

REPRODUCTION MANAGEMENT



FLORIDA INTERNATIONAL
DAIRY ACADEMY

DEPARTMENT OF ANIMAL SCIENCES

Instructor

This will be a team-taught course involving faculty from the Department of Animal Sciences and the Department of Large Animal Clinical Sciences. The course will be coordinated by Peter J Hansen. Contact individual faculty for office hours. Contact information for the faculty are as follows:

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Course Description

Lactation depends upon successful reproduction. Accordingly, the economics of dairy farming depends upon the level of cow and heifer fertility. This course is designed to give the successful student the tools needed to develop on-farm programs to optimize reproductive function on the dairy farm. After completion of the course, the student should 1) understand the biology of reproduction in cattle, 2) learn management approaches and techniques for detection of estrus and hormonal control of the estrous cycle to program the timing of estrus and ovulation, 3) understand management strategies for achieving pregnancies in first service lactating cows, resynchronized cows and heifers, 4) gain an appreciation for the epidemiology and management of anovular cows and how to reduce pregnancy loss, 5) learn how to measure reproductive performance, 6) understand the application of new reproductive technologies for dairy cattle reproduction, 7) learn management approaches to reduce the impact of heat stress on reproduction, 8) appreciate the role of genetics and genetic selection for determining reproductive performance, 9) learn how to minimize reproductive diseases through proper vaccination programs, 10) acquire knowledge on nutritional strategies to improve reproduction, and 11) understand how connection between reproduction and the economics of dairy production.

Course Layout

Course Schedule

Week	Modules	Lectures
1		<ul style="list-style-type: none"> • Overview of Reproduction in Dairy Cattle – Hansen • The Estrous Cycle (Part 1 and Part 2) – Hansen
2		<ul style="list-style-type: none"> • Ovulation – Bromfield • Fertilization – Bromfield • Embryonic Development -
3		<ul style="list-style-type: none"> • Puberty and Postpartum • Estrus • Artificial Insemination
4		<ul style="list-style-type: none"> • Synchronization of Estrus • Synchronization of Ovulation • First Artificial Insemination Program
5		<ul style="list-style-type: none"> • Resynchronization in Lactating Cows • Reproductive Programs for Dairy Heifers
6		<ul style="list-style-type: none"> •

Week 1

Overview of reproduction in the dairy cow - Hansen
 The estrous cycle (two lectures) - Hansen

Week 2

Ovulation, fertilization and early embryonic development (two lectures) - Bromfield
 Maintenance of pregnancy and placentation - Bromfield

Week 3 (Assessment 1)

Puberty in the female and postpartum reproduction - Hansen
 Estrus – its expression and detection – Bisinotto
 Artificial insemination – Hansen

Week 4

Hormonal control of the estrous cycle for the synchronization of estrus - Santos
 Hormonal control of the estrous cycle for the synchronization of ovulation - Santos
 Implementing reproductive programs for first AI in lactating cows - Santos

Week 5 (Assessment 2)

Implementing reproductive programs for resynchronization in lactating cows - Santos
Implementing reproductive programs for dairy heifers - Santos
Anovular cows – epidemiology, management and mechanisms - Bisinotto

Week 6

Pregnancy loss – epidemiology, management and mechanisms - Santos
Metrics for evaluating reproductive performance – Bisinotto
Embryo transfer - Hansen

Week 7

Impacts and mitigation of heat stress on reproduction – Hansen
Genomics and genetics of reproduction - Hansen
Vaccination programs to reduce reproductive diseases - Maunsell

Week 8 (Assessment 3)

Nutritional strategies for reproduction - Santos
Economics of reproduction (two lectures) – De Vries and Galvão

Expectations, and Make-Up Policy

Lectures can be viewed at their convenience during the week, but all material should be covered prior to weekly one-on-one zoom session. Conflicts that prevent students from taking an exam as scheduled should be discussed with the instructor.

Evaluation of Grades

Pass/fail

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.