

ADVANCED SEMEN ANALYSIS TECHNIQUES

1	Course Title:	ADVANCED SEMEN ANALYSIS TECHNIQUES	
2	Course Code:	VDT6018	
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:	Doç. Dr. BURCU ÜSTÜNER	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	bbaspinar@uludag.edu.tr, 224-2941245 Uludağ Üniversitesi Veteriner Fakültesi Dölerme ve Suni Tohumlama AD	
17	Website:	http://saglikbilimleri.uludag.edu.tr/anabilimdallari.php	
18	Objective of the Course:	Semen characteristics, which has an important in determining male infertility and nowadays specific examination techniques used in andrology laboratory are intended to reveal.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	To have information about the structure of spermatozoa ultrastructure.
		2	The evaluation and interpretation of plasma membrane, acrosome, mitochondria and DNA integrity with fluorescent dyes
		3	Being knowledgeable about sperm separation technique used in assisted reproduction techniques of cattle
		4	Being knowledgeable about sperm separation technique used in assisted reproduction techniques of sheep
		5	Being knowledgeable about sperm function tests
		6	The evaluation of adverse effects of freezing procedures on spermatozoon
		7	Being knowledgeable about oxidative stress and sperm
		8	Lyophilized sperm and assisted reproductive techniques
		9	
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	The importance of semen characteristics and the relationship between fertility	The introduction of the andrology laboratory	

2	Spermatogenesis and ultrastructural evaluation of semen	Semen collection and evaluation of mass activity, motility and sperm concentration.		
3	Sperm washing for analyse and Assisted Reproductive Technologies (ART)	Semen preparation for in vitro fertilization.		
4	Routine semen analysis used in andrology laboratory	Determination of sperm acrosome and morphological integrity.		
5	Evaluation and importance of sperm plasma membrane	Determination of sperm plasma integrity with fluorescent dyes		
6	Evaluation and importance of sperm DNA integrity	Determination of sperm DNA integrity with fluorescent dyes		
7	Evaluation and importance of sperm acrosomal membrane	Determination of sperm acrosomal integrity with fluorescent dyes		
8	Evaluation and importance of sperm mitochondrial activity	Determination of sperm mitochondrial membrane integrity with fluorescent dyes		
9	Evaluation of sperm kinematics with CASA (Computer-assisted semen analysis)	Evaluation of lyophilized spermatological characteristics		
10	Functional tests associated with fertility	ICSI application with lyophilized semen		
11	Effects of extenders which prepared for semen freezing on spermatological parameters	Determination of adverse effects of freezing diluents on spermatological characteristics		
12	The effect of oxidative stress in semen	Interpretation of oxidative stress parameters in semen		
13	Destruction of plasma membrane with Triton X-100 and Lysolecithin	Destruction of plasma membrane with Triton X-100 and Lysolecithin and assessment with fluorescent microscope		
14	Induction of sperm capacitation and acrosome reaction with heparin and Ca-ionophore	Induction of sperm capacitation and acrosome reaction with heparin and Ca-ionophore and assessment with fluorescent microscope		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		14	1.00	14.00
Practicals/Labs		14	2.00	28.00
Self study and preperation		10	5.00	50.00
Homeworks		2	5.00	10.00
Projects		1	6.00	6.00
Field Studies		0	0.00	0.00
Midterm exams		0	0.00	0.00
Others		0	0.00	0.00
TERM LEARNING ACTIVITIES		42	42.00	42.00
Total Work Load				150.00
Midterm Exam		0	0.00	0.00
Total work load/ 30 hr Quiz		0	0.00	5.00
ECTS Credit of the Course				5.00
Home work project		0	0.00	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				
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	0	0	5	3	0	0	3	3	3	4	4	5	0	0	0	0
ÖK2	0	3	5	4	0	0	3	3	3	3	4	5	0	0	0	0
ÖK3	0	0	0	0	2	5	2	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	2	5	2	0	3	0	0	0	0	0	0	0
ÖK5	0	4	4	1	0	0	5	2	2	2	2	4	0	0	0	0
ÖK6	0	0	5	3	0	0	4	5	5	5	4	5	0	0	0	0
ÖK7	0	3	4	0	0	0	3	4	4	4	4	4	0	0	0	0
ÖK8	0	0	2	1	0	5	0	3	3	3	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low			3 Medium			4 High			5 Very High				