



# BIOM\*6602 Applied Reproductive Biotechnologies

Winter 2022

Section(s): 01

Department of Biomedical Sciences

Credit Weight: 0.50

Version 1.00 - December 31, 2021

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## 1 Course Details

### 1.1 Calendar Description

The production of embryos in the laboratory requires considerable manual dexterity and expertise as well as theoretical knowledge and problem-solving skills. This is a 2-semester course consisting of laboratory training in bovine in vitro embryo production, seminars, field trips, group discussions and the placement in IVF clinics.

**Restrictions:** Instructor 's consent required.

### 1.2 Course Description

**Restricted Course: Students accepted in the MBS in Reproductive Biotechnologies *ONLY***

**Preamble:**

Reproductive biotechnology, the applied aspects of reproductive biology, has important economical, societal and medical implications. In human medicine, the application is mainly as a treatment for infertility with over 5 million children born as a result of this technology since the advent of in vitro fertilization in 1977. In livestock species over half a million embryos are transferred each year. Among these there is a rapidly increasing proportion of embryos that are produced in vitro. The production of embryos in the laboratory requires considerable manual dexterity, expertise and experience as well as theoretical knowledge and problem-solving skills. There is a number of career opportunities associated with reproductive biotechnologies that range from laboratory technicians, sales, marketing and product development to regulatory affairs. The aim of this course is to provide exposure to various embryo production and related settings as well as hands-on laboratory experience. The course will consist of laboratory training in bovine in vitro embryo production, seminars and/or field trips and group discussions. One highlight of the course is the placement in at least two different IVF clinics within the Southern Ontario area.

### 1.3 Timetable

Timetable is subject to change. Please see WebAdvisor for the latest information.

### 1.4 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

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## 2 Instructional Support

### 2.1 Instructional Support Team

**Course Co-ordinator:** Laura Favetta Dr.  
**Email:** lfavetta@uoguelph.ca  
**Telephone:** +1-519-824-4120 x56212  
**Office:** OVC 3621

**Lab Co-ordinator:** Olutobi Oluwole  
**Email:** ooluwole@uoguelph.ca  
**Telephone:** 519-824-4120 ext.53419

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## 3 Learning Resources

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## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Know various Reproductive Biotechnologies
  2. Have hands-on experience in selected Reproductive Biotechnologies
  3. Have a platform for discussion of current research in reproductive biotechnology
  4. Have an opportunity to 'network' with reproductive biotechnologists
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## 5 Teaching and Learning Activities

### 5.1 Lecture

**Topics:** [Animal Care and Research](#)

Anna Bolinder: Assistant Director of Animal Care Services, University of Guelph

**Topics:** Research Ethics

TBA

**Topics:** Sperm donor bank

TBA

**Topics:** Oocyte cryopreservation and oocyte donor

Alexander Lagunov - Laboratory Director - Hannam Fertility Clinic - TBA

**Topics:** Job Shadowing and placements

- Multiple IVF clinics TBA (e.g. One Fertility, Burlington; Mount Sinai, Toronto, Hannam Fertility Clinic etc ...)
- Adam Haight: Veterinarian, Fradon Holsteins, Woodstock On
- Katie Hickey, Semex, Guelph On

## 6 Assessments

*No final exam will be scheduled for this course and assignments will have deadlines throughout the two semesters. Deadlines will be posted ahead of time on courselink.*

Evaluation of written assignments and laboratory performance will be by the course coordinators and, where applicable, by others associated with the course delivery as follows:

### 6.1 Assessment Details

#### **Laboratory Experience - Hands-On " training in IVF with Dr. Oluwole (35%)**

Each student will be trained by the MBS in Reproductive Biotechnologies program coordinator, Dr. Oluwole, in bovine embryo production *in vitro*. Each training consists of 3 IVF runs, spanning over a time of approximately 3 weeks. Training occurs in group of 2-4 students at a time and schedule/groups are/will be posted/emailed in a separate document. It is expected that each student will have sufficient experience to independently collect oocytes, process frozen semen for fertilization and produce blastocyst stage embryos.

Students will be evaluated on their laboratory performance (25%) and on their theoretical knowledge with a brief quiz (10%).

The laboratory component will consist of the training and the independent completion of producing bovine embryos to day 8 + a brief test on theoretical knowledge – more details in the course introductory meeting -

- Due date: at different times throughout the semesters

Each student will be required to:

- Attend 1-hour group seminar. A 1-hour group seminar outlining how to do in vitro embryo production in our laboratory will be mandatory prior to beginning the practical lab work.
- Attend 1 IVF training session where you will observe, take notes and ask questions.
- Perform a group IVF run. Together, you and your partner/s will complete 1 IVP run while Dr. Oluwole observes and help you.
- Independently complete 1 IVP run.

Grading – 35 marks based on:

- 5 marks - Attendance and Punctuality (Success in IVP is highly dependent upon following the schedule and timing).
- 5 marks - Attentiveness to Details
- 10 marks – Quiz
- 15 marks - Skill/Techniques/Embryo Production.

### **Written Assignments (30%)**

Two essay topics based on the lectures presented will be assigned during the course. Each will be weighted at 15% of the final grade.

- Animal Research Act paper (15%): Each student will prepare a 1500 -word paper on the historical background, rational, current rules and legal obligations pertaining to the Animal Research Act. In addition, there should be a discussion of the implications of the act for embryo research, embryo transfer and research funding. Provide a list of relevant references and websites that were consulted.

- Due date TBA
- Human Assisted reproduction legislation paper (15%): Each student will prepare a 1500 -word paper on the historical background, rational, current rules and legal obligations pertaining to assisted human reproduction: In addition, there should be a discussion of the implications of the act for research and funding and a list of relevant references and websites that were consulted.
  - Due date TBA

### **Paper Critique (20%)**

**Due:** TBA

Each student will write a summary, evaluation and critique of a Journal paper (to be chosen by the student in agreement with Dr. Favetta) on a subject related to reproductive biotechnologies.

A 2000-words critique of a recent paper pertaining to human ART or in vitro embryo production. Please consult with Dr. Favetta on the choice of the paper.

### **Summary of placements/ outcome (15%)**

**Due:** TBA

Each student will write a 2000-words summary on their learning experience during the placement/s, highlighting the learning goals achieved.

## **7 University Statements**

### **7.1 Email Communication**

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

### **7.2 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. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

### 7.3 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 students (undergraduate, graduate and diploma) 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 their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

### 7.4 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.

### 7.5 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 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website

<https://www.ridgetownc.com/services/accessibilityservices.cfm>

## 7.6 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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

## 7.7 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.

## 7.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

## 7.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination

schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

## 7.10 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).

## 7.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campusess/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campusess/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.

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