Fully-funded MSc position 2026 - 2027

Assessing the virulence of *Phytophthora cinnamomi* isolates

Phytophthora cinnamomi is a genetically dynamic and highly invasive oomycete pathogen responsible for devastating root rot in avocado. Evidence of sexual recombination and triploidy in South African populations presents a serious threat to the avocado industry, as this can lead to novel virulence traits and resistance to chemical control. Despite its destructive impact, the molecular mechanisms shaping the genetic diversity of *P. cinnamomi* remain poorly characterised. This limits our capacity to develop sustainable, long-term disease management strategies. The project seeks to assess the virulence of *Phytophthora cinnamomi* isolates collected from avocado orchards across South Africa.

Research activities:

- Virulence screening: Inoculate susceptible and partially-resistant avocado rootstocks with different isolates under glasshouse conditions and monitor disease severity indices.
- Disease progression monitoring: Quantify lesion development, root damage, and shoot wilting at multiple time points post-inoculation.
- Molecular quantification: Use qPCR targeting of *P. cinnamomi*-specific genes to quantify pathogen load in root tissue post-inoculation.
- Histological assessment: Perform microscopy on infected root tissues to assess colonisation patterns of different isolates.

Requirements:

- An appropriate degree – BSc Hons in Biotechnology/Genetics/Microbiology, achieved with an above-average grade.
- Students must register full-time at the University of Pretoria in 2026 and will be based on the Hatfield campus full-time.

Bursary:

Competitive MSc bursary funded by the Hans Merensky Legacy Foundation.

HOW TO APPLY:

Applications should be sent to Prof Noëlani van den Berg (noelani.vandenberg@up.ac.za) and include:

- All previous degrees and academic records.
- A cover letter providing reasons for your interest in the project.
- An up-to-date curriculum vitae, including the names and details of two academic referees.