AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	In Vitro Fertilization in Cows								
Course Code	VST645		Couse Level		Third Cycle (Doctorate Degree)				
ECTS Credit	4	Workload	101 *(Hours)*	Theory	2	Practice	0	Laboratory	0
Objectives of the Course	To give information about in vitro fertilisation, in vitro fertilisation mediums, laboratory equipments and oocyte maturation								
Course Content	Mediums and techniques for fertilization of in vitro and in vivo oocytes, capacitation and acrosome reaction in sperm								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Individual Study								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading	
1	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.
2	Bearden H.J., Fuquay J.W., Willard S.T. (2004) Applied Animal Reproduction. Pearson Prentice Hall, New Jersey.
3	Hafez E.S E., Hafez B. (2000) Reproduction in Farm Animals. Lippincott Williams & Wilkins, Philadelphia
4	Pineda M. H., Dooley M. P. (2003) McDonald's Veterinary Endocrinology and Reproduction, Iowa State Press, New York

Week	Weekly Detailed Course Contents	
1	Theoretical	Maturation of sperm in epididymis
2	Theoretical	Capacitation of sperm
3	Theoretical	Acrosome reaction in sperm
4	Theoretical	Morphology of nucleus and membrane in sperm
5	Theoretical	Moving characterisation of sperm and hyper activation
6	Theoretical	Maturation of oocyte
7	Theoretical	Meiosis in oocyte
8	Intermediate Exam	Midterm exam
9	Theoretical	Gamete interactions
10	Theoretical	Effect of medium contents on capacitation
11	Theoretical	Receptors of zona pellicuda
12	Theoretical	Function of zona pellicuda in fertilisation
13	Theoretical	Detection of fertilisation
14	Theoretical	Activation of embryonic genome and cortical reaction
15	Theoretical	Activation of embryonic genome and cortical reaction
16	Final Exam	Final term exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Assignment	1	0	10	10
Reading	14	0	2	28
Midterm Examination	1	14	1	15

Final Examination	1	18	2	20
			Total Workload (Hours)	101
			[Total Workload (Hours) / 25*] = **ECTS**	4
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To get information about in vitro fertilisation
2	Mediums and laboratory equipments for IVF
3	Fertilisation of in vivo and in vitro oocytes
4	Capacitation and acrosome reaction in sperm
5	Evaluation of in-vitro fertilization parameters

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	2			
P2				5
P3			4	
P6		4		
P8	4	4	4	