



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

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|--|---|---|----------------------|---|---|--------------------------------|---|------------|---|
| Course Title | | Short and Long Term Storage of Semen | | | | | | | |
| Course Code | | VST627 | | Couse Level | | Third Cycle (Doctorate Degree) | | | |
| ECTS Credit | 6 | Workload | 150 (<i>Hours</i>) | Theory | 2 | Practice | 2 | Laboratory | 0 |
| Objectives of the Course | | To give information about short and long term storage of sperm | | | | | | | |
| Course Content | | Aim of the short and long term storage of sperm, features of diluents which use for storage, sperm collection, evaluation and freezing procedures | | | | | | | |
| Work Placement | | N/A | | | | | | | |
| Planned Learning Activities and Teaching Methods | | | | Explanation (Presentation), Experiment, Demonstration, Discussion | | | | | |
| Name of Lecturer(s) | | | | | | | | | |

Assessment Methods and Criteria

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

Recommended or Required Reading

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| 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 | Feldman E. C., Nelson R. W. (2004) Canine and Feline Endocrinology and Reproduction. Saunders, St. Louis |
| 4 | Hafez E.S E., Hafez B. (2000) Reproduction in Farm Animals. Lippincott Williams & Wilkins, Philadelphia |
| 5 | Pineda M. H., Dooley M. P. (2003) McDonald's Veterinary Endocrinology and Reproduction, Iowa State Press, New York |
| 6 | 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 |
| 7 | Evans G., Maxwell WMC. (1987) Salamon's Artificial Insemination of Sheep and Goats. Butterworths, Sydney |

| Week | Weekly Detailed Course Contents | |
|------|---------------------------------|--|
| 1 | Theoretical | Collection and evaluation of sperm |
| | Practice | Macroscopic examination of sperm |
| 2 | Theoretical | Basic principles of short term storage |
| | Practice | Detection of sperm concentration |
| 3 | Theoretical | Features of diluents which use for short and long term storage |
| | Practice | Motility examination |
| 4 | Theoretical | Features of diluents which use for short and long term storage |
| | Practice | Eosin- nigrosin staining and detection of live-dead sperms |
| 5 | Theoretical | Techniques for dilution |
| | Practice | Preparation of diluents |
| 6 | Theoretical | Calculation of diluents volume |
| | Practice | Preparation of diluents |
| 7 | Theoretical | Short term storage of sperm |
| | Practice | Preparation of diluents |
| 8 | Practice | Calculation of dilution rate |
| | Intermediate Exam | Midterm exam |
| 9 | Theoretical | Basic principles for long term storage of sperm |
| | Practice | Dilution of sperm for short term storage |
| 10 | Theoretical | Basic principles for long term storage of sperm |
| | Practice | Dilution of sperm for short term storage |
| 11 | Theoretical | Effects of freezing speed on sperm cells |
| | Practice | Addition of egg yolk and cryoprotectants into the extender for long term storage |
| 12 | Theoretical | Cryoprotectants |
| | Practice | Equilibrations of sperm |



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| 13 | Theoretical | Dehydration of sperm cells |
| | Practice | Packing of sperm |
| 14 | Theoretical | Addition of antioxidants into the extenders |
| | Practice | Sperm freezing procedures |
| 15 | Theoretical | Packing of frozen sperm |
| | Practice | Sperm freezing procedures |
| 16 | Final Exam | Final term exam |

Workload Calculation

| Activity | Quantity | Preparation | Duration | Total Workload |
|---------------------------------------|----------|-------------|----------|----------------|
| Lecture - Theory | 14 | 0 | 2 | 28 |
| Lecture - Practice | 14 | 0 | 2 | 28 |
| Assignment | 2 | 0 | 10 | 20 |
| Reading | 14 | 0 | 2 | 28 |
| Midterm Examination | 1 | 17 | 2 | 19 |
| Final Examination | 1 | 25 | 2 | 27 |
| Total Workload (Hours) | | | | 150 |
| [Total Workload (Hours) / 25*] = ECTS | | | | 6 |

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

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|---|---|
| 1 | To get information about aim of the sperm collection, short and long term storage |
| 2 | Features of diluents which use short and long term storage of sperm |
| 3 | Short term storage of sperm |
| 4 | Evaluation of sperm and sperm freezing procedures |
| 5 | Basic principles of sperm freezing procedures |

Programme Outcomes (*Reproduction and Artificial Insemination (Veterinary Medicine) Doctorate*)

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|----|---|
| 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 | L5 |
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| P1 | 4 | | | | |
| P7 | 5 | 5 | 5 | 5 | 5 |



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| P8 | | | | | 3 |
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