

Name of the Discipline	Fundamentals of Genetics and Selection
Semester(s)	8
Responsible teacher	Pardayeva Khurshida Olimjonovna, Senior Lecturer, Department of Biology and Teaching Methods Khorazov Nuriddin Altinbek oglu, intern-teacher
Language of teaching/learning	Uzbek
Connection to the curriculum	compulsory
Forms of teaching/learning	Lecture and practical, self-study of students
Academic workload (including contact hours and self-study)	Total workload: 180 hours Contact hours – Lecture 50 h Practical work 40 hours. SsIW - 90 hours.
ECTS	6
Prerequisites	Botany, Zoology, Developmental Biology, Human Anatomy and Physiology, Ecology and Nature Conservation
Discipline objectives / Learning Outcomes	<p>The purpose of the discipline is to form a system of knowledge on the fundamental Genetic Basis of the emergence and functioning of living organisms and biocenoses on Earth, their stability and variability.</p> <p>Learning outcomes:</p> <ul style="list-style-type: none"> - know modern approaches and innovations in teaching Genetics and Selection; - to develop skills in using modern educational tools in classes on Genetics and Selection; - apply interactive methods in teaching activities when teaching topics of Genetics and Selection; - assess the levels of activity of students in the field of education; - know about modern approaches and innovative technologies; - be used in teaching and conducting scientific research in the field of genetics and selection; - know modern requirements for teaching Genetics and Selection; - classify the unity and consistency of the content, means, methods and forms of the science of genetics and selection; - use educational resources in the classroom; - have processing and generalization skills; - apply modern innovative pedagogical technologies in genetics and selection lessons; - teach how to organize classes on genetics and selection based on modern requirements; - use modern approaches and innovations in professional activities; - be aware of scientific achievements in genetics and selection, and application in production.

Lessons' contents	<p>Content</p> <ol style="list-style-type: none"> 1. History of the Development of Genetics. 2. Cytological and Biochemical basis of asexual reproduction. 3. Cytological and Biochemical basis of sexual reproduction. 4. Mendel's First and Second Laws. 5. Mendel's Third Law. 6. Genetics of sex. Sex-linked inheritance of traits. 7. Genetics of sex. Inheritance of traits in combination with gender. 8. Linked inheritance of traits and crossing over. 9. Principles of genetic mapping. 10. Interaction of non-allelic genes, complementarity and epistasis. 11. Interaction of non-allelic genes: inheritance of traits under the influence of polymers. 12. Inheritance of traits under the pleiotropic and modifying action of genes. 13. Cytoplasmic inheritance; 14. Variability and its types. Genotypic variability. 15. Variability and its types. Phenotypic variability. 16. Molecular bases of heredity. 17. Population genetics. Genetic structure of populations and genetic basis of evolution. 18. Genetic engineering and biotechnology; 19. Introduction to human genetics; 20. Methods for studying human genetics; 21. Linked inheritance of traits in humans and the genetic map. 22. Medical genetics. 23. Selection. Goals and objectives of selection. 24. The doctrine of N.I. Vavilov about the centers of origin of cultivated plants. 25. Varieties, breeds and strains. 26. Hybridization methods. 27. Plant breeding. 28. Animal selection 29. Selection of microorganisms. 30. Scientific research in the field of genetics and selection in Uzbekistan
The exam format	Written

Teaching/learning and examination requirements	<p>Complete mastery of theoretical and methodological concepts in the discipline, the ability to correctly reflect the results of analysis, independently reason about the processes being studied and carry out tasks in the current, intermediate forms of control, and pass written work on the final control.</p> <p>When drawing up final exam questions, deviations from the content of the discipline program are not allowed. The bank of final exam questions for each discipline is discussed at the meeting and approved by the head of the department.</p> <p>No later than 1 week before the start of the final control, tickets signed by the head of the department, enclosed in an envelope, are sealed by the Dean's office and opened 5 minutes before the start of the exam in the presence of students. Final exam duration is 80 minutes. Answers to final exam questions are recorded in copybooks with the seal of the Dean's office. After completion of the IR work, the work is immediately encrypted by a representative of the Dean's office, and the copybooks are handed over to the commission for verification. From the moment of completion of the final exam, a period of 72 hours is allotted for checking and posting the results on the electronic platform.</p> <p>The teacher who taught the students in this discipline is not involved in the process of conducting the exam and checking the students' answers.</p> <p>Student(s) who are dissatisfied with the final exam results may submit a written or oral appeal within 24 hours of the publication of the final exam results. Complaints submitted after 24 hours from the publication of the final exam results will not be accepted.</p>
Bibliography	<p>1.G'ofurov A.T., Fayzullaev S.S., I.T.Azimov., U.E.Raxmatov."Genetika va evolutsion ta'limot" Genetika Toshkent, "Tafakkur", 2021 y.</p> <p>2.G'ofurov A. T., Fayzullaev S.S." Genetika va evolutsion ta'limot " 2013 y.</p> <p>3. U. E. Raxmatov., G'ofurov A.T., Fayzullaev S.S., "Genetikadan masala va mashqlar " Toshkent-2022 y.</p> <p>4. Fayzullaev S.S., G 'ofurov A.T. "Odam genetikasi "Toshkent-2018 y.</p>