Graduate Student Position (MSc or PhD)

Innovative Phage-Based Diagnostics for Johne's Disease
De Buck Laboratory – Veterinary Microbiology
Faculty of Veterinary Medicine, University of Calgary (UCVM), Canada

Start date: September 2026 (or earlier)

Project Overview

Johne's disease is one of the most costly and difficult-to-control infectious diseases affecting cattle and small ruminants. Current diagnostic tests are slow, expensive, and insufficiently sensitive to detect early or subclinical infections.

The De Buck Laboratory is seeking a highly motivated MSc or PhD student to join an ambitious, impact-driven research program developing a next-generation, phage-based diagnostic for Johne's disease. This project uses **mycobacteriophages** and **genetic engineering** to create a rapid, highly sensitive, **PCR-free diagnostic platform** designed for **on-farm (pen-side) use**. The goal is to translate cutting-edge molecular microbiology into a practical tool that can be deployed directly in the field, enabling earlier detection and better disease control.

Research Environment – The De Buck Laboratory

The De Buck Lab is an internationally recognized research group with 20 years of groundbreaking Johne's disease research, spanning bacterial pathogenesis, host–pathogen interactions, diagnostics, vaccines, and phage biology. Our group is known for combining strong fundamental microbiology with real-world applications, working closely with producers, veterinarians, and industry partners to ensure research outcomes have tangible impact.

Candidate Profile

We are looking for a candidate with demonstrated strength in molecular biology and microbiology, and a clear interest in applied, translational research.

Required qualifications:

- BSc (for MSc) or MSc (for PhD) in Microbiology, Molecular Biology, Veterinary Sciences, Biotechnology, or a related discipline
- Strong hands-on experience with molecular biology techniques (e.g., cloning, PCR-based methods, bacterial genetics)
- Solid microbiology skills, ideally including work with bacterial pathogens
- Ability to work independently and as part of a collaborative research team

Highly desirable:

- Experience with mycobacteria, bacteriophages, or genetic engineering
- Familiarity with CRISPR-based approaches
- Interest in diagnostics development and moving innovations from the lab into real-world settings
- Motivation to engage with producers and field validation studies

What We Offer

- Competitive graduate funding
- Comprehensive research training and professional development
- A vibrant research community at UCVM and the University of Calgary
- Life in Calgary, a dynamic city offering exceptional access to outdoor recreation

How to Apply

Interested applicants should submit:

1. A cover letter describing research interests, relevant experience, and whether applying for MSc or PhD
2. A CV highlighting technical skills and research experience
3. Contact information for 2–3 references

Applications should be sent to:
Dr. Jeroen De Buck
Faculty of Veterinary Medicine, University of Calgary
Email: *ucvmphdrecruitment@gmail.com*

Applications will be reviewed on a rolling basis until the position is filled.