



SCHOOL OF MEDICINE
Microbiology and
Immunology

DISSERTATION SEMINAR

Susanna Harris

**“Building Complex Communities to Promote
Individual Members’ Persistence and Affect
Behaviors.”**

Monday, April 20, 2020
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Via YouTube

Dissertation Advisor: Dr. Elizabeth Shank

Presented in partial fulfillment of the requirements for the degree of Doctor of
Philosophy

ABSTRACT

Susanna Harris: Building Complex Communities to Promote Individual Members' Persistence and Affect Behaviors (Under the direction of Elizabeth Shank)

Faced with a growing population to feed and a lack of environmentally friendly agricultural interventions, researchers are turning to microbes as the next solution to improve crop yield. Plant growth-promoting bacteria (PGPB) are applied directly to crops or soil to increase plant development, survival or yields. As some PGPB do not maintain colonization on plant roots, the grower must apply them multiple times to maintain any benefit. Multispecies bacterial communities often show synergistic traits, including in some cases increasing the survival or biomass of individual bacterial species. I thus hypothesized that bacterial co-inoculants could improve PGPB association with plant roots. In my dissertation, I examine root colonization dynamics of bacterial communities and analyze how co-inoculation with rhizosphere bacteria affects PGPB abundance and localization on the root.