Western Technical College

10006113 Animal Science

Course Outcome Summary

Course Information

Description	This course provides fundamental knowledge of the animal science field. Topics include animal health, animal environments, anatomy and physiology, genetics and reproduction, animal feedstuffs, and job related safety. Participants will experience animal concepts through the completion of hands-on activities.
Career Cluster	Agriculture, Food and Natural Resources
Instructional Level	Associate Degree Courses
Total Credits	3
Total Hours	72

Textbooks

No textbook required.

Success Abilities

1. Cultivate Passion: Expand a Growth-Mindset
2. Cultivate Passion: Increase Self-Awareness
3. Refine Professionalism: Improve Critical Thinking

Experiential Learning

1. Technology-Enhanced Learning: this course will incorporate digital technologies like gamification, virtual reality experiences, or simulations. In addition, you will create technology-enhanced products such as ePortfolios, multimedia presentations, or other e-products to showcase your learning.

Program Outcomes

1. Interact as a professional in Agribusiness
2. Investigate opportunities in Agribusiness
3. Apply relevant technologies
4. Apply economic and marketing strategies to Agribusiness Industry
5. Create a Livestock Management Plan

Course Competencies

1. Apply basic genetic principles to various livestock and poultry breeds.

Assessment Strategies

1.1. Written Objective Test
1.2. Case Study

Criteria

You will know you are successful when

1.1. You relate genetic progress to production efficiency.
1.2. You estimate transmission or expression of heritable traits using EPD's.
1.3. You construct a Punnett square given gene traits
1.4. You predict outcomes of genetic crosses
1.5. You differentiate genotypic vs. phenotypic expression
1.6. You summarize the importance of genetics to the animal industry

Learning Objectives

1.a. Define basic terms integral to animal genetics.
1.b. Discuss how breeds of traditional farm animals were developed.
1.c. Explain the purposes of breed associations.
1.d. Summarize the importance of genetics to the animal industry.
1.e. Explain how producers use the laws of genetics to produce the type of animal they want.
1.f. Describe how the concept of heritability is used in animal selection.
1.g. Explain the difference between phenotypic and genotypic characteristics.
1.h. Summarize how performance data is used in the selection process.
1.i. Identify how computers are used in the modern selection process.
1.j. Outline future trends in the genetic field.

2. Examine the differences in the digestive anatomy among animals.

Assessment Strategies

2.1. Written Objective Test
2.2. Drawing/Illustration

Criteria

You will know you are successful when

2.1. you identify the anatomy of the different animal classes.
2.2. you identify the differences between ruminant and non-ruminant anatomy as related to feedstuffs.
2.3. you compare the function of the ruminant and non-ruminant digestive systems.

Learning Objectives

2.a. Compare the differences in the ruminant animal versus the non ruminant animal
2.b. Describe the function of the ruminant animals digestive system
2.c. Identify the parts of the non-ruminant animals digestive system
2.d. Describe the function of the non-ruminant animals digestive system

3. Explore the different livestock industries in the US.

Assessment Strategies

3.1. Portfolio
3.2. Written Product
3.3. Research Paper

Criteria

You will know you are successful when

3.1. you describe the various production animal and companion animal industries (beef, dairy, swine, small ruminants, and poultry)
3.2. you identify major breeds within each industry
3.3. you explain the characteristics of each industry
3.4. you summarize management practices used in each industry
3.5. you identify the facilities and equipment required for each industry
3.6. you explain feedstuffs and processes commonly used in each industry

Learning Objectives

3.a. Identify terminology common in the dairy, beef, sheep, goat, swine and poultry industries
3.b. Investigate the various production animals industries (beef, dairy, small ruminants, swine, poultry, etc.)
3.c. Describe the various segments of the livestock industries.
3.d. Identify the production characteristics each industry
3.e. Explain the history of breed development and the characteristics of the most common breeds.
3.f. Recognize the value of the industry

4. Investigate aspects of animal behavior.

Assessment Strategies

4.1. Portfolio

Criteria

You will know you are successful when

4.1. you identify the 'flight zone' and 'point of balance'
4.2. you demonstrate the use of good handling practices
4.3. you explain how good handling techniques result in better production
4.4. you identify examples of Classical Conditioning and Operant Learning
4.5. you identify examples of Eliminative, Ingestive, Investigative, Sexual, Maladaptive and Maternal behaviors

Learning Objectives

4.a. Demonstrate safe handling methods based on the points of balance and flight zones in prey animals
4.b. Explain the importance of safety when working with animals.
4.c. Distinguish among various animal restraining techniques.
4.d. Investigate the types of behavior exhibited
4.e. Explore how animals learn and how it influences their behavior
4.f. Explain how animal behavior influences the building of facilities
4.g. Explain how animal learning behavior influences the handling of animals

5. Determine feedstuffs for a class of animals.

Assessment Strategies

5.1. Portfolio

Criteria

You will know you are successful when

5.1. you describe the major functions of the basic nutrient groups.
5.2. you identify feeds that are sources of each nutrient group.
5.3. you describe characteristics of nutrient sources for each basic nutrient group.
5.4. you identify feeds commonly used in the animal science industry.
5.5. you describe the role of roughages and concentrates in animal nutrition.

Learning Objectives

5.a. Identify feeds that are sources of each nutrient group
5.b. Identify common feeds for various classes of animals.
5.c. Describe the characteristics of carbohydrates, fats, proteins, minerals, vitamins and water.
5.d. Classify feedstuffs as roughage, concentrate or protein.
5.e. Rank feeds according to energy content.
5.f. Identify mineral sources in feedstuffs.

5.g. Identify vitamin sources in feedstuffs.

6. Examine practices in managing livestock that impact production costs.

Assessment Strategies

6.1. Portfolio

Criteria

You will know you are successful when

6.1. You apply common terminology in animal production practices.
6.2. you determine the factors that influence the cost of production for beef.
6.3. you determine the factors that influence the cost of production for swine.
6.4. you determine the factors that influence the cost of production for poultry.
6.5. you determine the factors that influence the cost of production for milk.

Learning Objectives

6.a. Identify common practices to manage livestock.
6.b. Identify components that affect cost of production: feed, labor, depreciation, and supplies, etc.
6.c. Determine the cost of production of milk, beef, pork and poultry
6.d. Describe the differences in feed efficiency and rate of growth among production animals

7. Apply prevention and treatment methods for livestock health.

Assessment Strategies

7.1. Demonstration

Criteria

You will know you are successful when

7.1. you define biosecurity risks and apply internal and external biosecurity measures.
7.2. You apply basic vaccination protocols for livestock diseases
7.3. You identify signs and symptoms of common livestock diseases

Learning Objectives

7.a. Identify environmental hazards for animals and operators.
7.b. Identify common diseases and parasites that affect livestock health.
7.c. Identify govennment industry regulations related to animal science.
7.d. Identify methods to prevent the transfer of disease between farms.
7.e. Identify methods and equipment to prevent the transfer of disease between animals on a farm
7.f. Identify proper attire to prevent the transfer of disease into a farm
7.g. Examine biosecurity practices.

8. Examine how consumers influence production within Agribusiness.

Assessment Strategies

8.1. Written Product

Criteria

You will know you are successful when

8.1. you discuss issues regarding animal welfare and product quality influencing the production animal industries.
8.2. you describe current consumers concerns regarding the livestock industry.
8.3. you identify the differences between major product labeling including organic, grass-fed, all-natural, etc.

Learning Objectives

8.a. Identify primary consumer concerns regarding animal welfare, product quality and the effect of production animals on environment.
8.b. Explore how the concerns of the consumer has changed current production practices in the production animal industry.
8.c. Explore how the consumer has influenced the changes in the management of production animals, and the costs of production.
8.d. Identify primary consumer concerns regarding animal welfare in the housing and handling of production animals.

9. Identify how agribusiness commodities are marketed.

Assessment Strategies

9.1. Written Product

Criteria

You will know you are successful when

9.1. You explain how livestock products are marketed
9.2. You summarize how the livestock products are valued and priced at market.
9.3. You summarize the factors that impact the price paid at all levels of marketing livestock products, from farm to grocery store.

Learning Objectives

9.a. Identify the market classes and grades of livestock and poultry.
9.b. Identify how each are valued when sold.
9.c. Examine how products are marketed.
9.d. Explore the factors that determine the price for the products.