Advanced Animal Science
18107

Rationale Statement:

This course is offered to meet the needs of students who want to advance their education in animal science. Classroom and laboratory content may be enhanced by utilizing appropriate equipment and technology. Students will apply knowledge of anatomy and physiology to produce and/or manage animals in a domesticated or natural environment and gain knowledge in species specific operations, genetics, livestock operation, processing and reproduction. Algebra, trigonometry, biology, English and human relations skills will be reinforced in the course. Work-based learning strategies appropriate for this course are school-based enterprises and field trips. This class is reinforced through the FFA and SAE activities such as the Livestock Career Development Event and Proficiency Awards. Each student will be expected to complete a Supervised Agricultural Experience (SAE).

Suggested grade level: 11th – 12th

Topics covered:

- Animal classification
- Anatomy and physiology
- Animal selection
- Preventing and treating disease
- Biosecurity
- Nutrition
- Feed rations
- Breeding readiness
- Reproduction
- Animal handling
- Facilities and equipment
- Protecting the environment

Indicator #1: Classify, evaluate and select animals for agricultural uses.	
Bloom's Taxonomy Level	**Standard and Examples**
Understanding	**AdA 1.1 Classify animals according to taxonomic and agricultural uses.** Examples: • Classify animals by taxonomy. • Compare and contrast the hierarchy of agricultural animal species. • Evaluate the economic value of animals for various uses in the agricultural industry.
Analyzing	**AdA 1.2 Compare anatomy and physiology within various animal systems.** Examples: • Differentiate how the components of animal anatomy and physiology relate to the production and use of agricultural animals. • Compare and contrast body systems and adaptations between animal species. • Distinguish the impact of animal body systems on performance, health, growth and reproduction.
Evaluating	**AdA 1.3 Select animals for specific agricultural purposes and maximum performance.** Examples: • Appraise desirable anatomical and physiological characteristics of animals within and between species. • Select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction. • Assess an animal to determine if it has reached its optimal performance level.

Indicator #2: Select proper health care practices for agricultural animals.	
Bloom's Taxonomy Level	**Standard and Examples**
Applying	**AdA 2.1 Choose prevention and treatment programs for animal diseases, parasites and disorders.** Examples: • Use health-check evaluations on agricultural animals. • Diagnose illnesses and disorders of animals based on symptoms. • Select treatment programs for common diseases, parasites and disorders. • Interpret the effectiveness of preventative measures for controlling and limiting the spread of diseases, parasites and disorders among animals.
Understanding	**AdA 2.2 Discuss how to provide biosecurity for agricultural animals and facilities.** Examples: • Explain the importance of biosecurity to the animal industry. • Describe management practices to ensure biosecurity in the animal industry.
Indicator #3: Develop proper nutrition management practices to optimize animal performance.	
Bloom's Taxonomy Level	**Standard and Examples**
Evaluating	**AdA 3.1 Appraise nutritional elements as they affect animal performance.** Examples: • Judge the nutritional value of feedstuffs by evaluating their quality and condition. • Evaluate feedstuffs based on economic, digestive systems and nutritional needs factors. • Judge feed additives and growth promotants and discuss precautions that should be taken.

Creating	**AdA 3.2 Assemble feed rations to provide for agricultural animals' nutritional needs.** Examples: • Formulate feeds based on nutritional requirements for maximum nutrition and economic production. • Prescribe feed additives and growth promotants for a set of animals.
Indicator #4: Select reproductive practices to optimize animal production.	
Bloom's Taxonomy Level	**Standard and Examples**
Evaluating	**AdA 4.1 Judge animals for breeding readiness.** Examples: • Select the factors that lead to reproductive maturity. • Evaluate common reproductive problems in agricultural animals. • Evaluate animals that are ready to reproduce and those that should be treated or culled because of reproductive problems.
Understanding	**AdA 4.2 Identify management practices in breeding that account for high quality animals.** Examples: • Discuss the advantages of using genetically superior animals in breeding systems. • Recognize quality breeding systems based on the principles of genetics. • Describe choice breeding methods based on reproductive and economic efficiency. • Paraphrase the processes of estrous synchronization, superovulation, flushing and embryo transfer. • Explain the materials, methods and processes of artificial insemination.

Indicator #5: Distinguish the factors that influence safe animal handling procedures.	
Bloom's Taxonomy Level	**Standard and Examples**
Applying	**AdA 5.1 Choose safe animal handling techniques.** Examples: • Interpret animal behaviors and execute protocols for safe handling. • Illustrate a program that assures animal welfare and prevents abuse and mistreatment. • Write a quality-assurance procedures for animal production.
Analyzing	**AdA 5.2 Examine animal housing, equipment and handling facilities for the safety of animals and handlers.** Examples: • Distinguish modern equipment and handling facilities for animal production. • Describe the facilities needed to house and produce animal species safely and efficiently. • Differentiate the general standards for environment, zoning, construction, etc. that must be met in animal handling facilties. • Critique designs for animal facilities and offer suggestions for alternative layouts to improve animal safety and health. • Choose equipment for animal handling procedures to enhance production efficiency and animal health.
Evaluating	**AdA 5.3 Select management practices to reduce the effects of animal production on the environment.** Examples: • Evaluate the effects of animal agriculture on the environment. • Defend methods of reducing the effects of animals on the environment. • Judge the effects of environmental conditions on animal populations and performance.