

Undergraduate Research Opportunity

Area of Research or Title of Proposed Research Project: Standardising Data Collection Methods for Resilient Dairy (Part of the Resilient Dairy Genome Project)

The Resilient Dairy Genome Project aims to develop datasets and genomic tools to breed cows that are more 'resilient'. A novel selection index for resilience is being developed in collaboration with Lactanet over the course of the project. In particular, we will focus on aspects such as increased feed efficiency, reduced methane emissions, improved fertility and enhanced disease resistance. A more accurate selection for increased fertility, broader disease resistance (Leukosis, respiratory diseases, scours, etc.) and environmental efficiency (reduced methane emissions, improved feed efficiency, etc.) will result in benefits to dairy producers, both in Ontario and Canada-wide. The new index for resilience will allow producers to reduce costs related to poor cow fertility, diseases and animal feed, which represent the largest expenses in milk production, resulting in an estimated annual net savings for the dairy industry of \$200M.

The development of such an index relies on accurate, large-scale data collection on individual animals, intensive data management, estimation of genetic parameters, and understanding of genomic and environmental relationships between traits. The student working on this project will provide a valuable contribution by assisting MSc/PhD students in their area of research. In the planned project, the successful student will be expected to assist in data collection on the research farm and will have the responsibility to refine and document standard operating procedures (e.g., methane testing, feed intake, milk sampling for using MIR samples for estimation of methane production, calf health traits, genotypes etc.) such that project consistency is ensured over the coming years. Additionally, the student will assist with data management and analysis and participate in project meetings as required. This contribution will be integral to successfully scaling up data collection as we move from collecting relevant information from research herds to multiple commercial herds. These efforts are in tandem with multiple regional and national projects, both current and under consideration.

Name and department of the supervisor: Christine Baes Animal Biosciences	Type of the research opportunity available (check all that apply) <input checked="" type="checkbox"/> Research in Animal Biology (ANSC4700/4710) <input checked="" type="checkbox"/> Research Volunteer
Semester(s) and Year, e.g. F2023/W2024 F2023/W2024	Application deadline: September 1 st , 2023

List 2-5 specific things you feel a student will learn during this position.

- Concise verbal and written communication skills,
- Data management, including descriptive statistics and, depending on the student, some programming
- Teamwork
- Time management and efficiency

Which 2-5 knowledge, skills, or attitudes are most relevant to this position?

1. Knowledge: Scientific
2. Skill: Critical and Analytical Thinking
3. Skill: Teamwork and Collaboration
4. Skill: Time Management
5. Attitude: Initiative

Application Requirements

1. Indicate the research course code on the cover letter accompanying the application package
2. Meet minimum course requirements, as outlined in the Undergraduate Calendar

Courses and/or Experiences that are Required or Recommended for the proposed position (s)

- Statistics (basic)
- Drivers license is a bonus

Contact information:

Dr. Christine Baes, Email: cbaes@uoguelph.ca, Phone NA

Documents Required of Applicants

Cover Letter Resume or CV Unofficial Transcript

Statement of Interest in Research, addressing the following questions: Why do you want to do research (and in particular a 4th year project)? Why do you want to do research in this lab specifically? What are your future goals/aspirations, for example, are you potentially interested in graduate research work or even research as a career?

*Submit your application package to the faculty members offering research projects that interest you. You may apply for up to five (5) projects.