

Department:

Agriculture

Course Description:

This advanced animal science course is designed so students can expand their expertise working with livestock. The course will cover lactation, genetic applications, physiology of reproduction, animal ecology, and the impact of livestock production on the quality of life.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Use specific new genetic models for estimating animal production progress.
2. Apply various new methods for increasing reproductive performance, such as genetic engineering, ova transfer, and estrus synchronization.
3. Apply new ration formulation strategies using TNZ, urea fermentation potential, and rumen by-pass protein.
4. Explain the physiology of lactation.
5. Explain the differences between growth and senescence.
6. Describe the effect population density has on animal behavior.
7. Design and complete an environmental audit for a 200 AUM livestock operation using KSDH software templates for waste management procedures.

Course Content:

- A. Advanced Genetic Applications
 1. Phenotypic variation in quantitative traits
 2. Causes of phenotypic variation
 3. Frequency of a gene in a population
 4. Selection for different kinds of gene action
 5. Genetic correlation
- B. Increasing Reproductive Performance in Livestock
 1. Genetic engineering
 2. Ova transfer
 3. Estrus synchronization
- C. Ration Formulations
 1. Thermal neutral zone applications
 2. Use of urea fermentation potential to cut protein costs
 3. Rumen by-pass protein for high producing ruminants.
- D. Physiology of Ova Release and Lactation
 1. Reproduction and egg formation
 2. Hormonal regulation of ova release

3. Factors affecting frequency and number of eggs released
4. Anatomy and function of mammary glands
5. Phenomenon of milk letdown
6. Regression or involution of the mammary gland
7. Immunological response of colostrum
- E. Physiology of Growth and Senescence
 1. The phenomenon of growth
 2. Hormonal control of growth
 3. Nutrition and growth
 4. Senescence
 5. Theories on aging
- F. Animal Behavior and Population Density
 1. Causes of behavior response in animals
 2. Methods of animal communication
 3. Types of animal behavior
 4. Social dominance
 5. Population density and its effect on behavior
- G. Efficient Large Scale Livestock Operations
 1. Layout
 2. EPA and KSDE considerations
 3. Kansas laws
 4. Applications and forms required

Learning Assessments:

Course competencies will be assessed by use of a pre-test, class exams and assignments, final exam, and a post-test.

Instructional Materials:

Textbook: Animal Sciences: The Biology, Care, and Production of Domestic Animals, Campbell, Kenaly, Campbell, 2003.

Various extension guides and handouts

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be

provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

On-Campus Students: At enrollment, any on campus student may complete a form that will allow them to self-identify any disability.

Off-Campus Regional Students: Self-identify your disability and accommodation needs with the Regional Coordinator and/or instructor, preferably prior to the first class meeting.

Online Students: Self-identify your disability and accommodation needs by contacting the Disabilities Coordinator. Students must provide their own programs to allow accessibility on their home computer.

Any student may also identify their disability by completing an online form located on the HCC homepage under Students Services/Resources/Disabilities. Questions should be directed to the Disabilities Coordinator.