final inspection		50 points	Written assignment (5 questions)	50 points (10 points per question)	30 points
	* Note: 60% of the points allocated for current and intermediate control are allocated to independent work assignments. Independent work assignments are evaluated as system assignments through the electronic platform.					