

Lassen Community College Course Outline

AGR 31 Bovine Embryo Transfer

3.0 Units

I. Catalog Description

This course is designed to present Bovine Embryo Transfer subject matter in a seminar format. The Embryo transfer process and how it relates to the cattle industry will be studied. This course has been approved for hybrid delivery.

Diversity Statement: Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

Recommended Preparation: Successful completion of ENGL105 or equivalent multiple measures placement.

Transfers to CSU only

42.5 Hours Lecture, 25.5 Hours Lab, 85 Out of Class Hours, 153 Total Hours of Instruction

Scheduled: Spring (even)

II. Coding Information

Repeatability: Not Repeatable, Take one Time

Grading Option: Graded only

Credit Type: Credit - Degree Applicable

TOP Code: 010200

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Plan and implement a successful embryo recovery and embryo transplant.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Explain the advantages of embryo transfer
2. Explain normal embryo development
3. List embryo transfer equipment
4. Explain the embryo collection process
5. Demonstrate the freezing process
6. Explain the transfer process
7. Explain the donor recipient relationship

IV. Course Content

- A. Embryo transfer and how it relates to the cattle industry
 - 1. MOETs (Multiple Ovulation with Embryo Transfer) genetic improvements principles
 - 2. Cost efficiency and practicality
- B. Embryo morphology
 - 1. Embryo grading
 - 2. Parts of the embryo
 - 3. Stages of embryo development
- C. Equipment for successful embryo transfer
 - 1. Animal handling facilities
 - 2. Supplies
- D. Steps to embryo collection
 - 1. Synchronization and super ovulation
 - 2. Artificial Insemination techniques
 - 3. Uterine flush vs. uterine horn flush
 - 4. Embryo hunting
- E. Embryo storage
 - 1. Time constraints
 - 2. Washing techniques
 - 3. Labeling
 - 4. Record keeping
 - 5. Seeding
 - 6. Loading straws and sealing
 - 7. Running the embryo unit
 - 8. Plunging
- F. Preparing the donor and the recipient
 - 1. Follicular wave
 - 2. Hormonal flow
 - 3. Importance of synchronized ovulation
- G. Transferring the embryos to a recipient
 - 1. Thawing process
 - 2. Re-hydration process (if necessary)
 - 3. Corpus luteum identification in the recipient
 - 4. Site of embryo placement

V. Assignments

A. Appropriate Readings

Texts and periodicals specific to the field i.e. Western Horseman, Business Weekly, the Journal of Animal Science, Reproduction in Cattle, and Agriculture Research Journal

B. Writing Assignments

Students will be required to write essays and reports, and complete project assignments appropriate to the special topic. An example: Students will be required to develop a short paper on the use of hormones in estrous synchronization.

C. Expected Outside Assignments

Students will be given one, or a combination of the following assignments:

1. Read assigned materials relevant to the topic
2. Conduct replication studies related to agricultural processes
3. Discuss issues related to the topic with appropriate individuals identified by the instructor.

D. Specific Assignments that Demonstrate Critical Thinking

The student will be required to examine critique and review critical areas of agricultural topics. Students will be required to pass short quizzes and exams, maintain journals, and properly complete any assigned project.

VI. Methods of Evaluation

Traditional Classroom Evaluation

- A. Accuracy and completeness of their knowledge, understanding, an appreciation of appropriate agricultural concepts.
- B. Content and rigor of their verbal and written analysis of appropriate agricultural applications.
- C. Thoroughness and accuracy of their completed assignments.

Hybrid Evaluation

Quizzes and exams could be administered in person and/ or online. Students will be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

- | | |
|---|--|
| <input checked="" type="checkbox"/> Traditional Classroom | <input type="checkbox"/> Correspondence Delivery |
| <input checked="" type="checkbox"/> Hybrid Delivery | <input type="checkbox"/> Online Delivery |

Traditional Classroom Delivery

Lecture, discussions, workbook problem, laboratory, quizzes and exams.

Hybrid Delivery

Hybrid modality may involve face to face instruction mixed with online instruction. A minimum of 1/3 of instruction, including 100% labs, will be provided face to face. The remaining hours will be taught online through a technology platform as adopted by the district.

VIII. Representative Texts and Supplies

Richard M. Hopper, "Bovine Reproduction", 2nd edition 2021 ISBN 9781119602361

IX. Discipline/s Assignment

X. Course Status

Current Status: Active

Original Approval Date: 3/18/2002

Revised By: Brian Wolf

Curriculum/Academic Standards Committee Revision Date: 12/5/2023

Revised for IPR, no change: 03/15/2022