



Announcement:

All interested members of the university community are invited to attend the Final Oral Examination for the degree of **Master of Science** of

SHARLAINE HARRIS

on Thursday, February 20, 2020 at 9:30 a.m. in SSC 2315

Thesis Title: Investigation of Surface Structure Diversity of Isolates of *Flavobacterium branchiophilum* from Ontario, Canada

Examination Committee:

Dr. G. van der Merwe, Dept. of Molecular and Cellular Biology (Exam Chair)

Dr. R. Stevenson, Dept. of Molecular and Cellular Biology

Dr. J. MacInnes, Dept. of Pathobiology

Dr. C. Khursigara, Dept. of Molecular and Cellular Biology

Advisory Committee:

Dr. L. Mutharia (Adv)

Dr. G. Cox

Dr. J. MacInnes

Dr. R. Stevenson

Abstract: *Flavobacterium branchiophilum* is the etiological agent of bacterial gill disease (BGD). As little was known about cell surface structures of *F. branchiophilum*, the lipopolysaccharide and capsular serotype diversity of 12 strains isolated from BGD cases in Ontario, Canada were investigated. The study shows *F. branchiophilum* produces low molecular weight lipopolysaccharides containing short O-antigens or lipooligosaccharides and high molecular weight capsular polysaccharides. Low molecular weight epitopes were extensively cross-reactive while high molecular weight epitopes were more antigenically diverse. A serotyping scheme using the low and high molecular weight polymers of this organism was proposed. Examination of *F. branchiophilum* cells by an indirect fluorescence antibody technique demonstrated that antigenic surface molecules were evenly distributed. In addition, pili-like structures and predicted capsular halos could be observed on the entirety of the cell by transmission electron and immunoelectron microscopy. Overall, the study shows novel findings and is a step toward understanding the role of *F. branchiophilum* antigenic surface structures.

Curriculum Vitae: Sharlaine completed her Bachelor of Science (Hons.) at the University of Guelph in April 2017, and then began her M.Sc. in the lab of Dr. Lucy Mutharia in May of the same year.