Thesis Defense Announcement
To: The George Mason University Community

**Candidate:** Morgan A. Tasseff  
**Program:** MS in Biology

**Date:** July 14, 2022  
**Time:** 4:00 PM Eastern Time  
**Zoom Link:** https://gmu.zoom.us/s/9541290576

**Title:** Characterization of Pullulanase (Glgx/Pula) In Francisella Novicida U112 Growth, Gene Expression, And Biofilm Formation

**Committee Chair:** Dr. Monique van Hoek  
**Committee Members:** Dr. Brett Froelich, Dr. Katalin Kiss

All are invited to attend the defense.

**ABSTRACT:**
Francisella (F.) tularensis is a Gram-negative bacterium that causes the highly infectious human disease, tularemia. Within Francisella, like many other bacteria, polysaccharides play pivotal roles in many different pathways, whether they be intracellular polysaccharides or extracellular. One extracellular polysaccharide is pullulan; a water-soluble polysaccharide consisting of α (1,4) and α (1,6) glycosidic linkages and is cleaved by the enzyme pullulanase. Pullulan can be found everywhere in nature and is used in commercial food production. Interestingly, we noticed that Francisella encodes a gene for pullulanase. My thesis focuses on characterizing the role of pullulanase in Francisella physiology and virulence by analyzing mutations in the gene glgX (pullulanase). Overall, I expect to demonstrate that pullulanase (glgX) is important for in vitro growth, is a positive regulator in biofilm formation, and will have no effect on the intracellular replication of Francisella novicida U112.