AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Basic Genetics						
Course Code	VZO505		Couse Level	Second Cycle (Master's Degree)			
ECTS Credit	4	Workload	100 *(Hours)*	Theory	2	Practice	0	Laboratory	0
Objectives of the Course	The aim of course is to teach change and heritage events in living organisms, effective mechanisms for the occurrence of these events, the traits of living organisms how to transfer to the next generations, the structure of genes and chromosomes, the relations between the genes, the mechanisms of hereditary defects and diseases, hereditary defects and diseases in livestock.						
Course Content	Genetic material, nucleic acid, DNA, RNA, gene, transcription, chromosome, mitosis and meiosis division, gametogenesis, Mendel rules, genotype, phenotype, gene interaction, heredity dependent to sex, mutation.						
Work Placement	N/A						
Planned Learning Activities and Teaching Methods		Explanation (Presentation), Individual Study					
Name of Lecturer(s)	Prof. Mehmet Kenan TÜRKYILMAZ						

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Odabaşıoğlu, F. (2005): Veteriner Genetik. Ofset Baskı cilt, S.Ü. Basımevi, KONYA.
2	Başaran N. (1994): Tıbbi Genetik. 5. baskı, Bilim Teknik Yayınevi, İSTANBUL
3	Nicholas, F.W. (2003): Introduction Veterinary Genetics. Blackwell Publishing, Oxforg, UK.
4	Yüce, S., Bilgen, C., Demir, İ. (2010): Genetik. Nobel Yayın Dağıtım, Ankara.
5	Zöldag, L. (2008): Veterinary Genetics and Animal Breeding. A/3 Ltd 1077 Budapest
6	Ruvinsky, A., Piper, L. (1997): The Genetics of Sheep. CAB International, UK.
7	Muir, W.M. Aggrey S.E. (2003): Poultry Genetics, Breeding and Biotechnology. CABI Publishing, UK.

Week	Weekly Detailed Course Contents	
1	Theoretical	The importance of the science of genetics and the study subjects, uses of genetic science in veterinary medicine, the concepts of genotype, phenotype and environment, description of variation and variation types
2	Theoretical	Genetic material, the structure and functions of DNA and RNA, RNA types, genetic code, protein synthesis
3	Theoretical	Morphological structure of chromosomes and chromosome types, chromosome numbers of different type organisms, the concepts of karyotype
4	Theoretical	Mitosis and meiosis division, gametogenesis
5	Theoretical	Gene types according to the mode of action and their inheritance, Mendel rules
6	Theoretical	Monohybrid joins and basic principles of its
7	Theoretical	Dihybrid, threehybrid and polyhybrid joins and basic principles of these joins
8	Theoretical	(Midterm exam) Inheritance of the color of the body cover in livestock.
9	Theoretical	Inheritance of the blood groups in livestock and their importance in animal breeding.
10	Theoretical	Sex-linked inheritance
11	Theoretical	Lethal genes
12	Theoretical	Mutation concept, gene and chromosome mutations
13	Theoretical	Hereditary defect and diseases in livestock
14	Theoretical	Hereditary defect and diseases in livestock

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Assignment	2	0	10	20

Reading	1	0	20	20
Midterm Examination	1	15	1	16
Final Examination	1	15	1	16
			Total Workload (Hours)	100
			[Total Workload (Hours) / 25*] = **ECTS**	4

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	to be able to know the concepts of genotype, phenotype, environment and variation
2	to be able know Mendel rules and basic principle of heredity
3	to be able know the structure and functions of DNA and RNA, gene, genetic code, the structure of chromosome and cell division, the occurrence of traits and transition to next generations.
4	to be able learn the mechanism of mutation and mutation types, to know hereditary defects and diseases in livestock and remove them from herd
5	to be able have basic knowledge related with determination of breed, parenting tests, determination of blood groups

Programme Outcomes *(Animal Science (Veterinary Medicine) Master)*

1	Knows basic principles of animal rearing and breeding.
2	Knows physiological and morphological traits of farm animals. He/she can achieve a successful herd management by means of transferring his/her knowledge to the rural area.
3	Knows management of the animals and can take required measurements in the farm. He/She controls the productivity in the farm and keeps all farm records.
4	Knows selection and culling methods.
5	He/She can involve in all stages of production in the farm. Knows how to establish and manage of farm enterprises. He/She can help to the entrepreneurs who will enter the farm business.
6	He/She can detect and eliminate hereditary defects and problems by using his/her basic genetic knowledge.
7	Knows production traits due to his/her knowledge about hereditary principles. He/She can achieve heifer selection and determine breeding strategies for maximum production.
8	He/She can involve as an expert in scientific researches, breeding programs and judicial issues with his/her knowledge about race determination, parenthood tests, blood groups etc.
9	Knows how to reach resources and knows selection criterions of scientific researches. He/She can systematically present data. Knows statistical concepts and how to can get data, and present those as figures and tables and how to comment them. Knows different statistical methods. He/She can design a topic as a scientific paper.
10	Knows animal behaviours. Knows legal directives about animal welfare and can design some facilities such as housing, feeding, transferring and slaughtering processes according to these directives.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1		1			
P2	2	1			
P4	1	2	1	1	
P6	3		3	2	2
P7	3	4	4	5	3
P8	3	3	3		5