

# Equine Science

This course is designed to help students learn specific concepts and principles about the science of horses and how these concepts and principles relate to horse management. This course will help the students to learn about careers related to horse management and help them determine their interest in such careers. Emphasis is on horse management, care, performance training, and career opportunities in equine science. Topics of study include the selection of foundation stock, anatomy, nutrition, exercise physiology, diseases, reproduction, and genetics of horses. Observation skills, critical analysis, mathematics, science, physiology, and nutrition are reinforced in this course. Work-based learning strategies appropriate for this course are skills managing a personal horse, on-the-job training at stables, veterinarian internships, rodeo participation, and other horse related activities. Supervised agricultural experience programs and the FFA leadership activities are integral components of the course and provide many opportunities for practical application of instructional competencies.

*Prerequisite: Agriscience I*

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Equine Science		Content Guideline																
<b>Louisiana Agricultural Education Related Content Standards</b> 	<p>*All benchmarks are not marked for all Agricultural courses.</p>	Foundation	Equine Anatomy	Equine Nutrition	Equine Exercise Physiology	Equine Diseases	Equine Reproduction	Equine Genetics										
		<b>STRAND: Agricultural Literacy K-12</b> <b>Standard: All students will become aware of the characteristics and components of the food and fiber systems.</b>																
a. Agricultural awareness grades k-4																		
b. Agricultural literacy grades 5-8																		
c. Agricultural literacy grades 9-12		•	•	•	•	•	•	•										
<b>STRAND: Personal Development</b> <b>Standard: AgEd /FFA students will develop the necessary interpersonal and communication skills to obtain a job and work effectively and safely in an interactive work environment.</b>																		
a. Agricultural communication		•	•	•	•	•	•	•										
b. Team work in agriculture		•	•	•	•	•	•	•										
c. Careers in agriculture		•	•	•	•	•	•	•										
<b>STRAND: Agribusiness</b> <b>Standard: Ag Ed /FFA students will understand the concept of agricultural marketing, management, finance, and entrepreneurship.</b>																		
a. Production systems																		
b. Selections from various choices			•			•	•	•										
c. Factors that make employees successful																		
d. Agricultural marketing sales and services		•		•	•	•	•	•										
e. Economics of production		•	•	•	•	•	•	•										
f. Develop a business plan																		

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		<b>STRAND: Biotechnology in Agriculture</b> <b>Standard: Ag Ed/FFA students will understand the concepts and principles of biotechnology and the relationships biotechnology has with the agricultural environment.</b>																
a. Basic concepts and applications of biotechnology		•	•		•	•	•											
b. Impacts and public issues of biotechnology																		
c. Processes and applications affecting the plant systems			•		•													
d. Processes and applications affecting animal systems	•	•	•	•	•	•	•											
e. Microbial-biotechnology in agriculture			•		•													
<b>STRAND: Animal Systems</b> <b>Standard: Ag Ed /FFA students will understand the concepts and principles of animal science.</b>																		
a. Selection of livestock, poultry, and other animals	•	•	•	•	•	•	•	•										
b. Anatomy and physiology of livestock, poultry, and other animals		•		•		•	•											
c. Reproduction of livestock, poultry, and other animals		•	•	•	•	•	•	•										
d. Nutrition of livestock, poultry, and other animals		•	•	•	•													
e. Environmental factors affecting livestock, poultry, and other animal systems	•	•	•	•	•	•	•	•										
f. Diseases and parasites of livestock, poultry, and other animals			•	•	•	•												
g. Ethical issues related to livestock, poultry, and other animal systems	•		•	•	•													

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		<b>STRAND: Plant Systems</b> <b>Standard: Ag Ed /FFA students will understand the concepts and principles of plant science.</b>																	
a. Internal processes affecting plant growth and reproduction				•															
b. External environmental factors affecting plant growth and reproduction				•															
c. Soil fertility				•															
d. Plant production				•															
e. Landscaping and floriculture																			
f. Crops of Louisiana																			
g. Horticultural crops of Louisiana																			
h. Agribusiness relating to crop production																			
<b>STRAND: Environmental Management</b> <b>Standard: Ag Ed/FFA students will develop an understanding of the interrelationship between people, agriculture, and the environment.</b>																			
a. Universal impact of forestry																			
b. Wildlife management and conservation																			
c. Environmental quality				•															
<b>STRAND: Agriscience Technology</b> <b>Standard: Ag Ed /FFA students will demonstrate technical skills that reflect successful business and industry practices.</b>																			
a. Agriculture power and energy																			
b. Energy sources in agriculture																			
c. Mathematics in agriscience technology																			
d. Agriscience welding technology																			
e. Agricultural structures and facilities	•	•		•		•		•											

# **Agriscience - Equine Science Content Guideline**

(The student will be able to . . .)

## **Unit One Foundation**

1. Summarize the history of the development of horses.
2. Interpret the economic impact of horses today in Louisiana and the United States.
3. Categorize the breeds of horses by size and use.
4. Analyze the impact of the animal rights movement on the horse industry.
5. Apply the appropriate FFA activities.
  - a. CDE
  - b. SAE/Proficiency

## **Unit Two Equine Anatomy**

1. Identify the major body parts.
  - a. Skeleton
  - b. Muscles
  - c. External
2. Determine the age of horses.
3. Understanding the cause and effects of imperfections.
  - a. Defects
  - b. Blemishes
  - c. Injuries
4. Apply appropriate hoof care.
  - a. Trimming
  - b. Shoeing
5. Analyze body conformation by form and function.
6. Select horses based on conformation.

## **Unit Three Equine Nutrition**

1. Differentiate between nutritional requirements of horses and other agricultural animals.
2. Explain the nutritional requirements of the equine digestive tract.
  - a. Age
  - b. Use/Work

3. Determine the relationship between nutrition and ailments.
  - a. Diseases
  - b. Parasites
4. Describe the role of roughages.
  - a. Grazing
  - b. Forage/Hay

#### **Unit Four**

##### **Equine Exercise Physiology**

1. Explain the relationship of the muscular system and productivity.
2. Evaluate the development of the respiratory system.
  - a. Age
  - b. Exercise
3. Summarize the cardiovascular system.
4. Discuss the role of exercise.
  - a. Intensity
  - b. Frequency

#### **Unit Five**

##### **Equine Diseases**

1. Describe the relationship between management, prevention, and control of parasites.
  - a. External
  - b. Internal
2. Explain a disease prevention program.
  - a. Natural immunity
  - b. Sanitation
  - c. Vaccination
  - d. Control of vectors

#### **Unit Six**

##### **Equine Reproduction**

1. Differentiate the common breeding practice.
  - a. Pasture
  - b. Hand mating
  - c. Artificial Insemination (A.I.)
2. Identify and describe physical characteristics for breeding horses.
  - a. Mares
  - b. Stallions
3. Summarize the function of the major parts of the reproductive tract.
  - a. Mares
  - b. Stallions

4. Describe the stages of the estrous cycle.
5. Describe the signs of approaching parturition.
6. Evaluate the environment from parturition to weaning.

**Unit Seven**  
**Equine Genetics**

1. Contrast the effects of heredity and environment on growth and development.
2. Discuss the implication of genetics.
  - a. Chromosomes/genes
  - b. Dominant/Recessive
  - c. Lethals
  - d. Hybrids

# Resources

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Bulletin 1690; Volume II; Louisiana Department of Education.

Bulletin 1725; Volume III; Louisiana Department of Education.

Bulletin 1926; Louisiana Department of Education.

Gillespie, James R. (2003). *Modern Livestock and Poultry Production*. Clifton Park, New York: Delmar Publishers.

Louisiana Cooperative Extension Service. *Judging Horses*.

Parker, Rick O. (2003). *Equine Science*. Clifton Park, New York: Delmar Publishers.

## Internet Sites

[www.aqha.com](http://www.aqha.com) (2003). American Quarter Horse Association.