

**Animal Science 612
Equine Reproduction
Syllabus - Fall 2009**

INSTRUCTOR

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Office Hours: MWF 9:00-11:00, or by appointment

COURSE OBJECTIVES

To provide the student interested in equine reproduction with a specialized course of study of the anatomy, endocrinology, physiology, behavior, gametogenesis, and management considerations of the mare, stallion and foal as they relate to reproduction in the horse.

To encourage the student to develop the analytical skills to review and interpret scientific literature related to equine reproduction.

To provide the student with the opportunity to present equine research data and lead discussion sessions with other interested persons.

PREFERRED TEXT

Equine Reproduction. 1993. Eds. Angus O. McKinnon and James L. Voss. Lea & Febiger, Philadelphia.

OTHER REFERENCES

Equine Breeding Management and Artificial Insemination. 2008. J. Samper. W.B. Saunders, Philadelphia.

Manual of Equine Reproduction. 2003. Blanchard, Varner, Schumacher, Love, Brinsko, Rigby . 2nd Edition. Mosby, St. Louis.

GRADING

Exam I	20%	September 24
Exam II	20%	November 3
Final Exam	25%	December 11 (12:30) comprehensive
Research Paper	20%	November 24
<u>Participation & Readiness</u>	<u>15%</u>	
	100%	

EXAMS

Exams will include specific short answer questions as well as discussion questions on the presentations and assigned reading material from the text.

RESEARCH PAPER

This manuscript should be developed around a topic in equine reproduction that you have a keen interest in, possibly something you might want to build a research proposal around. It should include an introduction justifying the importance of this area and a detailed review of the most recent and most historical literature on the topic. It should be written in the Journal of Animal Science style and format, http://jas.fass.org/misc/JAS_2009_Instructions_for_Authors_UPDATED.pdf. It should be in the range of 12-15 pages. As well as content, attention should be given to grammar, spelling, sentence structure and good paragraph development. See me if you have questions.

PARTICIPATION & READINESS

Much of the class will be conducted by student presentations on the various topics listed in this syllabus. Topics will be assigned several class meetings in advance to give students time to read and prepare for presentation to class. Presentation should include Powerpoint presentation and handout for student. You can provide references outside the text but there is no need to prepare a written summary of text itself.

AGGIE CODE OF HONOR

“An Aggie does not lie, cheat or steal, or tolerate those that do.”

The Office of the Aggie Honor System provides resources to students and faculty to help uphold this Honor Code, including definitions for academic dishonesty and plagiarism. These resources, as well as information about the Office of the Aggie Honor System, can be found at <http://www.tamu.edu/aggiehonor/>. It is every person's responsibility, students and faculty alike, to understand what constitutes academic dishonesty, prevent it from happening, and promote honesty and integrity befitting Texas A&M University. Take the time to explore the website and become familiar with the resources available.

SCHEDULE OF TOPICS

Anatomy of Reproductive Systems

Neuroendocrine Structure & Function

Mare: Ovarian anatomy and vascular configuration of reproductive tract, Tubular Structures, Perineal Conformation and Mammary system

Stallion: Scrotum & Testes, Tubular Structures, Penis, Accessory Glands

Reproductive Endocrinology

Mechanisms of Hormone Action: Peptides, Proteins & Glycoproteins, Steroids & Prostaglandins

Hormone Structure and Function: Melatonin, GnRH, FSH & LH, Prostaglandins, Progestins, Estrogens, Chorionic Gonadotropin, Peptide & Protein Hormones

Physiology of Reproductive Function

Seasonality and Transitional period

Female Reproductive Cycle: Normal cycle, Follicular phase & Ovulation, Luteal Phase, Abnormal cycles

Physiology & Endocrinology of the Stallion

Gametogenesis

Puberty

Testicular Descent

Factors Affecting Sperm Production/Output

Reproductive Behavior

Mare

Stallion

Breeding Management

Breeding Programs: Handmating, AI

Mare Management: Artificial Photoperiod, Detection of Estrus, Reproductive Tract Examination, Uterine cultures/cytology, Endometrial biopsy, Endoscopy,

Stallion Management: Semen Collection & Evaluation, Semen Preservation (& Extenders)

Breeding Soundness Evaluation

Pharmacological Manipulation of Reproduction

Mare: Progestins, Prostaglandins, hCG, GnRH, Estrogen, Oxytocin, & others,

Stallion: Behavioral, Effects of Drugs on spermatogenesis

Reproductive Dysfunction

Mare: Infectious, Uterine, Ovarian, Cervical, Developmental/Cytogenetic, Endocrine

Stallion: Venereal, Testicular degeneration, Vesiculitis/Hemo & Uropsermia, Diseases of Testes, Penis, etc., Developmental abnormalities

Assisted Reproductive Technologies: Embryo Transfer, IVF, ICSI, NT, Sex-sorted sperm, Deep intrauterine insemination

Nutritional Management of the Mare

Pregnancy

Fertilization, Maternal Recognition, Endocrinology of Pregnancy, Placental Development, Fetal Growth, Parturition

Detection of Pregnancy

Identification of High Risk Mares & Foals

Problem Associated with Pregnancy: EED, Abortion, Twins, Dystocia, Retained Placenta, Miscellaneous Diseases

Postpartum Breeding

Neonatal Management

Pre- and Post-partum Mare Care

Foal: Assessment of Fetal Well-being, Post-natal Foal Care