M.S. and Ph.D. Assistantship Opportunities at North Dakota State University, Fargo ND

We seek to fill two graduate student positions under the supervision of Dr. Barney Geddes in the Department of Microbiological Sciences. Both positions will begin Summer 2021 or as soon as possible.

The fully funded positions are at the M.S. and Ph.D. levels and come with competitive stipends and tuition waivers. The ideal applicants will be passionate about plant-microbe interactions, and have some experience in molecular biology and microbiology techniques. Experience with next-gen sequencing and programming in R/python would be advantageous but are not required.

**Ph.D. Unearthing the mechanisms of plant-microbe symbiosis**

The Ph.D. student will utilize large-scale genome manipulation, synthetic biology and functional genomics to uncover the genetics that underlies effective interactions between legumes and rhizobia. Topics span from engineering the rhizosphere microbiome to optimizing symbiotic nitrogen fixation in root nodules. This project builds on previous research developing fundamental understandings to support a “holy grail” of synthetic biology - engineering symbiotic nitrogen fixation in cereal crops (Geddes et al. 2021, Geddes et al. 2019, Geddes et al. 2015).

**M.S. Symbiont population dynamics in agroecosystems**

The M.S. student will use digital PCR and nanopore sequencing to investigate population dynamics of legume inoculant strains in agroecosystems. This project aims to directly benefit local farmers while providing fundamental insights into the ecology of rhizobium-legume symbiosis in farming systems. Research will include field site visits and the use of the state-of-the-art greenhouse facility at NDSU.

We value diversity as a source of strength, creativity and innovation, and believe we will grow and learn better together with a diverse team.

Interested candidates should contact Dr. Barney Geddes (barney.geddes@ndsu.edu) with a letter of motivation and copy of most recent CV. Formal applications should be submitted through the NDSU Graduate School. Review of applications will begin immediately and continue until positions are filled.

