

BIOM*6602
Fall 2018-Winter 2019

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.

Objectives:

- 1.To introduce students to various Reproductive Biotechnologies
- 2.To provide hands-on experience in selected Reproductive Biotechnologies
- 3.To provide a platform for discussion of current research in reproductive biotechnology
- 4.To provide an opportunity to 'network' with reproductive biotechnologists

Evaluation:

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:

1. Laboratory Experience: 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%).

2. 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.

3. Paper Critique: 20%

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.

4. Summary of placements/ outcome: 15%

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.

Lectures/Discussions/visits (Dates TBA):

- i. Animal Care and Research – Lecture - Anna Bolinder: Assistant Director of Animal Care Services, University of Guelph

- ii. Research Ethics – Lecture - TBA.
- iii. Sperm donor bank – Lecture - TBA
- iv. Introduction to Human Assisted Reproductive Technology – Lecture - Crystal Chan: together with BIOM4110 lecture –Winter 2018 –Date TBA
- v. Job Shadowing and placements
 - Multiple IVF clinics TBA (e.g. One Fertility, Burlington; Mount Sinai, Toronto, etc ...)
 - Adam Haight: Veterinarian, Fradon Holsteins, Woodstock On
 - Katie Hickey, Semex, Guelph On

Assignments:

- Hands-On” training in IVF with Dr.Oluwole (35%): 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
- 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%): 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.
 - Due date April 1, 2019
- Summary of placements outcome (15%): Each student will write a 2000-words summary on their learning experience during the placement/s, highlighting the learning goals achieved.
 - Due date: April 1, 2019

... and more information on ... LABORATORY TRAINING:

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.

Contact information:

Course Coordinators:

Dr. Laura Favetta, Biomedical Sciences, lfavetta@uoguelph.ca, Rm 3620

E-mail 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.

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 coordinator in writing, with your name, id#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration: http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1400.shtml

Drop Date: The last date to drop one-semester courses, without academic penalty, is **FRIDAY NOVEMBER 2, 2018**. Refer to the Graduate Calendar for the schedule of dates: <http://www.uoguelph.ca/registrar/calendars/graduate/current/sched/sched-dates-f10.shtml>

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. The Academic Misconduct Policy is detailed in the Graduate Calendar: http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1687.shtml

Recording of Materials: Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

Resources The Graduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to graduate programs: <http://www.uoguelph.ca/registrar/calendars/graduate/current/>