

**Annotation of elective educational component
«Biotechnology of animal reproduction»**

Academic discipline	Biotechnology of animal reproduction
Tutor	Babenko Olena Ivanivna, PhD agricultural sciences, associate professor, department of genetics, breeding and selection of animals
Courses and semesters, when the discipline is planning to study	2 course (master) 3 semester
Faculties whose students are invited to study discipline	Biological-technological faculty
List of competencies and learning-related outcomes that discipline provides	<p>According to the requirements of the educational-professional program "Technology of production and processing of livestock products" applicants must acquire the ability to obtain the following competencies:</p> <p>GC 3 (general competence). Ability to apply knowledge in practical situations.</p> <p>GC 6. The desire to preserve the natural environment.</p> <p>PC 1 (professional competence). The ability to use modern ideas about the principles of the organization of the animal body on the basis of knowledge about the course of physiological and biochemical processes.</p> <p>PC 15. The ability to use professional knowledge in the field of animal breeding and selection, to master the basic processes of genetic analysis in the latest technologies for the production and processing of livestock products.</p> <p>PC 16. The ability to use knowledge of the basic processes of changing genetic information in animal populations.</p> <p>PC 17. Ability to apply various methods of genetic engineering and methods of improving the technological process of selection and breeding of animals.</p> <p>The result of studying the discipline is the students' acquisition of such knowledge and skills:</p> <ul style="list-style-type: none"> - to follow their own improvement and master modern knowledge (to have modern knowledge of the morpho-physiological bases of animal reproduction); - to create measures to improve breeding work in animal husbandry (to know the methods of applying artificial insemination of animals, which will allow, in the future, to obtain more highly productive offspring). - to apply the biological, physiological and biochemical features of animals and their products when choosing production technology and conducting research activities (to know the anatomical and topographic features of the reproductive system of females of various species of farm animals to study technologies for increasing the reproductive abilities of animals; know the methods of regulating the reproduction of mammals to increase the reproductive properties of rural animals); - the ability to use knowledge of the basic principles of

	scientific methodology and methods of conducting laboratory and production research (to be able to research the quality of generative cells, taking into account the basics of cryobiology; to know new directions used in the biotechnology of animal reproduction; to know the methods of preservation and deconservation of sperm, methods of washing and transplanting embryos and animal cloning).
Description of the discipline	
Prerequisites needed for studying the discipline	The selective educational discipline "Biotechnology of animal reproduction" is based on the knowledge of such disciplines as "Morphology of farm animals", "Physiology of farm animals", "Biochemistry in animal husbandry", "Genetics with biometrics", "Animal breeding", "Animal feeding", studied in previous courses.
Maximum number of students who can study simultaneously	15 students
Lesson plans	<p>Lectures</p> <ol style="list-style-type: none"> 1. Subject and methods of biotechnology of animal reproduction, the main sections of biotechnology. History of development. 2. Basics of oogenesis in mammals. 3. Adjusting the mammals reproduction. 4. Definition and regulation of sexes in mammals. 5. Theoretical and practical bases of cryobiology of generative cells. 6. Use the embryo transfer in breeding programs. 7. Estrus synchronization in donors and recipients. 8. Embryo freezing. 9. Production of mammalian embryos in vitro. 10. Fertilization in vitro. 11. Cultivation of zygotes and embryos in vitro. 12. Methods of obtaining clones of farm animals. 13. Methods of obtaining fancy animals. <p>Practical classes</p> <ol style="list-style-type: none"> 1. Polymerase chain reaction. Methods of introducing DNA into the cell. 2. Methods of producing transgenic animals. 3. Types of transgenic animals. 4. Transgenic animals with desired characteristics. 5. Application of the method of embryo transplantation in animal husbandry. 6. Technique of embryos washing out. 7. Technology of working with embryos. 8. Methods of obtaining animal clones and chimeric animals. 9. Rational use of sires. 10. Scientific and physiological basis of obtaining sperm from sires of farm animals 11. Use of sexed sperm in animal husbandry.
Teaching language	Ukrainian

