REPRODUCTION AND ARTIFICIAL INSEMINATION IN SMALL RUMINANTS

1	Course Title:	REPRODUCTION AND ARTIFICIAL INSEMINATION IN SMALL RUMINANTS
2	Course Code:	VDT6006
3	Type of Course:	Optional
4	Level of Course:	Third Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	-
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. İBRAHİM DOĞAN
15	Course Lecturers:	-
16	Contact information of the Course Coordinator:	idogan@uludag.edu.tr, 0224 2941342 Uludağ Ünv. Veteriner Fak. Dölerme ve Suni Toh. ABD. 16059 Görükle/BURSA
17	Website:	http://saglikbilimleri.uludag.edu.tr/
18	Objective of the Course:	To give basic information in the field of control of ovulation and embryo transfer in farm animals to the students theoretically and practically.
19	Contribution of the Course to Professional Development:	to give information about andrology, reproduction and embryo transfer in small ruminants
20	Learning Outcomes:	

	1	Artificial control of oestrus and ovulation in farm animals
	2	Control by progesterone and progestagens
	3	Control by Prostaglandins and their analogues
	4	Superovulation techniques and embryo transfer
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21 Course Content:

Course Content:

Week	Theoretical	Practice
1	Areas of controlled reproduction in small ruminants (Flock size considerations-Advantages of controlled reproduction-Factors influencing response to controlled reproduction)	Examination of the male reproductive tract (Ram-Buck)

2	Factors affecting ewe and doe fertility (Effect of nutrition and body condition-Environmental factors)	Examination of the male reproductive tract (Ram-Buck)
3	Ram and buck fertility and breeding activity (Evaluation of ram and buck libido and fertility-Seasonal variations in ram and buck activity-Identifying low fertility ram and bucks-Nutritional and environmental effects-Hormonal approaches to enhanced ram and buck performance)	Preparation of the artificial vagina (Ram-Buck)
4	Place of artificial insemination in small ruminants (Fresh and chilled semen-Problems in freezing ram and buck semen-Diluents and semen processing-Season and semen quality-Insemination techniques)	Collection of semen by artificial vagina
5	Oestrus and the oestrous cycle (Seasonality of reproduction in sheep and goats-Oestrus and ovulation-Physiology and endocrinology of the oestrous cycle-Folliculogenesis and follicular dynamics-Action of gonadotrophic hormones)	Evaluation of semen
6	The breeding season of sheep and goats (Hormonal events involved in the ewe and the pineal and thyroid glands)	Evaluation of semen
7	Artificial control of oestrus and ovulation (Treatment protocols and PG dose levels-Fertility and ovulation rate-Progestagen PG	Evaluation of semen
8	Procedure (The oral route-implant treatments-Standard eCG in conjunction with intravaginal progestagen treatment-eCG doses-progestagen eCG)	Evaluation of semen
9	Advancing the sheep and goat breeding season (Lighting systems employed- Employing the ram and buck effect-treatments with melatonin)	Extenders and extension of semen
10	Superovulation Techniques (PMSG-Use of anti eCG-Pituitary extracts vs.eCG-Use of HMG-Single dose FSH treatments-FSH-P in combination with eCG-Repeated superovulation)	Semen storage (Fresh semen, Chilled semen, Cryogenic storage)

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	10	3.00	30.00
Homeworks	6	8.00	48.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	6.00	0.00
Others	0	0.00	0.00
Final Exams	1	8.00	8.00
Total Work Load			148.00
Total work load/ 30 hr			4.93
ECTS Credit of the Course			5.00

11	Factors affecting superovulatory response (Breed effects-Season-Nutritional effects-Body condition effects-Use of GnRH-Use of melatonin to enhance response)	Semen storage (Fresh semen, Chilled semen, Cryogenic storage)
12	Breeding the donor ewe and does (Artificial insemination after laparotomy-Intrauterine AI by laparoscopy-Intrauterine AI in combination with natural service)	Artificial insemination (sheep, goat)
13	Embryo recovery and handling procedures (Laparoscopy for embryo recovery-Transcervical recovery of embryos-Media for embryo recovery-Evaluation of embryo-Short term storage of embryo)	Artificial insemination (sheep, goat)
14	Recipient management and embryo transfer (Synchronizing donors and recipients-Selecting recipients on the basis of progesterone levels-Oestrus control in recipients-Surgical procedures-Transfer of embryos by laparoscopy-Transcervical embryo transfer)	Superovulation techniques and embryo transfer

22	Textbooks, References and/or Other Materials:	1-Gordon I. (1996): Controlled Reproduction in Cattle & Buffaloes, CABI Publishing, New York,USA. 2-Wenzel J.G.W. (1997): Estrous cycle synchronization. In: Youngquist R.S. (ed): Current Therapy in Large Animal Theriogenology. W.B. Saunders Company, Philadelphia, USA. 290-294. 3-Morel D.M.C.G. (1999): Equine Artificial Insemination, CABI Publishing, New York, USA. 4- Gordon I. (1999): Controlled Reproduction in Sheep & Goats, CABI Publishing, New York,USA 5- Jainudeen M.R., Wahid H., Hafez E.S.E. (2000): Ovulation induction, embryo production and transfer. In: Hafez E.S.E., Hafez B. (eds): Reproduction in Farm Animals. Lippincott Williams & Wilkins, New York, USA. 405-430. 6- Blanchard T.L., Varner D.D., Schumacher J., Love C.C., Brinsko S.P., Rigby S.L. (2003): Manual of Equine Reproduction, 2nd Ed., Mosby, St. Louis, USA. 7-Ball P.J.H., Peters A.R. (2004) Reproduction in Cattle, 3rd Ed., Blackwell Publishing, Oxford, UK. 8- Bearden H.J., Fuquay J.W., Willard S.T. (2004): Applied Animal Reproduction,6th Ed., Pearson Prentice Hall, New Jersey, USA. 9- Ley W.B. (2004): Broodmare Reproduction for the Equine Practitiner, 1st Ed., Teton NewMedia, Wyoming, USA.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	100.00
Total	1	100.00
Contribution of Term (Year) Learning Activities to Success Grade		0.00
Contribution of Final Exam to Success Grade		100.00

Total	100.00
Measurement and Evaluation Techniques Used in the Course	Written / oral exam

24	**ECTS / WORK LOAD TABLE**

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	5	5	5	4	2	1	3	5	4	5	2	0	0	0	0
ÖK2	5	5	5	5	2	5	1	2	3	5	4	2	0	0	0	0
ÖK3	5	5	5	5	2	5	1	2	3	5	4	2	0	0	0	0
ÖK4	5	5	5	5	2	5	1	3	5	5	5	3	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**