

Course Outline Form: Winter 2018

General Information

Course Code: ANSC*3040

Course Title: Animal Reproduction

Course Description:

This course takes a multi-species approach to understanding the basic principles of reproduction in domestic animals. The developmental biology, the anatomy and the physiology of reproductive systems in ruminants, swine, equine, canine, feline, and birds are explored. In addition, the development and application of reproductive technologies for animal management are discussed.

Credit Weight: 0.50

Academic Department (or campus): Department of Animal Biosciences

Campus: Guelph

Semester Offering: Winter

Class Schedule and Location:

Lectures: Mondays, Wednesdays, Fridays, 1:30 a.m. - 2:20 a.m., THRN 1307.

Laboratories: Tuesdays, Room ANNU110 according to the following schedule:

- Section 1: 10:00 a.m. - 11:30 a.m.
- Section 2: 11:30 a.m. - 1:00 p.m.
- Section 3: 1:00 p.m. - 2:30 p.m.
- Section 4: 2:30 p.m. - 4:00 p.m.
- Section 5: 4:00 p.m. - 5:30 p.m.

Instructor Information

Instructor Name: Eduardo de Souza Ribeiro

Instructor Email: eribeiro@uoguelph.ca

Instructor Phone and Extension: (519) 824-4120 Ext.: 56516

Office location and office hours: Room ANNU 137. Office hours TBA.

Guest Instructor Name: Grégoy Y. Bédécarrats (Lectures 33-35)

Instructor Email: gbedecar@uoguelph.ca

Instructor Phone and Extension: (519) 824-4120 Ext.: 53692

Office location and office hours: Room ANNU 225. Office hours TBA

GTA Information

GTA Name: Allyssa Hooper

GTA Email: ahoope01@uoguelph.ca

GTA office location and office hours: Room ANNU174C. Office hours TBA.

GTA Name: Murilo Romulo Carvalho

GTA Email: mromuloc@uoguelph.ca

GTA office location and office hours: Room ANNU174C. Office hours TBA.

GTA Name: Sabrina Van Schyndel

GTA Email: vanschys@uoguelph.ca

GTA office location and office hours: Room ANNU174C. Office hours TBA.

Lab Coordinator Name: Julie Kim

Lab Coordinator Email: jungmi@uoguelph.ca

Lab Coordinator office location and office hours: Room ANNU254. Office hours TBA.

Course Content

Specific Learning Outcomes:

By the end of this program, successful students will be able to:

- 1) Identify the main hormones regulating reproduction in domestic species and recall their biochemical classification, source of production, target tissues, and primary actions.
- 2) Illustrate and execute an enzyme-linked immunosorbent assay for quantification of hormones in biological samples.
- 3) Explain the mechanism of sexual differentiation in developing embryos and the organogenesis of the reproductive tract in females and males of domestic species.
- 4) Recognize and explain the organization and function of the reproductive system in females and males of domestic species.
- 5) Explain the physiology of puberty in females and males of domestic species.
- 6) Explain methods of breeding soundness examination of sires and recognize the equipment and material required.

- 7) Describe the reproductive cycles in females of domestic species and explain how they are coordinated by the reproductive hormones.
- 8) Explain fertilization, early embryogenesis and maternal recognition of pregnancy.
- 9) Explain main events in placentation, endocrinology of pregnancy and parturition, and main events in puerperium and lactation.
- 10) Recognize different stages of embryonic/fetal development and describe the main methods of pregnancy diagnosis in domestic species.
- 11) Describe and compare reproductive technologies used in reproductive management of domestic species, and recognize the materials required for each technique.

Lecture Content:

The schedule below is tentative in regards to the dates certain topics will be covered. This schedule can change at the instructor discretion.

Lecture #	Date	Lecture topic
Lecture 1	8-Jan.	Introduction
Lecture 2	10-Jan.	Endocrinology
Lecture 3	12-Jan.	Endocrinology
Lecture 4	15-Jan.	Embryogenesis and sexual differentiation
Lecture 5	17-Jan.	Embryogenesis and sexual differentiation
Lecture 6 *	19-Jan.	Functional anatomy of the male reproductive tract
Lecture 7	22-Jan.	Functional anatomy of the male reproductive tract
Lecture 8	24-Jan.	Puberty and endocrinology of the male
Lecture 9	26-Jan.	Puberty and endocrinology of the male
Lecture 10	29-Jan.	Spermatogenesis
Lecture 11	31-Feb.	Sexual behaviour of the male
Lecture 12 *	2-Feb.	Sire fertility
Lecture 13	5-Feb.	Functional anatomy of the female reproductive system
Lecture 14	7-Feb.	Functional anatomy of the female reproductive system
Lecture 15	9-Feb.	Puberty and endocrinology of the female
Lecture 16	12-Feb.	Puberty and endocrinology of the female
Lecture 17	14-Feb.	Folliculogenesis and the estrous cycle
Lecture 18 *	16-Feb.	Folliculogenesis and the estrous cycle
---	19-Feb.	Winter break – no lecture
---	21-Feb.	Winter break – no lecture
---	23-Feb.	Winter break – no lecture
Lecture 19	26-Feb.	Oogenesis
Lecture 20	28-Mar.	Fertilization

Lecture #	Date	Lecture topic
Lecture 21	2-Mar.	Early embryo development and maternal recognition of pregnancy
Midterm exam	3-Mar.	Mid-term exam from 9:00 to 11:00 am, ROZH 102
Lecture 22	5-Mar.	Early embryo development and maternal recognition of pregnancy
Lecture 23	7-Mar.	Developmental biology and placentation
Lecture 24 *	9-Mar.	Developmental biology and placentation
Lecture 25	12-Mar.	Endocrinology of pregnancy and parturition
Lecture 26	14-Mar.	Endocrinology of pregnancy and parturition
Lecture 27	16-Mar.	Puerperium and lactation
Lecture 28	19-Mar.	Puerperium and lactation
Lecture 29	21-Mar.	Puerperium and lactation
Lecture 30 *	23-Mar.	Reproductive technologies and applications
Lecture 31	26-Mar.	Reproductive technologies and applications
Lecture 32	28-Mar.	Reproductive technologies and applications
---	30-Mar.	Good Friday – no lecture
Lecture 33	2-Apr.	Reproduction of birds
Lecture 34	4-Apr.	Reproduction of birds
Lecture 35 *	6-Apr.	Reproduction of birds
Final exam	10-Apr.	Final exam from 8:30 to 10:30

* Represent a day of Lecture Quiz in classroom.

Labs:

The schedule below is tentative in regards to the dates certain topics will be covered. This schedule can change at the instructor discretion.

Lab #	Date	Lab topic
Lab 1	16-Jan.	Hormones and ELISA
Lab 2	23-Jan.	Anatomy and histology of the male reproductive tract
Lab 3	30-Jan.	Breeding soundness exam of sires
Lab 4	6-Feb.	Anatomy and histology of the female reproductive tract
Lab 5	13-Feb.	Ovaries, follicle aspiration, oocyte search, and introduction to IVF
---	20-Feb.	Winter break – no laboratory class
Lab 6	27-Feb.	Estrous detection, synchronization programs, and artificial insemination
Lab 7	6-Mar.	Practicing artificial insemination
Lab 8	13-Mar.	Anatomy of pregnant uteri and pregnancy diagnosis methods
Lab 9	21-Mar.	Embryology, embryo flushing and embryo transfer procedures
Lab Exam	27-Mar.	Laboratory exam
Lab 10	3-Apr.	Birds reproduction

Seminars:

There is no seminar planned for this course.

Course Assignments and Tests:

Assignment or Test	Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Lab quiz 1	16-Jan.	2.1	1, 2
Lectures quiz 1	19-Jan.	3.3	1, 3
Lab quiz 2	23-Jan.	2.1	4
Lab quiz 3	30-Jan.	2.1	5, 6, 11
Lectures quiz 2	2-Feb.	3.3	4 – 6
Lab quiz 4	6-Feb.	2.1	4
Lab quiz 5	13-Feb.	2.1	4, 8, 11
Lectures quiz 3	16-Feb.	3.3	4 – 7
Lab quiz 6	27-Feb.	2.1	11
Mid-term exam	3-Mar.	25.0	1 – 7
Lab quiz 7	6-Mar.	2.1	11
Lectures quiz 4	9-Mar.	3.3	7, 8
Lab quiz 8	13-Mar.	2.1	9 – 11
Lab quiz 9	20-Mar.	2.1	8, 11
Lectures quiz 5	23-Mar.	3.3	9, 10
Lab exam	27-Mar.	16.7	1 – 11
Lab quiz 10	3-Apr.	2.1	4
Lectures quiz 6	6-Apr.	3.3	4, 11
Final exam	10-Apr.	25.0	1 – 11

Additional Notes:

The lecture quiz with the lowest grade will be dropped for the calculation of the final grade for lecture quizzes. Thus, only the best five of six lecture quizzes counted towards the final grade.

The two laboratory quizzes with the lowest grade will be dropped for the calculation of the final grade for laboratory quizzes. Thus, only the best eight of ten laboratory quizzes counted towards the final grade.

Final examination date and time:

April 10, 2017. From 8:30 a.m. to 10:30 a.m.

Final exam weighting:

25%

Course Resources

Required Texts:

Pathways to Pregnancy and Parturition, 3rd Edition, Phillip L. Senger, Current Conceptions, Inc. Available at University Bookstore; 519-824-4120 Ext. 56692.

Recommended Texts:

Additional recommended texts will be posted in the Courselink webpage of the course.

Lab Manual:

Recommended texts for laboratory classes will be provided via Courselink.

Other Resources:

Any additional resources for the course will be provided via Courselink.

Field Trips:

No field trips are planned for this course.

Additional Costs:

Students must bring a lab coat for laboratory classes.

Course Policies

Grading Policies:

The final grade is divided in five parts:

- **25% Final Exam (150 points):** Comprehensive exam with short answer and multiple choice questions scheduled for April 10th from 8:30 a.m. to 10:30 a.m. Location will be informed in WebAdvisor/Courselink. No make-up exam unless approved prior to the exam, depending on instructor approval. A missed exam results in a 0% score.
- **25% Midterm Exam (150 points):** Comprehensive exam with short answer and multiple choice questions scheduled for March 3rd from 9:00 a.m. to 11:00 a.m. in room ROZH 102. No make-up exam unless approved prior to the exam, depending on instructor approval. A missed exam results in a 0% score.
- **16.66% Lab Exam (100 points):** Comprehensive exam with practical problems scheduled for March 27th. Each student will performed the lab exam in the respective laboratory

class times. No make-up exam unless approved prior to the exam, depending on instructor approval. A missed exam results in a 0% score.

- **16.66% Lab Quizzes (100 points):** A quiz of short answer and multiple choice questions will be given at the end of each laboratory class. No make-up quizzes unless approved prior to the quiz, depending on instructor approval. A missed lab quiz results in a 0% score. The two lowest score, or up to two missed lab quizzes, will be dropped from the calculation of the final score for **Lab Quizzes**.
- **16.66% Lecture Quizzes (100 points):** A quiz of short answer and multiple choice questions will be given at the start of the class when scheduled (Jan-20, Feb-3, Feb-17, Mar-3, Mar-24, Apr-7). No make-up quizzes unless approved prior to the quiz, depending on instructor approval. A missed lecture quiz results in a 0% score. The lowest score, or one missed lecture quiz, will be dropped from the calculation of the final score for **Lecture Quizzes**.

Course Policy on Group Work:

No group work is planned for this course.

Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration:

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the [Student Accessibility Services website \(http://www.uoguelph.ca/csd/\)](http://www.uoguelph.ca/csd/).

Course Evaluation Information:

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](#) for more information.

Drop period:

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III \(Schedule of Dates\) of the Undergraduate Calendar](#).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

Additional Course Information

None.