

# ANSC\*3040 - Animal Reproduction

## Winter 2025 Course Outline

**Section: 01**

**Credits: 0.50**

Section 01: In-person lectures

Monday, Wednesday, Friday in THRN 1200 from 4:30-5:20pm

**\*\*all labs and exams will be in-person for both sections!**

## Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

## Calendar Description

This course takes a multi-species approach to understanding the basic principles of animal reproduction. Both the anatomy and the physiology of reproductive systems are explored in agricultural, companion and wildlife species with an emphasis on animals under human management. In addition, the development and application of assisted reproductive technologies (ART) for animal management are introduced.

**Prerequisite(s):** ANSC\*3080

**Department(s):** Department of Animal Biosciences

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.

## Lecture Schedule

MonWedFri 4:30pm-5:20pm in THRN\*1200 (1/6 to 4/21)

## Lab Schedule

Students must attend their assigned lab. If you cannot attend one of the labs due to illness, etc. please contact the lab coordinator (rjones12@uoguelph.ca)

Day	Time	Location	Sections
Tuesday	10:00 - 11:30	ANNU 110	01
Tuesday	11:30 - 13:00	ANNU 110	02
Tuesday	13:00 - 14:30	ANNU 110	03
Tuesday	14:30 - 16:00	ANNU 110	04
Tuesday	16:00 - 17:30	ANNU 110	05
Thursday	10:00 - 11:30	ANNU 110	06
Thursday	11:30 - 13:00	ANNU 110	07
Thursday	13:00 - 14:30	ANNU 110	08
Thursday	14:30 - 16:00	ANNU 110	09
Thursday	16:00 - 17:30	ANNU 110	10

## Instructor Information

**Vanessa Zak**  
Email: [vzak@uoguelph.ca](mailto:vzak@uoguelph.ca)

## Additional Support

### Laboratory Coordinator Information

Lab Coordinator Name: Dr. Robert Jones  
Lab Coordinator Email: [rjones12@uoguelph.ca](mailto:rjones12@uoguelph.ca)  
Lab Coordinator office location: ANNU255

### GTA Information

GTA Name: Wenjing Lesperance  
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## Textbooks

Group	Title	Author	ISBN
Required	PATHWAYS TO PREGNANCY & PARTURITION (\$116.00)	SENGER	9780965764834

## Cost of Textbooks and Learning Resources

Textbook / Learning Resource	Required / Recommended	Cost
Pathways to pregnancy and parturition	Required	\$116

Students are advised that prices are often determined by the publisher or bookstore and may be subject to change.

## Field Trip Fees

For those courses in the Department of Animal Biosciences that have a field trip component - an associated fee for each field trip in the amount of \$20 will apply. Further details on how these fees will be collected will be provided in class/on CourseLink; along with a waiver form that will need to be completed prior to the trip(s).

## Course Learning Outcomes

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 immunoassays 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 process of gametogenesis in females and males of domestic species.
6. Explain the physiology of puberty in females and males of domestic species.
7. Explain methods of breeding soundness examination of sires and recognize the equipment and material required.
8. Describe the reproductive cycles in females of domestic species and explain how they are coordinated by the reproductive hormones.
9. Explain fertilization, early embryogenesis and maternal recognition of pregnancy.
10. Explain main events in placentation, endocrinology of pregnancy and parturition, and main events in puerperium and lactation.
11. Recognize different stages of embryonic/fetal development and describe the main methods of pregnancy diagnosis in domestic species.
12. Describe and compare reproductive technologies used in reproductive management of domestic species, and recognize the materials required for each technique.

## Tentative Schedule of Lectures

Day	Date	Topic	Activities	Due
Mon	1/6	Course introduction/endocrinology review	Lecture 1	
Wed	1/8	Endocrinology review	Lecture 2	
Fri	1/10	Embryogenesis and sexual differentiation	Lecture 3	
Mon	1/13	Functional anatomy of the male reproductive tract	Lecture 4	
Wed	1/15	Functional anatomy of the male reproductive tract	Lecture 5	
Fri	1/17	Puberty and endocrinology of the male	Lecture 6	Quiz 1 opens after lecture
Mon	1/20	Puberty and endocrinology of the male	Lecture 7	
Wed	1/22	Spermatogenesis	Lecture 8	
Fri	1/24	Sexual behaviour of the male	Lecture 9	
Mon	1/27	Sire fertility	Lecture 10	
Wed	1/29	Functional anatomy of the female reproductive system	Lecture 11	
Fri	1/31	Functional anatomy of the female reproductive system	Lecture 12	Quiz 2 opens after lecture
Mon	2/3	Puberty and endocrinology of the female	Lecture 13	
Wed	2/5	Puberty and endocrinology of the female	Lecture 14	
Fri	2/7	Folliculogenesis and the estrous cycle	Lecture 15	
Mon	2/10	Folliculogenesis and the estrous cycle	Lecture 16	
Wed	2/12	Oogenesis	Lecture 17	
Fri	2/14	Fertilization	Lecture 18	Quiz 3 opens after lecture
Mon	2/17	Winter Break		
Wed	2/19	Winter Break		
Fri	2/21	Winter Break		
Mon	2/24	Early embryo development and maternal recognition of pregnancy	Lecture 19	
Wed	2/26	Developmental Biology	Lecture 20	
Fri	2/28	Placentation	Lecture 21	
Mon	3/3	Endocrinology of pregnancy and parturition	Lecture 22	

Wed	3/5	Fetal programming	Lecture 23	
Fri	3/7	Puerperium and lactation	Lecture 24	Quiz 4 opens after lecture
Mon	3/10	Puerperium and lactation	Lecture 25	
Wed	3/12	Applied reproductive physiology and technologies in dairy cattle	Lecture 26	
Fri	3/14	Applied reproductive physiology and technologies in dairy cattle	Lecture 27	
Mon	3/17	Applied reproductive physiology and technologies in dairy cattle	Lecture 28	
Wed	3/19	Applied reproductive physiology and technologies in dairy cattle	Lecture 29	
Fri	3/21	Applied reproductive physiology and technologies in beef cattle	Lecture 30	Quiz 5 opens after lecture
Mon	3/24	Applied reproductive physiology and technologies in small ruminants	Lecture 31	
Wed	3/26	Applied reproductive physiology and technologies in pigs	Lecture 32	
Mon	3/31	Applied reproductive physiology and technologies in horses	Lecture 33	
Wed	4/2	Applied reproductive physiology and technologies in poultry	Lecture 34	
Fri	4/4	Applied reproductive physiology and technologies in poultry	Lecture 35	Quiz 6 opens after lecture
Fri	4/18	Holiday - No Exams Scheduled		

## ANNU 110 Tentative Laboratory Schedule

Lab #	Date	Lab topic
—	Jan 7 & 9	No laboratory
Lab 1	Jan 14 & 16	Hormones and immunoassays
Lab 2	Jan 21 & 23	Functional anatomy and histology of the male reproductive tract
Lab 3	Jan 28 & Jan 30	Breeding soundness exam of sires
Lab 4	Feb 4 & 6	Functional anatomy and histology of the female reproductive tract
Lab 5	Feb 11 & 13	Ovaries, follicle aspiration, oocyte search, and introduction to IVF
---	<b>Feb 18 &amp; 20</b>	<b>Winter break – no laboratory</b>
—	Feb 25 & Feb 27	No laboratory – time to study for the midterm
Lab 6	Mar 4 & 6	Anatomy of pregnant uteri and pregnancy diagnosis methods
Lab 7	Mar 11 & 13	Estrous detection, synchronization programs, artificial insemination
Lab 8	Mar 18 & 20	Artificial insemination in domestic species
Lab 9	Mar 25 & 27	Embryology, embryo flushing, and embryo transfer procedures
Lab 10	Apr 1 & 3	Functional reproductive anatomy in birds

Assessment Breakdown

Description	Weighting (%)	Quiz open
Quiz 1	5%*	Jan 17 5:30pm - Jan 19 5:30pm
Quiz 2	5%*	Jan 31 5:30pm - Feb 2 5:30pm
Quiz 3	5%*	Feb 14 5:30pm - Feb 16 5:30pm
Mid-term exam	37.5%	--
Quiz 4	5%*	Mar 7 5:30pm - Mar 9 5:30pm
Quiz 5	5%*	Mar 21 5:30pm - Mar 23 5:30pm
Quiz 6	5%*	Apr 4 5:30pm - Apr 6 5:30pm
Final exam	37.5%	--

Additional Notes:

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

MIDTERM EXAM:

Saturday March 1, 2024

Time and location TBD

Assessment Details

Quizzes

Quiz 1 5%\*

Course Learning Outcomes Assessed: 1, 2, 3, 4

Quiz 2 5%\*

Course Learning Outcomes Assessed: 5, 6, 7

Quiz 3 5%\*

Course Learning Outcomes Assessed: 5, 8

Exam

Midterm 37.5%

Course Learning Outcomes Assessed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Quizzes

Quiz 4 5%\*

Course Learning Outcomes Assessed: 9, 10, 11

Quiz 5 5%\*

Course Learning Outcomes Assessed: 10, 12

Quiz 6 5%\*

Course Learning Outcomes Assessed: 12

Exam

Final exam 37.5%

Course Learning Outcomes Assessed: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Final Exam

Date: Apr 15

Time: Tu 2:30pm-4:30pm

Location: TBA Please see Web Advisor closer to the date of scheduled final for location.

To understand rules and regulations regarding Examinations students are encouraged to read Student's Responsibilities (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/examinations/>)

If the student is unable to meet the final exam requirements due to medical, psychological or compassionate circumstances they are encouraged to review Student's Responsibilities in the Academic Consideration, Appeals and Petitions (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>) section of the Academic Calendar.

## Grading Schemes

The final grade is divided in three parts:

- **25.0% Quizzes (50 points):** A quiz of multiple-choice questions will be open for 2 days approximately every other week (see assessment breakdown). The Courselink platform will be used, and students will need internet connection to access the platform. Questions will be designed based on the content of the last 6 lectures and the last 2 laboratories, including online material posted on Courselink. No make-up quizzes will be granted. A missed quiz results in a score of 0%. The lowest score, or one missed quiz, will be dropped from the calculation of the final score for Quizzes. Each quiz is worth 20 points or 5% of the final grade. Students who missed two or more quizzes due to medical reasons must present official documentation for justification of absence and transfer of assigned points from a missed quiz to the midterm or final exam.

- **37.5% Midterm Exam (75 points):** Comprehensive exam with multiple-choice questions scheduled for Saturday, Mar 1. Questions will be designed based on the content of lectures and laboratories given before the Winter break. No make-up midterm exam will be granted. Students who missed the midterm exam due to medical reasons must present official documentation for justification of absence and transfer of assigned points from the missed midterm exam to the final exam. A missed exam without justification results in a score of 0%.

- **37.5% Final Exam (75 points):** Comprehensive exam with multiple-choice questions scheduled for Tuesday, Apr 15 from 2:30 - 4:30pm (location TBD). Questions will be designed based on the content from all lectures and laboratories from the entire semester with emphasis on topics covered after the Winter break. No make-up exam will be granted unless approved by the instructor prior to the exam. A missed exam results in a score of 0%.

## Last Day to Drop Course

The final day to drop Winter 2025 courses without academic penalty is the last day of classes: April 04

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

## Standard Statements for Undergraduate Courses

### Academic Integrity

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.

The Academic Misconduct Policy (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate Calendar.

### Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and

exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas/>)

## Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>).

## Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

## Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

## Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

## Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators/>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources (<https://wellness.uoguelph.ca/shine-this-year/>). The Student Wellness team are here to help and welcome the opportunity to connect with you.

## Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

## Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

## When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)