Tárgytematika / Course Description

Genetics Basics of Animal Husbandry

N_DMA22

Tárgyfelelős neve / Teacher's name: dr. Bali-Papp Ágnes Jolán

Félév / Semester: 2022/23/1

Beszámolási forma / Assesment: Vizsga

Tárgy heti óraszáma / Teaching hours(week): 0/0/0

Tárgy féléves óraszáma / Teaching hours(sem.): 30/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Genetic discoveries are studied concerning domestic animal breading, generally and species-specific. Our aim is to concentrate on genetic discoveries that could be used efficiently in the student's further research. The applicability of genetic methods and statistical analysis is emphasized. This course is based on genetic discoveries acquired in the graduate studies course and is connected to molecular genetics and animal breeding.

TANTÁRGY TARTALMA / DESCRIPTION

1. The structure of nucleic acids. DNA replication and the RNA transcription from DNA sample. Central dogma. The initiation, process and finishing of transcription.

2. The process of translation. The genetic code.

3. Contemporary gene definition, the structure of genes and its transcription.

4. Gene and genome of prokaryotes and eukaryotes

5. The ideal population, the Hardy-Weinberg Balance. The effect of migration and its influence on gene frequency.

6. Mutation as source of variability and its influence on gene frequency.

7. Genetic drift. Bottleneck effect. Effective size of population. Genetic distribution of population.

8. Definition of fitness. Absolute and relative fitness.

9. The role and significance of the h^2 rate, and usefulness in animal breeding. Correlation and regression

10. Selection: levels and types of selection. Selection models. Connection of selection and drift.

11. Genetic polymorphism of natural population.

12. Quantitative genetics. Precalculation of genetic variance, artificial selection.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Meeting the conditions set by the supervisor.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Fésüs L., Komlósi I., Varga L., Zsolnai A. (2000) Molekuláris genetikai módszerek alkalmazása az állattenyésztésben (Use of the molecular genetics methods in animal husbandry), Agroinform Kiadó és Nyomda Kft, Budapest

Török P., Maróy P. (2011) Genetika BS.(Genetics) JATE Press, Szeged

R.F. Weaver, P.W. Hedrick (2000): Genetika(Genetics), Panem Kiadó, Budapest,

A.J.F. Griffiths, R.C. Lewontin, W.M.G. Jeffrey, H. Miller (2002) Modern Genetic Analysis: Integrating Genes and Genomes,

W H Freeman & Co, New York A.J.F. Griffiths (2004) An Introduction To Genetic Analysis, W H Freeman & Co, New York

Relevance foreign an Hungarian papers