



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		In vitro Capacitating of Bull Semen							
Course Code		VST646		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	2	Workload	50 (<i>Hours</i>)	Theory	1	Practice	0	Laboratory	0
Objectives of the Course		To give information about mechanism of capacitating in bull semen, agents for in vitro capacitation, techniques for in vitro capacitation							
Course Content		Mechanism of capacitating in bull semen, capacitating agents, capacitating of sperm, factors effecting capacitation, capacitating time							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), 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	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	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	Mechanism of capacitation
2	Theoretical	The factors effecting capacitation and acrosome reaction
3	Theoretical	Glucosaminoglycans and capacitating
4	Theoretical	Metal ions and capacitating
5	Theoretical	Serum albumin and capacitating
6	Theoretical	Effect of enzymes and capacitating
7	Theoretical	Cumulus oophorus liquid and capacitating
8	Intermediate Exam	Midterm exam
9	Theoretical	Heat and capacitating
10	Theoretical	Length of capacitation time
11	Theoretical	Induction of in vitro capacitating
12	Theoretical	Changes during capacitation
13	Theoretical	Changes in sperm physiology
14	Theoretical	Detection of capacitation and Biochemical changes
15	Theoretical	Acrosome reaction
16	Final Exam	Final term exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	1	14
Reading	14	0	1	14
Midterm Examination	1	10	1	11
Final Examination	1	10	1	11
Total Workload (Hours)				50
[Total Workload (Hours) / 25*] = ECTS				2

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	To get information about mechanism of in vitro capacitating bull sperm
2	In vitro capacitating agents and use of this agents
3	Techniques for capacitation
4	Detection of capacitated sperm
5	Importance of capacitation in fertilization

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
P2	5	5	5
P8			3

