

ANSC 5315 ADVANCED REPRODUCTIVE TECHNIQUES

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Fall 2014
Time: TR 9:30-10:45 am
Meeting Place: RAS 132

Class materials and grades will be accessible through Blackboard.

Course Description:

Detailed study of the various techniques to control and determine reproductive functions in domestic and nondomestic species. Techniques covered will include semen collection, evaluation and freezing; super ovulation, estrus synchronization, oocyte-embryo collection, in vitro oocyte maturation, sperm capacitation, in vitro fertilization, embryo culture, embryo micromanipulation, embryo freezing and transfer; and ultrasonography.

Course Objectives:

By the end of the course, you will be able to understand:

- How to collect a semen sample using electroejaculation.
- How to train animals to service an artificial vagina for semen collection.
- Methods of assessing spermatozoal fertility potential.
- Processes involved in cryopreservation of spermatozoa.
- Estrus detection in cattle, sheep, goats and swine
- Artificial insemination of cows, ewes, does and sows.
- Embryo Transfer.
- Ultrasonography.

Program Learning Outcomes:

M.S (non-thesis) in Animal Science. The graduating student will demonstrate that he/she is able to:

1. Apply statistical concepts and procedures to animal science data.
2. Evaluate literature and references as they apply to animal science field.
3. Demonstrate their knowledge of the fundamentals and advanced concepts of animal science.

M.S. (thesis) in Animal Science. The graduating student will demonstrate that he/she is able to:

1. Apply statistical concepts and procedures to animal science or natural resource data.
2. Evaluate literature and references to substantiate an applied research project.
3. Examine, select, and utilize appropriate resources, materials, and data collection instruments to implement research projects.
4. Justify and defend the research questions and design.

Text:

There is no required text.

Grading:

There will be daily assignments (10 points each) that should be completed and turned in by the end of the class period. Late assignments will not be accepted unless extenuating circumstances exist.

Grade assignment: A =100-90; B = 89-80; C= 79-70; D = 69-60 and F= < 60.

16 week calendar (subject to change)

<u>Week</u>	<u>Topic</u>
1	Course overview
2	Estrus detection (cows, ewes, does and sows), semen collection (bull), and semen evaluation (bull). Practice embryo transfer laboratory procedures.
3	Estrus detection (cows, ewes, does and sows), cryoprotectant preparation (bull), and sperm cryopreservation (bull). Practice embryo transfer laboratory procedures.
4	Estrus detection (cows, ewes, does and sows), artificial insemination (cows). Practice embryo transfer.
5	Estrus detection (cows, ewes, does and sows), artificial insemination (cows), and artificial vagina training (buck, ram). Practice embryo transfer.
6	Estrus detection (cows, ewes, does and sows), artificial insemination (cows), artificial vagina training (buck, ram). Embryo transfer.
7	Estrus detection (cows, ewes, does and sows), Semen collection (buck), semen evaluation (buck), and artificial insemination (cows). Embryo transfer.
8	Estrus detection (cows, ewes, does and sows), cryoprotectant preparation (buck), and sperm cryopreservation (buck). Embryo transfer.

9	Estrus synchronization, estrus detection (cows, ewes, does and sows), and dummy mount training (boar). Embryo transfer.
10	Estrus synchronization, estrus detection (cows, ewes, does and sows), artificial insemination (does), semen collection (boar), and semen evaluation (boar). Embryo transfer.
11	Estrus detection (cows, ewes, does and sows), cryoprotectant preparation (boar), sperm cryopreservation (boar), and artificial insemination (sows). Embryo transfer.
12	Estrus detection (cows, ewes, does and sows), semen collection (ram), and semen evaluation (ram).
13	Estrus detection (cows, ewes, does and sows), cryoprotectant preparation (ram), and sperm cryopreservation (ram). Embryo transfer.
14	Thanksgiving Break
15	Estrus detection (cows, ewes, does and sows), artificial insemination (ewes).
16	Ultrasonography
17	Ultrasonography