AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Reproductive Biotechnology in Animal Production							
Course Code	VST644			Couse Level	Third Cycle (Doctorate Degree)			
ECTS Credit	4	Workload	100 *(Hours)*	Theory	2	Practice	0	Laboratory	0
Objectives of the Course	To give information about reproductive biotechnology. proving feasibility of reproductive biotechnology, use of biotechnological methods to advance animal husbandry							
Course Content	Basic information about reproductive biotechnology in animal production, production of in-vitro embryos, long term storage of embryos, sex synch in embryos, production of transgenic farm animals, cloning technology							
Work Placement	N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion				
Name of Lecturer(s)								

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Ball P.J.H., Peters A.R. (2004) Reproduction in Cattle. Blackwell Publishing, Oxford
2	Bearden H.J., Fuquay J.W., Willard S.T. (2004) Applied Animal Reproduction. Pearson Prentice Hall, New Jersey
3	Feldman E. C., Nelson R. W. (2004) Canine and Feline Endocrinology and Reproduction. Saunders, St. Louis
4	Hafez E.S E., Hafez B. (2000) Reproduction in Farm Animals. Lippincott Williams & Wilkins, Philadelphia
5	Pineda M. H., Dooley M. P. (2003) McDonald's Veterinary Endocrinology and Reproduction, Iowa State Press, New York
6	Mitchell J.R., Doak G. A. (2004) The Artificial Insemination and Embryo Transfer of Dairy and Beef Cattle (including information pertaining to goats, sheep, horses swine, and other animals). Pearson Prentice Hall, New Jersey

Week	Weekly Detailed Course Contents	
1	Theoretical	Producing of in vitro embryos, advantage of producing in vitro embryos, factors influencing success rate of producing in vitro embryos
2	Theoretical	Techniques for oocyte collection from slaughtered animals ovaries, aspiration, slicing, dissection, oocyte washing mediums
3	Theoretical	Techniques for oocyte collection from live animals ovaries chirurgical methods, owum pick up (OPU)
4	Theoretical	In vitro maturation of oocyte
5	Theoretical	In-vitro fertilization, preparation of sperm which is going to use for IVF (swim-up method)
6	Theoretical	Classification of embryos according to maturation stage zygote,2- cells, 4- cells, 8-cells, 16-cells, morula, blastocyte morphological examination of embryos
7	Theoretical	Embryo maturation cultures after IVF, in-vivo and in vitro cultures
8	Intermediate Exam	Midterm exam
9	Theoretical	Description of cryopreservation ,advantage of cryopreservation, techniques for cryopreservation
10	Theoretical	Cryopreservation of oocyte and embryo
11	Theoretical	What is transgenic? advantage of producing transgenic animal, techniques for producing transgenic animals
12	Theoretical	Description of embryonic germ cells
13	Theoretical	What is cloning?
14	Theoretical	Importance and feasibility of reproductive biotechnology in animal husbandry
15	Theoretical	Importance and feasibility of reproductive biotechnology in animal husbandry
16	Final Exam	Final term exam

Workload Calculation

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

Reading	14	0	2	28
Midterm Examination	1	15	1	16
Final Examination	1	26	2	28
			Total Workload (Hours)	100
			[Total Workload (Hours) / 25*] = **ECTS**	4

25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To get basic information about reproductive biotechnology
2	Feasibility of biotechnology
3	Production of in-vitro embryos, long term storage of embryos, sex synch in embryos
4	To learn which biotechnology is useful in animal husbandry
5	Collection of sperm, sperm examination, short and long term sperm preservation

Programme Outcomes *(Reproduction and Artificial Insemination (Veterinary Medicine) Doctorate)*

1	To get knowledge about reproduction and artificial insemination with theoretical lessons and practise, also to get knowledge about reproductive systems of animals, reproductive organs and functions of these organs
2	Hormonal mechanisms of oogenesis and spermatogenesis, movements of oocyte and sperm cells in the genital tracts, factors affecting spermatogenesis and oogenesis, blood-testis barrier, functions of epidydymidis, capacitation and acrosome reaction of sperm cells, fertilization (fusion, activation, penetration)
3	To get knowledge about reproductive anatomy of male and female animals, reproductive endocrinology, , embryonic development of gonads, prenatal development, development-regression and luteolysis of corpus luteum, histological, anatomical and physiological structure of uterus, fertilization, early embryonic development, luteal mechanism, implantation, involution of uterus post partum, sperm migration in cervical mucus, oogenesis, acrosomal enzymes, fusion, activation, penetration, syngamy and polispermy and reproductive health
4	To get ample information about the structure and functions of hormones related to reproduction and diagnosis of oestrus, proper seeding time and gain experience in the selection of the technique in domestic animals
5	To get experience to join reproductive scientific research, to follow scientific advances own field. To transfer all these experiences and knowledge to students and society
6	To gain ability to reach scientific references, to plan an experiment, study this experiment, evaluation of experimental results and compare this result similar experimental result
7	Systematic of special examination, morphological and functional examination of genital organs, microbiological examination of sperm cells, ultra structure characteristics of sperm cells, factors affecting sperm quality, spermatological examination, Short term storage and cryopreservation of sperm cells, cryopreservation methods, factors affecting the success of thawing sperm cells, manipulations applied before or after thawing
8	To get knowledge about reproductive biotechnology (artificial insemination, in-vitro fertilisation, freezing of sperm and embryo, embryo transfer, laparoscopic insemination). To Contribute and advance to science
9	To get knowledge about infertility, diagnosis of infertility, treatment of infertility in domestic animals especially commercial farms
10	To make a research about reproduction and artificial insemination, this can contribute and advance to science
11	To get experience about to write a national or international article about reproduction and artificial insemination, this can contribute and advance to science

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

	L1	L2	L3	L4
P1	3			
P6				3
P7				4
P8	5		5	
P9		4		
P10	4	4		4