

# 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.

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

Transfers to CSU only  
42.5 Hours Lecture, 25.5 Hours Lab  
Scheduled: Spring (even)

### II. Coding Information

Repeatability: Not Repeatable, Take 1 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:  
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. AI 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**

All quizzes and exams will be administered during the in-person class time. 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.

- Traditional Classroom Delivery     Correspondence Delivery
- Hybrid Delivery                       Online Delivery

**Traditional Classroom Delivery**

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

**Hybrid Delivery**

A combination of traditional classroom and online instruction will be utilized. Every semester, a minimum of 17 hours of class will be taught face-to-face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional classroom instruction will consist of lectures, visual aids, discussions and group activities. Online delivery consists of instructor-generated information, readings, news communications, web links and activities as well as facilitation of forum based discussions and communications.

**VIII. Representative Texts and Supplies**

Gordon, Ian “*A Reproductive Technologies in Farm Animal*”, 2<sup>nd</sup> edition, 2017, CABI, ISBN 9781780646039

**IX. Discipline/s Assignment**

Agriculture, Agricultural Production

**X. Course Status**

Current Status: Active

Original Approval Date: 3/18/2002

Revised By: Brian Wolf

Curriculum/Academic Standards Committee Revision Date: 11/03/2020

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