Course Unit Descriptor

Study Programme: Animal Production

Course Unit Title: Animal Breeding

Course Unit Code: 19.ANM024

Name of Lecturer(s): Full professor Snežana Trivunović, associate professor Ljuba Štrbac

Type and Level of Studies: Undergraduate academic studies

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Winter

Language of instruction: Serbian, but individual consultations and materials are offered to incoming students in English

Mode of course unit delivery (face-to-face/distance learning): face-to-face

Number of ECTS Allocated: 7

Prerequisites: Livestock production; Animal Genetics

Course Aims:

Education and training students for direct work in the production, as well as for improving the yield and quality of livestock products through genetic improvement and learning about the production capacities of existing and creation of new lines of breeds and hybrids of all species of domestic animals. The student will acquire fundamental knowledge of modern technologies and biotechnology of selection and crossing of animals in order to achieve genetic progress.

Learning Outcomes:

After passing the exam, the student will acquire the theoretical and practical knowledge necessary for the analysis and solving of problems in the field of selection and crossing of existing breeds, lines and hybrids in production conditions on farms, breeding organizations and public services. Also, the student will be able to upgrade the acquired knowledge in the field of general principles of animal breeding with knowledge about the specifics of breeding certain species.

Syllabus:

Theory

Importance and history of animal breeding. The concept and structure of breed. Genetic resources. Breeding programs in livestock. Traits of farm animals. Registry records. Breeding methods. Additive relationship and inbreeding. Inheritance of anomalies, diseases and disease resistance. Quantitative genetics. Testing of breeding animals. Modes of action of minor genes. Sources of genetic variability. Genetic and phenotypic parameters. Basic principles and selection effect. Linear mixed models and their significance in breeding. Biotechnologies in breeding of animals. Genomic selection. Breeding of cattle, sheep, goats, pigs, poultry, horses and other species.

Practice

a) Laboratory exercises: Knowledge renewal of basic concepts from genetics and statistics. Species and breeds of domestic animals. Measurement of traits. Registry records. Additive relationship and inbreeding. Anomaly testing of progeny. Phenotypic parameters. Genetic parameters. Performance test. Progeny test and animal ranking. Selection effect and genetic trend.

b) Field exercises: Field exercises and practical work (registry records, organization of work in breeding organizations, organization of animal testing) on cattle, pig, sheep, goat and poultry farms, fishponds, and in AI centers.

Required Reading:

1. Vidović, V. (2009): Principi i metodi oplemenjivanja životinja, Faculty of Agriculture, Novi Sad.
2. Trivunović, S. (2012): Oplemenjivanje životinja, Faculty of Agriculture, Novi Sad.

3. Bourdon, R.M. (2000): Understanding Animal Breeding, Prentice Hall, New York.
4. Griffiths, A.J., Gelbart, W.M., Levontin, R.C., Miller, J.H. (2002): Modern Genetic Analysis, Freeman and Company, New York.

Weekly Contact Hours:	**Lectures: 4**	**Practical work: 3**

Teaching Methods:

The theoretical part of the training is conducted with the use of films and presentations that have been prepared so that students have a visual representation of lessons. Practical classes are conducted with the use of computers and software in the field of animal breeding and by visiting the farms of breeding animals and AI centers.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	6	written exam	-
Practical work	4	oral exam	30
Preliminary exam(s)	30+20	…….	
Seminar(s)	10		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.