Student's Name _____ EQUINE SCIENCE AG 0570

Directions:	Evaluate the trainee using the rating scale below and check the appropriate number to indicate the degree of competency achieve. The numerical rating of 3,2,1 and 0 are not intended to represent the traditional school grading system of A, B, C, D and F. The descriptions associated with each of the numbers focus on level of student performance for each of
	the tasks listed below.

Rating Scale: 0 – No exposure – no information nor practice provided during training program, complete training required.

1 – Exposure only – general information provided with no practice time, close supervision needed and additional training required.

2 – Moderately Skilled – has performed independently during training program, limited additional training may be required

3 - Skilled - can perform independently with no additional training

02.0 History and Development of the Horse

The student will be able to:

$0\ 1\ 2\ 3$

- 01.01 Name the major evolutionary horse-like animals
- 01.02 Identify the position of the horse in the zoological science
- 01.03 Describe how humans eventually changed the way they used the horse
- 01.04 Give the scientific name for the horse and three of its close relatives
- 01.05 List the four evolutionary trends exhibited by horse fossils
- 01.06 Identify the Roman's influence on the use of the horse
- 01.07 Describe the effect of the Middle Ages and the Renaissance on the use of horses
- 01.08 Name three horses in mythology or legend
- 01.09 Name three famous horses of the films
- 01.10 Describe the use of decline of horses in agriculture in the United States
- 01.11 Discuss how racing started in the United States
- 01.12 Identify the factors that changed the use of horses in the twentieth century
- 01.13 Name four Geological time periods (epochs) used to discuss the evolution of horses

1. Number of Competencies Evaluated	
2. Number of Competencies Rated 2 or 3	
3. Percent of Competencies Attained (2/1)	
Grade	
Instructor Signature	Date

01.0 Status and Future of the Horse Industry

- 0123
 - 02.01 Identify the countries or areas with the most horses, donkeys and mules
 - 02.02 Compare the population of horses, donkeys and mules in the United States to that in the world.
 - 02.04 Describe the rise and fall of the horse population in the United States
 - 02.05 Compare the total worldwide population of horses, donkeys and mules
 - 02.06 Project changes in the horse population in the United States
 - 02.07 Identify the top 10 horse-producing states
 - 02.08 Name the four general areas of equine research and give two specific research projects in each
 - 02.09 Identify activities and organizations associated with the U.S. horse industry
 - 02.10 Discuss the future of the U.S. horse industry

03.0 Breeds, Types and Classes of Horses

The student will be able to:

$0\ 1\ 2\ 3$

- 03.01 Describe how horse breeds started with the foundation stallions
- 03.02 Understand the concept of breeds, types and classifications
- 03.03 Describe the common height measurements for horses
- 03.04 Define the terms warmblood, coldblood and hack
- 03.05 Name the 10 common breeds of light horses and their origin
- 03.06 Name five common breeds of draft horses and their origin
- 03.07 Name five common breeds of ponies and their origin
- 03.08 List five color breeds of horses
- 03.09 Name five lesser-known breeds of horses or ponies and their origin
- 03.10 Explain the origin of feral horses
- 03.11 Describe how mules are produced
- 03.12 Identify the common breeds of donkeys
- 03.13 List 10 uses for horses
- 03.14 Describe some of the uses for miniature donkeys and horses
- 03.15 List six uses for mules

06.0 Functional Anatomy

The student will be able to:

 $0\ 1\ 2\ 3$

- 05.01 List the nine systems of animals and the major organs that make up each system
- 05.02 Explain the functions of the skeletal, muscular, digestive, urinary, respiratory, circulatory, nervous, reproductive, and endocrine systems
- 05.03 Identify the components of the skeletal, muscular, digestive, urinary, respiratory, circulatory, nervous, reproductive, and endocrine systems
- 05.04 List the five divisions of the vertebral column
- 05.05 Name the bones in the foreleg and hind leg
- 05.06 Describe three types of joints
- 05.07 Identify three types of muscles and their locations in the body
- 05.08 Trace the circulation of blood through the body
- 05.09 Identify the endocrine glands and the hormones they secrete

04.0 Cells, Tissue, and Organs

The student will be able to:

- 0123
 - 04.01 Explain the importance of cells and their function to the horse
 - 04.02 Identify the parts and organelles of animal cells
 - 04.03 List and describe the functions of each of the major types of specialized animal cells
 - 04.04 List the cell organelles and the functions of each part
 - 04.05 Describe how specialized cells are organized to form a tissue type
 - 04.06 List and describe the six types of specialized animal tissues and their individual functions
 - 04.07 Describe the difference between meiosis and mitosis
 - 04.08 Describe blood and its function
- 05.0 Biomechanics of Movement

- 0123
 - 06.01 Describe muscle contraction
 - 06.02 Describe the nervous control of muscle contraction
 - 06.03 List four functional groups of muscles
 - 06.04 Explain why the heat generated by muscular contraction affects performance
 - 06.05 Contrast aerobic to anaerobic metabolism during muscular contraction
 - 06.06 Name three types of muscle fibers and identify their function
 - 06.07 Name three extensor and three flexor muscles on the hind and front leg
 - 06.08 Describe the two phases of a stride
 - 06.09 Name three factors of a gait that determine a horse's speed
 - 06.10 Define height, directness, spring, regularity, and balance as they relate to gaits
 - 06.11 Describe the walk, trot, gallop, rack, and canter
 - 06.12 Explain the role of conformation in the movement or performance of a horse
 - 06.13 List and describe six common defects in a horse's way of going
 - 06.14 Describe how the center of gravity may affect the movement of a horse

07.0 Unsoundness

The student will be able to:

$0\ 1\ 2\ 3$

- 07.01 Distinguish between a blemish and an unsoundness
- 07.02 Describe the common treatment for many of the problems that could develop into an unsoundness
- 07.03 Name four common unsoundnesses associated with the head
- 07.04 List five common unsoundnesses or blemishes that can be found on the body
- 07.05 Describe two types of unsound lungs
- 07.06 Name and describe 10 unsoundnesses or blemishes of the front or hind leg
- 07.07 Differentiate between a sprain and a fracture
- 07.08 Name two types of sprains and two types of fractures
- 07.09 Identify four conditions that predispose a horse to developing unsoundnesses
- 07.10 Name and describe six stable vices affecting usefulness
- 07.11 Describe how to methodically examine a horse for soundness

09.0 Determining Age, Height and Weight of Horses

The student will be able to:

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- 09.01 List the names used for different age groups of horses from birth to 3 years
- 09.02 Discuss the importance of knowing the age of a horse
- 09.03 Name four changes in teeth that are indicators of different ages
- 09.04 Diagram a tooth to show the parts that change during the aging process
- 09.05 Describe the changes horses' teeth exhibit during their lifetime
- 09.06 List the temporary and permanent teeth of the horse and their approximate time of eruption
- 09.07 List four abnormal tooth conditions
- 09.08 Give four reasons that knowing the height and weight of a horse is important
- 09.09 Tell how to determine the height of a horse in hands and inches
- 09.10 Calculate the weight of a horse from the measurement of the heart girth and body length

08.0 Selecting and Judging Horses

The student will be able to:

- 0123
 - 08.01 Describe 10 factors to consider when selecting a horse to purchase
 - 08.02 Explain how expected use influences the selection of a horse
 - 08.03 Discuss why the age and sex of a horse are important considerations in selecting a horse
 - 08.04 Describe costs associated with owning a horse after the initial purchase
 - 08.05 Discuss why conformation is a more important consideration than breed when selecting a horse
 - 08.06 List five steps in judging a horse
 - 08.07 Name the views used and traits looked for in judging the conformation of a horse
 - 08.08 Describe 10 qualities of a good judge
 - 08.09 Identify typical markings for the face and legs of horses
 - 08.10 List the terms used to describe common body colors of horses
 - 08.11 Discuss why the proper selection of a horse is so important

10.0 Genetics

- 0123
 - 10.01 Define a gene, an allele, a chromosome and DNA
 - 10.02 Discuss genome sequencing and its value
 - 10.03 Explain the difference between phenotypic and genotypic expression
 - 10.04 Explain how mules are produced
 - 10.05 Discuss basic inheritance
 - 10.06 Distinguish between single and multiple-gene inheritance
 - 10.07 Distinguish among recessive dominance, co-dominance and partial dominance
 - 10.08 Describe how DNA codes for proteins that make up the body and function in the body
 - 10.09 Compare qualitative traits to quantitative traits
 - 10.10 Discuss the relationship between genetics and the environment
 - 10.11 Explain how genetics determines coat color
 - 10.12 Name five genetic diseases or abnormalities

11.0 Reproduction and Breeding

The student will be able to:

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- 11.01 Discuss breeding periods
- 11.02 List and discuss the major parts of the female reproductive tract
- 11.03 List and discuss the major parts of the male reproductive tract
- 11.04 Describe reproductive hormones during the estrous cycle
- 11.05 Recognize fertility problems
- 11.06 Explain gestation and parturition in horses
- 11.07 Discuss and demonstrate methods of artificial insemination and heat detection
- 11.08 Explain embryo transfer
- 11.09 Describe the management of the mare and stallion before, during and after the breeding season.
- 11.10 Describe the management of the mare, including care at parturition, nursing to weaning and growing to maturity

13.0 Feeds and Feeding Horses

The student will be able to:

- 0123
- 13.01 Identify and describe sources of hay
- 13.02 List and describe sources of concentrates
- 13.03 Describe how to feed roughages and concentrates
- 13.04 Name and describe sources of protein
- 13.05 Explain how horses are fed according to their activity level
- 13.06 Make feeding recommendations or management suggestions
- 13.07 Describe some typical rations for horses are different stages and activity levels
- 13.08 Calculate the nutrient level of a mixed feed using a feed composition table
- 13.09 Discuss how to feed minerals
- 13.10 Describe the addition of vitamins to a ration

12.0 Digestion and Nutrition

The student will be able to:

- 0123
 - 12.01 List six categories of nutrients
 - 12.02 Define terms association with energy
 - 12.03 List the sources of energy nutrients
 - 12.04 Describe the function of energy nutrients
 - 12.05 Describe the symptoms of energy nutrient deficiencies
 - 12.06 Describe the energy needs of horses for milk production, pregnancy and work
 - 12.07 List the most important compound sugars
 - 12.08 Describe the digestion of fiber
 - 12.09 Explain the function of protein
 - 12.10 Describe digestible protein
 - 12.11 Explain essential amino acids
 - 12.12 Identify at what stages of the horse's life protein requirements are the greatest
 - 12.13 Describe the functions of minerals in horses' nutrition
 - 12.14 Describe the deficiency symptoms caused by lack of minerals in the ration
 - 12.15 List the macro- minerals needed by horses

14.0 Health Management

- 0123
 - 14.01 Define terms associated with disease conditions
 - 14.02 Discuss disease resistance and immunity
 - 14.03 Define terms associated with the severity of a disease or condition
 - 14.04 Describe immunization
 - 14.05 Discuss how a vaccination program relates to immunity
 - 14.06 List signs of disease
 - 14.07 Discuss common diseases caused by viruses
 - 14.08 Discuss common diseases caused by bacteria
 - 14.09 List five noninfectious diseases
 - 14.10 Identify three zoonotic diseases of horses
 - 14.11 Describe the signs of good health in a horse
 - 14.12 List four digestive diseases
 - 14.13 List five respiratory diseases
 - 14.14 Discuss laminitis and colic
 - 14.15 Relate body condition to health

15.0 Parasite Control

The student will be able to:

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- 15.01 Describe the life cycle of a typical internal parasite with an intermediate host
- 15.02 Describe the symptoms of a parasite-infected horse
- 15.03 List management techniques that help prevent parasite infections
- 15.04 Give the scientific names for five common parasites
- 15.05 Name the general categories of chemicals used to treat horses with parasites
- 15.06 Describe the life cycle and damage caused by strongyles and ascarids
- 15.07 Identifying flying insects that are carriers of disease
- 15.08 List the parts of the digestive system that internal parasites may affect
- 15.09 Distinguish the different effects of mites, ticks, chiggers and lice
- 15.10 Discuss why young horses are more severely affected by parasites than older horses are
- 15.11 Discuss the six sanitation and management practices used for reducing or controlling parasites
- 15.12 Explain how a horse is checked for parasites
- 15.13 List outward appearances of parasites on horses

17.0 Shoeing and Hoof Care

The student will be able to:

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- 17.01 Describe the internal and external parts of the hoof
- 17.02 Explain the three main functions of the hoof wall
- 17.03 Explain why the condition of the frog of the horse's foot is a good indication of the health of the horse
- 17.04 Discuss how corrective shoeing can help toed-in and toedout horses
- 17.05 List steps involved in picking up a horse's foot
- 17.06 Explain the importance of inspecting feet daily
- 17.07 List five tools used in caring for a horse's foot
- 17.08 Describe how to shoe a horse
- 17.09 Discuss why it is important to start foot care early in a horse's life
- 17.10 Describe why trimming should be done carefully
- 17.11 Explain how the weight of the horse is carried on the foot/hoof
- 17.12 Name common problems of the feet
- 17.13 Describe trimming and how trimming can correct minor problems

16.0 Common Management Practices

The student will be able to:

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- 16.01 Recognize stress in horses
- 16.02 Describe methods of marking and identifying horses
- 16.03 Discuss procedures for the neonatal foal
- 16.04 List methods of fly control
- 16.05 Describe common fly problems and the habits of several species
- 16.06 Explain the best management practices for pastures and forages
- 16.07 Describe wound types and their proper management
- 16.08 Discuss the management considerations when weaning a foal
- 16.09 Explain the importance of records to the management of horses

18.0 Buildings and Equipment

- 0123
- 18.01 Recommend an environment for horses that addresses welfare, safety, labor and cost
- 18.02 List the planning stages of construction
- 18.03 Identify space requirements for the horse facility
- 18.04 Discuss the importance of ventilation in a building housing for horses
- 18.05 Name materials commonly used for stall floors
- 18.06 Describe requirements for a horse stall
- 18.07 Provide guidelines for the selection of feed and water facilities
- 18.08 Discuss reasons for fencing horses and how to select the right fence
- 18.09 Name four types of fences

19.0 Horse Behavior and Training

The student will be able to:

$0\ 1\ 2\ 3$

- 19.01 Name and describe 10 behavioral categories
- 19.02 Discuss the role of reinforcement in training
- 19.03 Describe imprinting
- 19.04 Describe the horse's sense of vision, touch, smell and hearing
- 19.05 Identify how to read the emotions of a horse
- 19.06 Discuss how the gregarious nature of horses can influence their training
- 19.07 Describe the role of the sense of touch in training
- 19.08 Characterize longeing and its uses
- 19.09 Describe the role of aerobic and anaerobic fitness in training horses
- 19.10 Discuss how a horse is taught during training

21.0 Business Aspects

The student will be able to:

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- 21.01 Identify terms related to horse industry business management with their correct definitions
- 21.02 List reasons for keeping records
- 21.03 Distinguish between basic kinds of records
- 21.04 List guidelines for building and maintaining a good credit standing
- 21.05 List factors that a lender looks for in a borrower
- 21.06 List factors that a borrower looks for in a lender
- 21.07 Identify indicators of good loan repayment ability
- 21.08 List the essential components of all budgets
- 21.09 List six types of credit
- 21.10 Define related management terms
- 21.11 Describe functions in the management process
- 21.12 Identify management considerations in planning an equine business
- 21.13 Explain important skills of managers
- 21.14 Describe the importance of records and reports
- 21.15 Explain important human relations skills
- 21.16 List three types of insurance needed in equine businesses
- 21.17 Describe the elements of a good boarding contract

20.0 Equitation

The student will be able to:

- 0123
 - 20.01 Name three styles of saddles and describe their uses
 - 20.02 Indicate the four criteria for selecting a saddle
 - 20.03 Describe the anatomical points on a horse that must be checked when considering a saddle
 - 20.04 Discuss the results of a poorly fitted saddle
 - 20.05 Discuss the effect the rider's being forward or sitting back in the saddle has on the performance of the horse
 - 20.06 Describe the process of saddling and bridling a horse
 - 20.07 Identify guidelines for proper dress around horses, especially for Western riding
 - 20.08 List the steps for proper mounting of a horse
 - 20.09 Name three types of equitation competition
 - 20.10 Give the rules of safe riding
 - 20.11 Describe how to load and haul a horse and how to check the safety of a trailer
 - 20.12 Name three types of halter material
 - 20.13 Describe the process of haltering and adjusting a halter
 - 20.14 Indicate three safe ways of tying a horse

22.0 Career Opportunities

- 0123
 - 22.01 List the basic skills and knowledge needed for successful employment and job advancement
 - 22.02 Describe the thinking skills needed for the workplace of today
 - 22.03 Identify the traits of an entrepreneur
 - 22.04 Identify primary, support, show, and rodeo careers in the horse industry
 - 22.05 Describe how to obtain education and experience needed to enter the horse industry
 - 22.06 List six general competencies needed in the workplace
 - 22.07 Describe five ways to identify potential jobs
 - 22.08 List eight guidelines for choosing a job
 - 22.09 List 10 guidelines for filling out an application form
 - 22.10 Describe a letter of inquiry or application
 - 22.11 Identify the role of electronic and social media in finding and obtaining a job
 - 22.12 Describe 10 reasons an interview many fail
 - 22.13 List 10 soft (intangible) skills important in the workplace
 - 22.14 Describe occupational safety from the employer's perspective and from the employee's perspective