Theriogenology, VETM*3460  
Fall/Winter 2016-2017  
0.75 Credit

Calendar Description

A lecture and laboratory course covering the normal and abnormal reproductive conditions of domestic animals. The course will include mammalian reproductive physiology and histology, diagnosis and treatment of reproductive disorders, including infertility, and management of breeding programs for the common domestic species. An introduction to the new reproductive technologies used in theriogenology will be discussed.

Course Coordinator

Dr. Pat Meyers  
Room 2542, phone ext 54031  
pmeyers@uoguelph.ca

Dr. Pavneesh Madan  
Room 3605, Phone ext 54480  
pmadan@uoguelph.ca

Instructors

Dr. Pat Meyers  
Room 2542, phone ext 54031  
pmeyers@uoguelph.ca

Dr. Pavneesh Madan  
Room 3605, Phone ext 54480  
pmadan@uoguelph.ca

Dr. Lisa Robertson  
Room 2608, Phone ext 54239  
lrober13@uoguelph.ca

Dr. Cathy Gartley  
Room 2544, phone ext 54237  
cgartley@uoguelph.ca

Dr. Robert Foster  
Room PAHL 3842 ext 54648  
r foster@uoguelph.ca

Dr. P. Menzies  
Room 2541, phone ext 54043  
pmenzies@ovc.uoguelph.ca

Administrative Information

For questions regarding academic consideration, continuation of study, academic misconduct, safety, confidentiality, and experiential learning involving use of animals, please refer to administrative information under Phase 2 on the OVC website.

Course coordinators and instructors will reply to emails concerning questions about course materials or examination materials when possible. Questions by email regarding Monday AM midterms may not be replied to after the preceding Friday at 5 pm.
**Course Objectives**

The objective of this course is for students to acquire an understanding of the reproductive biology and clinical theriogenology of the common domestic species, and develop an appreciation for the importance of reproduction in food animal, equine, mixed and small animal veterinary practice. These objectives will be taught through various approaches including lectures and laboratories (histology, gross pathology, rectal palpation, vaginal cytology and semen analysis labs).

At the end of the course, the successful student will be able to:

1. Compare and contrast the reproductive cycles, including the endocrinology, gross and histological anatomical features, of the various domestic species, and explain how they relate to reproductive management.
2. Summarize, diagnose and develop a treatment plan for the important clinical conditions of the main domestic species.
3. Perform rectal palpation in cows and mares, identifying the cervix, uterus and ovaries, and interpret the importance of ovarian structures present.
4. Solve case scenarios using an evidence-based approach, utilizing the knowledge of anatomy, cycles, reproductive management and diseases learned throughout the course.
5. Illustrate the anatomical and histological adaptations to male and female reproductive tissues that permit function, but also predispose to disease.

**Evaluation**

Assessment of students will be based on four written midterm examinations and a final examination. **All examinations will be cumulative.** Examination questions may be in the form of multiple choice, short answer and true / false questions, and visual slides may also be used. An additional laboratory assessment is also included.

**Rectal Palpation Laboratories – The rectal palpation laboratories are elective.** Students planning on pursuing a career in mixed animal, bovine or equine practice are strongly encouraged to sign up for the palpation lab. Students who intend to pursue small animal veterinary practice exclusively are not required to take the palpation lab. A lab introduction will include a video and question/answer session discussing the laboratory. The first cow palpation lab will introduce bovine rectal palpation using our model “Betsy” and tracts. **ALL students are encouraged to attend the introductory laboratory before making a decision regarding participation in the rectal palpation labs.** A sign-up sheet will be placed outside the Theriogenology Lab (Room 1565). Sign up will not finish until after the introductory lab - students will be required to sign up for the bovine palpation labs by Friday September 16, 2016. Students who initially sign-up for the palpation labs but change their minds after one or two labs must inform the course co-ordinator.

**Participation in the equine palpation lab is also elective, however it requires full participation in the bovine lab in the fall semester (all 6 lab sessions)** in order to give students
basic palpation skills. Students who miss one or more bovine palpation labs will not be able to participate in the mare labs unless the bovine lab has been made-up, either in another lab or in pre-arranged make-up time. Please contact Dr. Meyers if you miss a bovine lab to arrange a make up slot.

Students will be assigned by the course coordinator to one specific mare palpation lab time. A limited number of student spaces will be available for each mare palpation lab due to the limited number of teaching mares in the herd; there may be additional opportunities for those students wishing a second mare palpation lab. Students who take the bovine palpation labs are not required to take the equine palpation lab if they do not want to.

***IMPORTANT*** Some laboratories include compulsory written assignments that together carry a value of 6% of the final grade. Completion of the laboratory assignments are required in order for the 6% laboratory grade to be credited. There is no specific mark per-se given for each laboratory assignment. The 6% grade is an assignment completion mark. 3% is awarded for successful completion of each individual lab assignment. Deadlines for submission of assignments will be communicated for each assignment. Failure to submit the lab assignment will result in a 0/3 grade for that laboratory component of the course. Failure to successfully complete both labs will result in 0/6 for the lab component. Students who must miss any laboratory assignment are required to obtain Academic Consideration as for all examinations. All assignments must be completed to the satisfaction of the appropriate faculty member and the course coordinator. Unsatisfactory assignments must be resubmitted, with ongoing consultation, until they are of appropriate quality. Laboratory content will be included in the midterm and final examinations. Specifically, the labs that include assignments are (1) vaginal cytology lab and (2) semen analysis lab. NOTE that the vaginal cytology laboratory occurs in the first week after returning from Christmas vacation. It is suggested that students make note of this if planning an extended vacation. There will NOT be an opportunity to make up either of these labs outside of the two times offered in the schedule.

Midterm #1: Monday, October 3, 2016 Value: 6 %
Midterm #2: Monday November 21, 2016 Value: 6 %
Midterm #3 Thursday January 12, 2017 Value: 6 %
Midterm #4 Monday March 6, 2017 Value: 6 %
Laboratory Component Value: 6 %

Final exam: Refer to Final Exam Schedule Value: 70 %

Examination Schedule:

If a midterm examination is missed and academic consideration is granted, alternative arrangements will be made by the course coordinator on an individual case basis. If academic consideration is not granted, a mark of zero will be allocated for the missed examination. Students must contact the Associate Dean of Students for academic consideration. Midterm Exams are cumulative and will also include material covered in laboratory sessions.
The final examination is cumulative and covers all lecture, laboratory and notes material in the course.

**Resources**

**Required:**

1. Course Notes Available On-line. A pre-printed note package is no longer provided as requested by previous DVM years. The complete notes package will be available on D2L for you to view and/or print as your preferences indicate.

2. Lecture Powerpoints as .pdf files on D2L. Every effort will be made by instructors to have powerpoint files up the day before the lecture.

**Recommended: ** ** denotes Highly Recommended**

**Physiology**

1. ** Pathways to Pregnancy and Parturition, 2nd Ed., P.L. Senger, Current Conceptions Inc, WA.

1.** Veterinary Endocrinology and Reproduction, 5th ed; L.E. McDonald

**General: Bovine, Equine and Small ruminant**

** Current Therapy in Large Animal Theriogenology, 2nd Ed. Youngquist

**Equine:**

1. ** Manual of Equine Reproduction; D. Varner; 2002


3. Current Therapy in Equine Medicine # 5 and # 6; Robinson(ed) ; Section V Reproduction; 2003 and 2009

see also Reproduction sections in Current Therapy #4 and #3

4. ** Equine Reproduction; A. McKinnon and J.L. Voss; 2011

**Internet Resources -

The Drost Project – visual guide to theriogenology

Marestare.com This website is dedicated to foaling mares. Participant farms have live webcam videos of pregnant mares due to foal and foaling.

**IVIS.org** – this is a valuable veterinary resource with conference proceedings and review articles on a wide variety of topics and species. You need to register to access, but registration is free.
Dr. Robert Foster’s reproductive pathology website: http://www.uoguelph.ca/~rfoster/repropath/repro.htm

**Small Animals:**

1. **Canine and Feline Theriogenology; S.D. Johnson, M.V. Root Kustritz and P.N.S. Olson**

2. Canine and Feline Endocrinology and Reproduction; Feldman and Nelson


5. IVIS web site (http://ivis.org/). Go to the “Recent Advances in Small Animal Reproduction” page.

**Obstetrics:**


Approved September 1, 2016