



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		In Vitro Evaluation and Freezing of Embryo							
Course Code		VST640		Coure 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 evaluation of embryos collected from laboratory and farm animals. Freezing of embryos							
Course Content		In vitro evaluation of embryo quality, freezing techniques for qualified embryos							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Individual Study					
Name of Lecturer(s)		Prof. Melih AKSOY							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Bearden H.J., Fuquay J.W., Willard S.T. (2004) Applied Animal Reproduction. Pearson Prentice Hall, New Jersey
2	Hafez E.S E., Hafez B. (2000) Reproduction in Farm Animals. Lippincott Williams & Wilkins, Philadelphia
3	Pineda M. H., Dooley M. P. (2003) McDonald's Veterinary Endocrinology and Reproduction, Iowa State Press, New York
4	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
5	Feldman E. C., Nelson R. W. (2004) Canine and Feline Endocrinology and Reproduction. Saunders, St. Louis

Week	Weekly Detailed Course Contents	
1	Theoretical	Description of in vitro fertilization and embryo
2	Theoretical	Collection of embryos
3	Theoretical	In vitro culture systems
4	Theoretical	Importance of hormones for embryo growth
5	Theoretical	Importance of cytokines and growth factors for embryo growth
6	Theoretical	Morphological and morphometric parameters in embryos
7	Theoretical	Classification of embryos according to embryo growth stages zygote, 2- cell, 4 -cell, 8-cell, 16-cell, morula, blastocyte
8	Intermediate Exam	Midterm exam
9	Theoretical	Use of hatching rate to evaluate embryo viability
10	Theoretical	Florescence staining procedures for embryos
11	Theoretical	Determination of ages and growth stages of embryos, morphological evaluation of embryos
12	Theoretical	Evaluation of embryo quality and age
13	Theoretical	Freezing of embryos
14	Theoretical	Techniques for embryo freezing
15	Theoretical	Techniques for embryo freezing
16	Final Exam	Final term exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Assignment	2	0	8	16
Reading	14	0	2	28
Midterm Examination	1	10	1	11



Final Examination	1	16	1	17
Total Workload (Hours)				100
[Total Workload (Hours) / 25*] = ECTS				4
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Description of embryo
2	In vitro fertilization
3	Evaluation of embryo growth and quality
4	Techniques for embryo freezing
5	Advantages of embryo freezing

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 epididymidis, 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 polyspermy 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
P2	4	4	4	
P3	5		5	
P7				5
P8	5	5		5
P10		4		

