

**AN344**  
**Equine Breeding Management**  
**3 Credits**

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# AN344 Version: 1



## Equine Breeding Management

### Calendar Description

This course provides students with the knowledge required to make informed decisions pertaining to the reproduction management of stallions, broodmares and foals.

### Rationale

This course is required for the Equine Science major of the Animal Science Technology program. Having comprehensive knowledge of information pertaining to equine reproduction is the best insurance for the successful delivery of a live healthy foal. Understanding the factors which affect fertility and reproduction in horses leads to better decision-making regarding breeding methods, care for broodmares and care of foals upon delivery.

### Prerequisites

AN343

### Co-Requisites

None

### Course Learning Outcomes

Upon successful completion of this course, students will be able to

1. make informed decisions regarding the viability of stallions and mares in a breeding program.
2. recognize when horses are most fertile.
3. recognize which management systems are best suited to specific programs.
4. recognize problems that may occur which may impact negatively on reproduction.

**Resource Materials**

**Require Textbook(s):**

Senger, P. L. (2015). *Pathways to pregnancy and parturition* (3rd revised ed.). Pullman, WA: Current Conceptions, Inc.

**Reference Textbook(s):**

Kainer, R. A., & McCracken, T. O. (1998). *Horse anatomy, a color atlas*. Dogwise Publishing.

McKinnon, O. A., Squires, E. L., Vaala W. E., & Varner, D. D. (2011). *Equine reproduction* (2<sup>nd</sup> ed.). Wiley-Blackwell.

Riegel, R. J., & Hakola, S. E. (2003). *The illustrated atlas of clinical equine anatomy and common disorders of the horse, Volume 2*. Equistar Publication.

**Conduct of Course**

This course consists of 42 hours of lecture. Lecture is delivered in the classroom with the use of PowerPoints, videos and assignments. Planned seminars, field trips or other activities may occur outside of scheduled class times.

**Evaluation Procedures**

Quizzes and Assignments	35%
Midterm Exam	25%
Final Exam	40%

**Grade Equivalents and Course Pass Requirements**

*A minimum grade of D (50%) (1.00) is required to pass this course.*

Letter	F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Percent Range	0-49	50-52	53-56	57-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	1.00	1.30	1.70	2.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

**Students must maintain a cumulative grade of C (GPA - Grade Point Average of 2.00) in order to qualify to graduate.**

## **Attendance**

Classroom and laboratory attendance is considered vital to the learning process and as significant to the students' evaluation as examinations and reports, therefore absenteeism is recorded.

- a. Students having a combination of excused and/or unexcused absence of 20 percent or higher for the scheduled course hours can be required to withdraw and would then automatically receive a "RW" (required withdrawal) for the course, regardless of any other evaluation results. (RW is a failing grade).
- b. An excused absence is one that is verified with your instructor. Verification should be prior to the absence or the next class day following the absence. Verification of the absence may take the form of a note from your doctor/College nurse regarding illness, or a note from another instructor regarding a field trip or other activity, or authorization by your instructor following an in-person meeting. Be sure to contact your instructor and ask what they will require from you as verification for each absence. An unexcused absence is anything NOT verified by the instructor prior to the absence or the next class day following the absence.

NOTE: Any exceptions to the above attendance policy (e.g. timetable conflicts, work-related issues) must be approved in writing by the Department Chair prior to the beginning of the course.

It is the students' responsibility to know their own absentee record.

Normal hours are 8:30 a.m. to 6:30 p.m., with potential for evening courses, exams or extended field trips. Students are expected to be available for classes during these times.

## **Course Units/Topics**

Unit 1: The Stallion

Unit Outcome:

Upon successful completion of this unit, students will be able to identify the reproductive organs of the stallion and outline management requirements of a stallion during breeding.

Unit Objectives:

1. Memorize the anatomy and physiology of the reproductive tract
2. Describe how seasonality affects fertility in stallions
3. Distinguish what affect artificial lighting has on stallion's spermatozoa production

4. Discuss reproductive problems in stallions
5. Outline collection schedules for stallions to be used in artificial insemination
6. Describe the method and value of dummy training for stallions

## Unit 2: The Mare

### Unit Outcome:

Upon successful completion of this unit, students will be able to identify the reproductive organs and outline the reproductive cycle of the mare.

### Unit Objectives:

1. Memorize the anatomy and physiology of the reproductive tract
2. Describe what kind of seasonally polyestrous breeders' horses are
3. Describe how seasonality affects fertility in mares
4. Describe anestrus
5. Outline transitional periods in the breeding season for mares
6. Define the correlation between hair coat and reproductive seasonality
7. Define estrus
8. Describe ovulation
9. Describe diestrus
10. Breakdown the estrus cycle by number of days
11. Discuss foal heat

## Unit 3 Breeding Management of the Mare

### Unit Outcome:

Upon successful completion of this unit, students will be able to make informed decisions regarding the breeding management of mares.

### Unit Objectives:

1. Describe how teasing is used in breeding management
2. Classify teasing scores for estrus detection
3. List signs of estrus
4. Discuss the function of rectal palpation as a breeding management tool
5. Discuss how ultrasound is used as a breeding management tool

6. Outline the length of time spermatozoa are active in the mare and the optimum breeding time for a mare
7. Explain what effect artificial lighting has on fertility
8. Discuss hormonal breeding management tools
9. Outline a vaccination schedule for breeding mares

#### Unit 4: Breeding Methods and Procedures

##### Unit Outcome:

Upon successful completion of this unit, students will be able to identify breeding methods and procedures, compare the pros and cons associated with each of these methods and make decisions regarding the best practices to achieve desired goals within an individual breeding program.

##### Unit Objectives:

1. Compare the negative and positive attributes of pasture breeding
2. List some of the variables that may be controlled through hand breeding
3. Describe the benefits of hand breeding
4. List the benefits of artificial insemination
5. Outline methods for storing semen
6. Compare cooled semen vs frozen semen
7. Describe the facilities required for collection and insemination using artificial insemination
8. Outline the embryo transfer process
9. Discuss the requirements of donor mares
10. Discuss the requirements of recipient mares
11. Discuss the importance of synchronization of estrus for embryo transfer
12. Discuss the benefits of embryo transfer

## Unit 5: Conception and Fetal Development

### Unit Outcome:

Upon successful completion of this unit, students will be able to discuss the stages of fetal development and Identify the causes of abortions in mares.

### Unit Objectives:

1. Outline the stages of fetal development
2. Discuss twinning
3. Discuss early embryonic death (EED)
4. Outline non-infectious causes of abortions in mares
5. List infectious causes of abortions in mares

## Unit 6: Parturition

### Unit Outcome:

Upon successful completion of this unit, students will be able to distinguish between events during foal delivery which are normal and abnormal as well as demonstrate comprehension of how to manage problems associated with parturition.

1. Classify what occurs within each of the 3 stages of parturition
2. Describe what immediate neonatal care must be given to the foal upon delivery
3. Recognize types of dystocia and describe the best course of action
4. Discuss problems which can occur during parturition
5. Discuss problems which can occur after parturition
6. Recognize the signs of a post partem bacterial infection
7. Describe the symptoms of post partem colic

## Unit 7: Management of Newborn and Growing Foals

### Unit Outcome:

Upon successful completion of this unit, students will be able to outline a program for the management of foals after delivery.

### Unit Objectives:

1. Identify mare vaccination procedures pre- foaling
2. Outline a vaccination schedule for newborn foals
3. Outline what steps should be taken for the care of a newborn foal.

4. Describe what should be done for the care of the umbilical cord
5. Explain the importance of the foal receiving colostrum in the first 2 hours
6. Describe failure of passive transfer
7. Describe what observations should be made of the foal on the first day post parturition
8. Indicate what kind of exercise a newborn foal should receive
9. Outline what observations should be made within the first 72 hours of the foal's delivery
10. Discuss the handling of foals
11. Describe what internal parasite control should be done for foals
12. Identify nutritional management requirements for newborn foals

#### Unit 8: Common Illnesses of Newborn Foals

##### Unit Outcome:

Upon successful completion of this unit, students will be able to identify common illnesses and conditions of newborn foals, as well as discuss treatment options.

##### Unit Objectives:

1. Neonatal infections
2. Describe the clinical signs and treatment of neonatal encephalopathy (dummy foal syndrome)
3. Describe a meconium impaction and how to recognize the signs
4. Classify different types of diarrhea in foals
  - Foal heat diarrhea
  - Nutritional diarrhea
  - Parasitic diarrhea
  - Bacterial diarrhea
  - Viral diarrhea
5. Recognize symptoms of diseases in foals



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