
Mammalian Reproductive Biology – BIOM*4110

Semester: Winter 2018 (2-2) [0.50]

Lectures: Monday and Wednesday
8:30-10:20 a.m. (Rm 1642 OVC)

Overview

This multidisciplinary course provides an introduction to various aspects of mammalian reproduction of medical and veterinary significance. The course will cover the normal physiology and gross and micro-anatomy of the female and male reproductive systems. Placentation, pregnancy and post-partum physiology will also be addressed. The impact of the reproductive biology on social and economic issues will be discussed.

Objectives

Upon completion of this course, the students will understand:

- the fundamental anatomy, histology, physiology and endocrinology of the male and female reproductive systems in various mammalian species;
- the basic patterns and periodicity of reproductive processes in mammals;
- the basic diagnostic methods and approaches to solving problems in reproductive sciences/medicine;
- major ethical and socio-economic aspects of reproductive biology;
- the basic principles of scientific communication, oral and written, pertaining to reproductive physiology/medicine.

Methods of Presentation

The materials and issues will be presented in the form of lectures, labs and/or demonstrations. In addition, there will be a visit to the Toronto Zoo to showcase role of reproductive technologies in conservation and propagation of species.

Methods of Evaluation

Students will be expected to actively participate in the regular classroom discussions. They will also prepare oral and written presentations and reports. One of the course objectives is to provide all students with the opportunity to learn the basics of reproductive biology and then apply that understanding to the solving of reproductive problems. Thus, evidence of sufficient command of the basic science will be an integral part of all evaluations. Utilization of the current scientific literature in preparing the presentations will be expected.

Classroom participation & discussion

Students are strongly encouraged to participate in class discussions. They will be expected to provide evidence of having read both popular and scientific literature and to have thought about varying aspects of reproductive biology. The grade will recognize and reward your effort in reading, thinking and presenting your ideas in class.

Exam worth: 5%

Instructor/Course

Coordinator:

Dr. Pavneesh Madan
Room # 3605, Biomedical Sciences
Ontario Veterinary College
University of Guelph
E-mail: pmadan@uoguelph.ca
Phone: 519 824 4120 x 54480

Dr. W. A. King
Room 3609, Biomedical Sciences
Ontario Veterinary College
University of Guelph
E-mail: waking@uoguelph.ca
Phone: 519 824 4120 x 54927

Course Manual

Each lecturer will provide handouts, which will be posted on Courselink, as per the policy of the university. Students will be expected to be familiar with the manual content so as to be able to answer questions based on the material.

Reading Material

Because of rapid advancements in reproductive biology, no single textbook appears to be sufficiently up-to-date or comprehensive enough to be recommended for the course. However, we will use *Essential Reproduction* (7TH Edition) by Johnson MH and Everitt BJ (2013) as a base model for this course.

Some of the other books that can be consulted are:

Guyton AC (2016) *Textbook of Medical Physiology*, 13th Edition Philadelphia.

Cunningham JG (2012) *Textbook*

Ignite Talks (Student Presentations)

Ignite (Ignite Talks) is a series of events where speakers have five minutes to talk on a subject accompanied by 20 slides, for 15 seconds each, automatically advanced. However for this course the modified Ignite talks will be 10 minutes long. The speaker will be allowed to use maximum of 40 slides without any automatic advancement.

Students are encouraged to submit drafts of the presentations for a feedback before the day of presentation.

Ignite Talks will be graded based on the following criteria:

Content, analysis of facts and synopsis of current understanding of the subject, organization of material, quality of visual aids, delivery of scientific content and brevity.

Exam worth: 20%

Repro Dragon's Den (Student Group Presentations/Written Proposals)

In consultation with the instructors, students (divided into groups) will work on a topic in reproductive biology. The students should be assimilating the material presented in the course and come up with a new idea for a scientific grant or a business idea. The written report can be in form of a 5-page scientific grant proposal (NSERC format) or a 5-page business proposal. Both the proposals should be written in grammatically correct English.

Scientific grant proposals/Business proposals will be graded on the following criteria:

Content, identification of problem, innovativeness for addressing the solution, evidence of analysis and thoughtful consideration to previous literature, clarity of presentation, grammar and spellings.

Exam worth: 25%

Repro Amazing Race

Team of two will race in competition to answer puzzles/questions based on exhibits related to reproductive biology across OVC. The exhibits would be related to topics covered during lectures and will help to review the whole course before the final exam. After answering the questions/solving a puzzle at the station, they will get a clue to go to the next station on campus and follow the same procedure. A total of six stations will be set up. The team to answer all questions correctly in the shortest possible time will be winners and will be awarded special prize donated by some Sponsors.

Exam worth: 20%

Final Exam

This exam will comprise of multiple choice questions designed to test the students integration of the material presented up to this time. In addition, some of the questions will test logic, ability of student to analyze, present or discuss scientific data from scientific literature.

Exam worth: 30%

Of Veterinary Physiology, 5th Edition. Philadelphia.

Knobil E and Neill JD (2005) Physiology Of Reproduction, Academic Press, San Diego, CA.

Reece WO (2004) Duke's Physiology Of Domestic Animals, 12th Edition, Cornell University Press.

Yongquist RS and Threlfall WR (2007) Current Therapy In Large Animal Theriogenology, 2nd Edition, Saunders.

Senger PL (2005) Pathways To Pregnancy And Parturition, 2nd Edition, Current Conceptions Inc.

In addition, the mini reviews and supplements to *Reproduction* (official journal of the Society for Reproduction and Fertility) and *Biology of Reproduction* (official journal of the Society for the Study of Reproduction) provide excellent summaries on a variety of topics related to reproductive biology and medicine.

The following journals may also be consulted for the latest comprehensive reviews on many aspects of reproductive biology, embryology and biotechnology.

Animal Reproduction Science
Biology Of Reproduction
Dom. Animal Endocrinology
Endocrinology
Fertility And Sterility
Human Reproduction
Reproduction
Reproductive Biology
Repro. Biol. & Endocrinology
Repro. Fertility & Dev.
Repro. In Domestic Animals
Theriogenology

BIOM*4110 Mammalian Reproductive Biology – Schedule Winter 2018

Wk	Class # & Date	Topic	Lecturer
1	1 Jan 08, 2018	Course intro Reproductive Biology Around Us - Overview	Pavneesh Madan
	2 Jan 10, 2018	Review: Anatomy of Female & Male Reproductive Tract; Reproductive Endocrinology	Madan
2	3 Jan 15, 2018	Review: Reproductive Endocrinology (Contd)	Madan
	4 Jan 17, 2018	Guidance session for “mIgnite Talks”, “Repro Dragon’s Den” and “Amazing Repro Race”	Madan
3	5 Jan 22, 2018	Genetic & Environmental Determinants of Sex	Allan King
	6 Jan 24, 2018	Disorders of sexual development	King
4	7 Jan 29, 2018	Making Sperm & Eggs	Laura Favetta
	8 Jan 31, 2018	Making Embryos	Favetta
5	9 Feb 05, 2018	Implantation and placentation	Chandra Tayade
	10 Feb 07, 2018	Parturition & Post Partum	Madan
6	11 Feb 12, 2018	‘Ignite Talks’ (Student Presentations)	
	12 Feb 14, 2018	‘Ignite Talks’ (Student Presentations)	
7	13 Feb 20, 2018	Winter Break	
	14 Feb 22, 2018	Winter Break	
8	15 Feb 26, 2018	Reserve Snow Day/Reserve Ignite Talks Day	
	16 Feb 28, 2018	Body image, Anorexia, Obesity & Reproduction	Andrea LaMarre
9	17 Mar 05, 2018	Regulating and Restoration of Fertility in Humans	Crystal Chan
	18 Mar 07, 2018	Addictions, Mental Health & Reproduction	Francesco Leri
10	19 Mar 12, 2018	Endocrinology of Stress in Reproduction	Neil MacLusky
	20 Mar 14, 2018	Reproductive Aging	King
11	21 Mar 19, 2018	The “Amazing Repro Race”	Madan/King
	22 Mar 21, 2018	Applications of Reproductive Biotechnologies	Gaby Mastromonaco
	Field Trip March 24, 2017 (Saturday)	Field trip to “Toronto Zoo”, 2000 Meadowvale Rd, Toronto, ON M1B 5K7	Mastromonaco
12	23 Mar 26, 2018	“Repro Dragon’s Den” & Proposal Submission	Invited Panel
	24 Mar 28, 2018	“Repro Dragon’s Den” & Proposal Submission	Invited Panel
13	25 Apr 02, 2018	Course wrap up and Q/A	Madan/King
	26 Apr 04, 2018	Self study/query clarifications	
	27 Date to be announced	Final Exam	

Examination Guideline

Eligibility

Student eligibility for this process is at the discretion of the Chair. For students with three or more exams in a 48-hour period in the first week of the final exam schedule (which includes an exam in a course offered by the Department of Biomedical Sciences) the department will offer a second writing of the exam in the second week of the final exam period. This policy would not apply to exams requiring complicated set-up, such as lab exams.

Process

The second sitting will be scheduled by the Chair's Office and all such second writings will be offered all together only on one day and time to be decided by the Chair and invigilated by the course instructor and by the course TA (if one is assigned and deemed necessary) or invigilator. Following completion of the exam, the instructor/TA will mark the final exam and submit the grade to the registrar no later than 7 days after the last final exam is scheduled that semester.

Eligible students can request this privilege by sending an e-mail message **by the 40th class day** to the Department Chair. The Chair will consult with the instructor/course coordinator with a copy to Kim Best (kbestb@uoguelph.ca) regarding consideration of the request. In their request, the student MUST list their complete final exam schedule and a verbatim copy of the following statement:

“This is an accurate representation of my final exam schedule for the current semester as issued by the Registrar's office. I understand that if I have misrepresented my exam schedule and am granted permission to write the [course code] exam at the later date on that basis, I will have violated the University's academic misconduct policy which may result in a grade of zero for the [course code] final exam. I understand that steps will be taken to verify my course enrollment and final exam schedule.”

Although we will make every effort possible to accommodate these requests, circumstances may not allow accommodation in all situations, and so we cannot guarantee that requests will be approved. All email requests will receive a written response from the Chair regarding status of approval.