iscipline designation	**Fundamentals of Genomics**
Semester(s) in which the discipline is taught	8
Teacher in charge	Koziyeva Sahobat Uktamovna , Doctor of Philosophy (PhD) in Biological Sciences, Associate Professor
Teaching language	Uzbek
Connection to the curriculum	Elective
Academic workload (including contact hours, SsIW)	Total workload: 180 h Contact hours – Lecture: 40 h. practical: 50 h. SsIW: 90 h.
ECTS	6
Prerequisites	molecular biology, biochemistry, World of microorganisms, biotechnology
Discipline aims:	**The goal of the discipline** is to form a scientific worldview, to determine the genes and genomes of organisms, considering genomics as a branch of molecular genetics. **Learning outcomes:** -List a list of complete or partial genome sequences of more than 30 parasites and bacteria that cause human **disease.** - Know the tasks of the fundamental science of genomics, the history of the development of genomics, the achievements of genomics, its role, the relationship of genomics to production and teaching based on the knowledge received from them. -Explain the scientific research carried out by scientists around the world to sequence the genomes of living organisms. - Give an idea of the structure and functions of genes, new technologies created at the genome level, their laws and principles that explain the meaning of genes and genomes. -Identify the genomes of humans, animals, microorganisms and plants. -Detect genomic changes or diseases using modern scientific advances.
Class contents	Contents: 1.Introduction to the science of basic genomics. 2. The concept of the Gene and the gene concept. 3. Transcription. Translation and protein synthesis. 4.Molecular markers. 5.Genome analysis at the DNA level. 6.Epigenomics. 7.Medical genomics. 8.Cartographic programs. 9.Introduction to the science of bioinformatics. 10.Modern bioinformation databases. 11.Comparison of biological sequences. 12.Methods for predicting gene structures. 13.Molecular phylogenetics. 14.Types of neurons. 15. The role of bioinformatics in the study of genomics.
Examination type	**In written form**
Teaching and examination	**Requirements for successful mastering the disciplines** To have a complete mastery of theoretical and methodological concepts of the

requirements	subject, to be able to reflect correctly the results of analysis, to think critically about the studied processes and perform tasks during daily, midterm forms of evaluation, to pass written final assessment (FA). Deviations from the discipline program content are not allowed in making up final assessment questions. The bank of FA questions for each subject is discussed at the department meeting and approved by the head of the department. FA question bank is used in compiling FA tickets; the number (3-5 questions) of questions in the task sheet should be in a 50/50 ratio, depending on the content of classroom and independent learning. No later than 1 week before the start of the final control, task sheets are signed by the head of the department, enclosed in an envelope, sealed by the dean's office and opened 5 minutes before the start of the exam in the presence of students. FA duration is 80 minutes. Answers to FA questions are recorded in notebooks with the seal of the dean's office. After completion of the FA work, it is immediately encrypted by a representative of the dean's office, and the notebooks are handed over to the commission for verification. From the moment of completion of the FA, a period of 72 hours is allotted for checking and posting the results on the electronic platform. The teacher who taught the subject is not involved in the process of the exam or checking the students' answers. Students who are dissatisfied with the FA results may submit a written or oral appeal within 24 hours after the publication of the FA results. Complaints submitted after 24 hours from the publication of the FA results will not be accepted.
References:	1. Душанова Г.А., Рузиев Ф.А. Основы геномики. Методическое пособие. - Самарканд: Издание СамДУ, 2021. – 270 с. 2. Брюхин В.Б, Андрушко Йе.В. Функцианалны генетика и геномика. – СПБ: Университети ИТМО, 2021. – 112 с
Scope of assessment criteria and procedure	**CURRENT CONTROL** **Purpose:** Determining and assessing the student's level of knowledge, practical skills, and competencies on course topics. **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. **Current control form:** Activity in lessons Preparing educational materials Working with sources within the subject Using educational technologies Working in a team Preparing presentations Working with projects **INTERMEDIATE CONTROL** **Purpose:** Assessing the student's knowledge and practical skills and level of mastery of lecture material after completing the relevant section of the course. **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. **Independent learning:** **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. **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. 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. In this case, the uniqueness of the completed assignment should not be less than 60%, otherwise the assignment will not be accepted for assessment. The number of independent work assignments, depending on the nature of the subject, should not be less than 3 for one subject (module). Independent work assignments account for 60% of the points allocated for current and intermediate control. Independent learning task 1: Preparation of project work based on independent learning topics Independent learning task 2: Preparing sample video lessons based on specialized subject topics. Independent learning task 3: Preparation of open lesson plans in specialized subjects using interactive methods. Independent learning task 4: Analysis of educational normative documents for specialized subjects and preparation of presentations. **FINAL CONTROL** **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. **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. 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. 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. 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. **Final control form:** The final examination in this subject will be conducted in written form. If the final examination is conducted in written form, the requirements for assessment must also be reflected.
Criteria for	**5** | **100** | | **Evaluation criteria**

assessing student knowledge

stars	points		
5	90-100	Excel lent	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)
4	70-89,9	Good	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)
3	60-69,9	Satisfactory	When the student is found to be able to apply the knowledge he has gained in 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.*