

Student Name: _____ AG 572 Zoology – Advanced Equine Science

Directions: Evaluate the trainee using the rating scale below and check the appropriate number to indicate the degree of competency achieved. 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

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 The internal structure of the hoof and lower leg.

- 01.01 Diagram the tendons in the lower leg.
- 01.02 Describe the functions of the tendons and ligaments in the lower leg.
- 01.03 Diagram the ligaments in the lower leg.
- 01.04 Diagram the bones in the lower leg.
- 01.05 Diagram the internal and external parts of the hoof
- 01.06 Explain the movements of the lower leg.
- 01.07 Predict how the internal structure of the lower leg affects shoeing and trimming.
- 01.08 Discuss problems associated with improper or irregular trimming.
- 01.09 Discuss methods to correct poor feet or joints in the lower leg.
- 01.10 Demonstrate how to safely pick up a horse's hind and front hoof.
- 01.11 Demonstrate how to properly trim a horse's hoof.

02.0 Correctly shoeing a horse

- 02.01 Determine what the purpose of shoeing is.
- 02.02 Establish what type of shoe should be used based on what the horse will be doing.
- 02.03 Discuss different types of shoes and their respective purposes.
- 02.04 Properly prepare a horseshoe for shoeing using cold methods.
- 02.05 Properly prepare a horseshoe for shoeing using hot methods.
- 02.06 Demonstrate how to properly shoe a horse's hoof.
- 02.07 Demonstrate the ability to appraise a finished shoeing or trim job.

03.0 Determine the age of a horse.

- 03.01 Discuss different methods to determine age in horses.
- 03.02 Demonstrate how to determine the age of various horses.
- 03.03 Discuss the importance of knowing the age of a horse
- 03.04 Name four changes in teeth that are indicators of different ages

- 03.05 Diagram a tooth to show the parts that change during the aging process
- 03.06 Describe the changes horses' teeth exhibit during their lifetime
- 03.07 Show the temporary and permanent teeth of the horse and their approximate time of eruption
- 03.08 List four abnormal tooth conditions.
- 03.09 Show the proper method to handle a horse when checking teeth for age.
- 03.10 Diagram the different parts of the mouth in relation to a horse's age.
- 03.11 Discuss the purpose of the canines in horses.
- 03.12 Determine the need (if any) of wolf teeth of a horse.

04.0 **Buildings and Equipment**

- 04.01 Discuss different types of material used in horse building construction.
- 04.02 Determine what type of facility will be constructed, and its uses.
- 04.03 Determine environmental factors affecting location of a horse facility.
- 04.04 Provide various locations suitable for horse buildings.
- 04.05 Assess methods of egress for horses in a building in the event of an emergency
- 04.06 Identify space requirements for the horse facility.
- 04.07 Identify the planning stages of construction
- 04.08 Discuss the importance of ventilation in a building housing for horses.
- 04.09 Name materials commonly used for stall floors
- 04.10 Describe requirements for a horse stall
- 04.11 Provide guidelines for the selection of feed and water facilities
- 04.12 Establish what methods will be used to store feed.
- 04.13 Provide methods for storage of tack to be used in relation to the type of riding discipline.
- 04.14 Discuss reasons for fencing horses and how to select the right fence
- 04.15 Name four types of fences

05.0 **Business aspects Horse ownership**

- 05.01 Appraise the cost of owning a horse.
- 05.02 Determine capital available for costs.
- 05.03 Create a budget for owning a horse.
- 05.04 Determine if the horse will be used for recreation, showing or both.
- 05.05 Establish whether outside horses will be boarded.
- 05.06 Create and implement an agreement between owner of facility and owner of horse for boarding, training, and breeding.
- 05.07 Establish where the horse will be kept.
- 05.08 Create methods in which capital may be established
- 05.09 Determine the amount and type of feed that will be fed.
- 05.10 Show where the feed will be purchased as well as stored.
- 05.11 Analyze a type of equine business and whether it will be profitable or not.
- 05.12 Examine the benefits and drawbacks to horse insurance.
- 05.13 Discuss the benefits and drawbacks to horse syndication.
- 05.14

06.0 **Reproduction**

- 06.01 Discuss breeding periods
- 06.02 List and discuss the major parts of the female reproductive tract
- 06.03 List and discuss the major parts of the male reproductive tract
- 06.04 Describe reproductive hormones during the estrous cycle
- 06.05 Recognize fertility problems
- 06.06 Explain gestation and parturition in horses
- 06.07 Discuss and demonstrate methods of artificial insemination and heat detection
- 06.08 Explain embryo transfer and the purposes associated with it.
- 06.09 Describe the management of the mare and stallion before, during and after the breeding season.
- 06.10 Describe the management of the mare, including care at parturition, nursing to weaning and growing to maturity

07.0 Breeding

- 07.01 Discuss how sex is determined.
- 07.02 Discuss the benefits or problems of Purebreeding, interbreeding, line breeding and crossbreeding.
- 07.03 Identify and relate the gross anatomical structures of the male reproductive system
- 07.04 Describe the function of the parts of the male reproductive system
- 07.05 Trace a spermatozoan in the male reproductive tract
- 07.06 Explain why temperature is so critical to the testes and what three structures regulate it
- 07.07 Define monorchid and criptorchid and explain how it may be determined
- 07.08 Explain the cause of a scrotal hernia
- 07.09 Indicate where sperm is mixed with the accessory fluids first to become semen
- 07.10 Diagram and label how the parts of penis of the stallion in cross section

08.0 Hormones and Puberty In the Male

- 08.01 Identify the major hormones of reproduction and their actions
- 08.02 Distinguish between releasing hormones, hypophyseal, and gonadal hormones
- 08.03 Relate action to specific male hormones and their sources
- 08.04 Explain the factors affecting puberty and their interactions
- 08.05 Relate age, size and weight to puberty
- 08.06 Determine factors to be considered in selecting breeding stock
- 08.07 Relate the four parts of the hypophysis to their function
- 08.08 Diagram the hormonal sequence in the male, beginning and ending with ICSHRH
- 08.09 List the effects of testosterone on secondary sex characteristics in the stallion
- 08.10 Indicate the stallion-to-mare ratio when using young stallion for the first time compared to mature stallion

09.0 Ejaculation and Semen Collection

- 09.01 Explain the process of mating
- 09.02 Describe the composition of semen and the point of deposition in the female, and its composition

- 09.03 Describe the passage of sperm through the tract during ejaculation
- 09.04 List the males that have fractionated ejaculates
- 09.05 List the advantages and disadvantages of the various methods of collecting semen
- 09.06 Describe in detail the use of the artificial vagina and electroejaculator for collecting semen

10.0 Breeding Soundness Evaluation

- 10.01 Describe and explain the criteria used for evaluating the outward signs of fertility in the male and female
- 10.02 Describe how to evaluate the internal reproductive organs for breeding soundness
- 10.03 Explain the value of the various factors used in evaluating semen
- 10.04 List and describe the kinds of performance records which might be used when selecting breeding animals
- 10.05 Explain how a pedigree might be used when selecting breeding stock
- 10.06 Describe the traits that are desirable in selecting a herd sire and females for each species

11.0 Semen Production, Processing, and Storage

- 11.01 Describe the efficacy of using fresh sperm in a breeding program
- 11.02 Evaluate the various ways of processing sperm
- 11.03 List the constituents of semen extender
- 11.04 Calculate semen extension for processing fresh and frozen semen
- 11.05 List the advantages and disadvantages of the various methods of packaging semen
- 11.06 Explain which method of selecting a sire is the most effective

12.0 Macroscopic Female Functional Anatomy

- 12.01 Trace the path of the ovum in the female reproductive tract
- 12.02 List the anatomical differences of the reproductive systems among the species

- 12.03 Describe the distinguishing external features of the ovaries of the cow, sow, ewe and mare
- 12.04 Identify the structures of the ovary and relate them to their functions
- 12.05 Classify the uteri of different species according to their configuration

13.0 Hormones and Puberty in the Female

- 13.01 List the hormones originating in the hypothalamus, hypophysis, and the gonads that are related to female reproduction
- 13.02 Identify the various hormones with their resulting target organs
- 13.03 Describe the four factors related to puberty
- 13.04 List the ages and ranges for the onset of puberty in the various species
- 13.05 Describe the effects of hormones, genetics, nutrition, and environment on the manifestation of puberty
- 13.06 Explain why one would want to shorten the prepubertal interval

14.0 Estrus and the Estrous Cycle

- 14.01 Describe the symptoms of estrus in the various species
- 14.02 Describe the meaning for the following: proestrus, estrus, metestrus, diestrus, and anestrus
- 14.03 Diagram the hormonal pathways used to initiate the activities of the various glands and organs in the body
- 14.04 Match specific hormones to their specific responses from target organs
- 14.05 Describe the growth of ovarian structures through an estrous cycle
- 14.06 Indicate the length of the estrous cycle
- 14.07 Describe when a mare is most likely to be receptive to the male
- 14.08 Describe the activity of the oviduct at the time of ovulation
- 14.09 Explain how the menstrual cycle differs from the estrous cycle

15.0 Ovulation Control

- 15.01 List the advantages and disadvantages of ovulation control
- 15.02 Describe the various compounds used for ovulation control for the mare
- 15.03 Distinguish between the action of progesterone, progestogens, and prostoglandins for ovulation control

- 15.04 Explain why two injections of prostoglandins are needed to control ovulation
- 15.05 Discuss the general approach to the superovulation of mares
- 15.06 Explain why interuterine (PGF 2 alpha a) is injected at a lower rate than intermuscular

16.0 Artificial Insemination

- 16.01 List the advantages and disadvantages of artificial insemination for the mare
- 16.02 Describe the differences between the various techniques of artificial insemination
- 16.03 List the various techniques that are used to check estrus in mares
- 16.04 Outline an AI program and its specific management for any class of livestock
- 16.05 Describe and explain the time of insemination to optimum conception
- 16.06 Explain the A.M. - P.M. inseminating rule
- 16.07 Indicate the best temperature to thaw frozen semen to be used immediately
- 16.08 Describe one method of restraint for mares during insemination

17.0 Fertilization and Embryo Transfer

- 17.01 Describe the mechanisms involved in sperm and ovum transport
- 17.02 List in order the barriers to sperm penetration of the ovum
- 17.03 Discuss the advantages and disadvantages of embryo transfer, in mares
- 17.04 Describe the importance of synchronization, condition, superovulation, and insemination to embryo transfer
- 17.05 Describe in outline form embryo transfer in any domestic species
- 17.06 Distinguish between 'good' and 'bad' eggs
- 17.07 Describe some of the problems of and need for continued research on embryo transfer
- 17.08 Explain how sperm moves so rapidly from the point of natural deposition to the point of fertilization
- 17.09 Indicate where fertilization takes place
- 17.10 Indicate how long it takes sperm to reach the point of fertilization in the mare
- 17.11 Explain where sperm is deposited in the normal copulation of the horses

- 17.12 Explain what is so critical about the synchronization of the donor and recipient for embryo transfer
- 17.13 Describe the nonsurgical approach to embryo transfer in the mare

18.0 Gestation and Pregnancy Determination

- 18.01 List the gestation lengths for mares
- 18.02 Describe the importance of progesterone and its source to maintenance of pregnancy
- 18.03 List the embryonic membranes of the embryo
- 18.04 List the major developments of the prenatal young
- 18.05 Describe the age to developmental periods of the embryo
- 18.06 Distinguish placentas by structure, shape
- 18.07 List reasons for pregnancy determination and outline methods for determining pregnancy

19.0 Parturition and the Postpartum Period

- 19.01 List and describe the factors influencing parturition
- 19.02 Describe the stages of parturition as they apply
- 19.03 List the problems that may arise during birth and methods of alleviating them
- 19.04 Relate and describe the postpartum period to ensuing estrous activity and conception
- 19.05 Explain what changes occur in progesterone and estrogen at parturition in the mare
- 19.06 Define terms associated with parturition and the postpartum period
- 19.07 Describe the birth process of a foal
- 19.08 Explain what 'foal heat' is