

# GAMETOGENESIS, FERTILIZATION AND IMPLANTATION

<b>1</b>	Course Title:	GAMETOGENESIS, FERTILIZATION AND IMPLANTATION	
<b>2</b>	Course Code:	VDT6001	
<b>3</b>	Type of Course:	Compulsory	
<b>4</b>	Level of Course:	Third Cycle	
<b>5</b>	Year of Study:	1	
<b>6</b>	Semester:	1	
<b>7</b>	ECTS Credits Allocated:	5.00	
<b>8</b>	Theoretical (hour/week):	2.00	
<b>9</b>	Practice (hour/week):	2.00	
<b>10</b>	Laboratory (hour/week):	0	
<b>11</b>	Prerequisites:	None	
<b>12</b>	Language:	Turkish	
<b>13</b>	Mode of Delivery:	Face to face	
<b>14</b>	Course Coordinator:	Doç. Dr. BURCU ÜSTÜNER	
<b>15</b>	Course Lecturers:	yok	
<b>16</b>	Contact information of the Course Coordinator:	Doç.Dr.Burcu ÜSTÜNER bbaspinar@uludag.edu.tr, 0224-2941245 Uludağ Üniversitesi Veteriner Fakültesi Dölerme ve Suni Tohumlama AD	
<b>17</b>	Website:	<a href="http://saglikbilimleri.uludag.edu.tr/anabilimdallari.php">http://saglikbilimleri.uludag.edu.tr/anabilimdallari.php</a>	
<b>18</b>	Objective of the Course:	The aim of the course is to have knowledge about gamete formation, physiology of fertilization and zygote and embryonic development processes.	
<b>19</b>	Contribution of the Course to Professional Development:	The outcome of the course is to determine the age of use in breeding on the basis of species for economic profitability in animal husbandry and to use gamete physiology to determine the insemination time to obtain the highest pregnancy rates.	
<b>20</b>	Learning Outcomes:		
		1	To have knowledge about spermatogenesis and oogenesis
		2	Benefiting from gamete physiology in determining insemination times
		3	Interpretation of factors affecting in vivo and in vitro fertilization success rate
		4	Knowledge about sexed semen and embryo gender determination
		5	The student has knowledge about embryonic development and maternal recognition
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<b>21</b>	Course Content:		
		<b>Course Content:</b>	
Week	Theoretical	Practice	

1	Determining the age of puberty and use in breeding in male and female animals	Routine sperm examinations in the andrology laboratory
2	Evaluation of ogenesis on the basis of species and ovulation	Oocyte recovery in ovarian material brought from slaughterhouse
3	Spermatogenesis and factors affecting spermatogenesis	Semen preparation for in vitro fertilization (IVF).
4	Ultrastructural structure of semen and tests used to determine fertility in male animals	Routine microscopic tests used to determine the fertility of semen
5	Transport of sperm in male and female genital canal	Determination of plasma membrane integrity of spermatozoon by advanced sperm analysis techniques
6	Fertilization process and formation of female and male pronucleus	Evaluation and importance of sperm DNA integrity
7	Embryonic development and maternal recognition	Induction of capacitation in semen and acrosomal examination
8	In vitro fertilization protocols used in animals	Preparation of IVF (in vitro fertilization) stock mediums
9	Assisted Reproductive Technologies (ART) used in animals	Preparation of daily IVF mediums
10	Cryopreservation of semen and its using for artificial insemination	Preparation of extenders which used in sperm cryopreservation
11	Lyophilisation of semen	Evaluation of lyophilized semen
12	Sexed semen technology	Interpretation of oxidative stress parameters in semen
13	Determination of gender in embryo before transfer	Loading the embryo in straw, vitrification protocols and preparation of vitrification solutions
14	Superovulation and embryo transfer in farm animals	Determining the quality of embryo to be transferred
22	Textbooks, References and/or Other Materials:	NOAKES, D.E., PARKINSON, T.J., ENGLAND, G.C.W., Arthur's Veterinary Reproduction and Obstetrics, Saunders Inc., New York, USA GORDON, I., Laboratory Production of Cattle Embryos, 2nd edition. CABI Publishing, Cambridge, MA, USA, 2003. GARDNER, D.K., WEISSMAN, A., HOWLES, C.M., SHOHAM Z., Textbook of Assisted Reproductive Techniques. Laboratory and Clinical Perspectives. 2nd edition. Taylor & Francis, London, UK, 2004. HAFEZ, E.S.E., HAFEZ, B., Reproduction in farm animals. Lippincott Williams & Wilkins, 2000. LINDSAY, D., Breeding the flock, Inkata press, 1998.
23	Assesment	
<b>TERM LEARNING ACTIVITIES</b>		<b>NUMBER</b>
		<b>WEIGHT</b>
Midterm Exam		0
Quiz		0
Home work-project		0
Final Exam		1
Total		1
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		Exams that including classical questions
24	<b>ECTS / WORK LOAD TABLE</b>	

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
Final Exams	1	42.00	42.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

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
<b>LO: Learning Objectives    PQ: Program Qualifications</b>																
<b>Contribution Level:</b>	<b>1 very low</b>		<b>2 low</b>			<b>3 Medium</b>			<b>4 High</b>			<b>5 Very High</b>				