

PhD scholarship Mathematical Modelling in Infection and Immunity

Infection Analytics Program, Kirby Institute, UNSW Sydney

The Infection Analytics Program at the Kirby Institute is seeking highly motivated students with a passion for applying quantitative methods to major challenges in infectious diseases, immunity, and health.

The Group

We are a multi-disciplinary team with expertise spanning immunology, virology, public health and evidence synthesis as well as mathematical and statistical modelling. Our work focuses on quantitative analysis of data related to infectious diseases and immunology. We draw on information from systematic reviews and evidence synthesis and form collaborations with experimental and clinical researchers worldwide. We use rigorous mathematical and statistical tools to generate insights that bridge basic science, public policy and clinical practice. We emphasise scientific integrity, teamwork and collaboration, ensuring our collective expertise delivers maximum impact.

Projects

The group works across a range of pathogens, including SARS-CoV-2, HPV, RSV, influenza and malaria. Projects are highly data-driven and rely on experimental data, clinical data and/or literature-derived data.

Students joining the group will be trained in interdisciplinary research, with a strong focus on using mathematical modelling, data analysis, and evidence synthesis to better understand infection and immunity.

Examples of our previous and on-going projects:

- Correlates of protection for COVID-19, mpox, and RSV: quantifying the relationship between immunity (e.g. neutralizing antibodies) and protection
- Mathematical modelling of the HIV reactivation during treatment interruptions
- Malaria parasite viability after antimalarial treatment

Scholarships

Applicants are sought for both domestic and international student scholarships for PhD studies commencing in 2026. Student scholarships are available for a duration of 3.5 years (<https://www.unsw.edu.au/research/hdr/scholarships>).

Applicant Requirements

The Infection Analytics Program at Kirby Institute is an ideal group for students with a quantitative background (mathematics / physics / statistics) aiming to diversify their existing experience in mathematical biology and data analysis or considering a career change from another quantitative science to mathematical biology and data analysis.

The scholarships are highly competitive. For local students, first class honours is usually required. For international students, first class honours, a high GPA (>87%) and high ranking in graduate class (top 1-2 in year) in Bachelors degree as well as research experience (>6 month research project) is required. These criteria should be directly addressed in any enquiries on the scholarships.

How to apply

Applications to commence Term 2 (from 1 June 2026) will be due April 1st.

PhD candidates will be supervised by one or more leaders within the Infection Analytics Program (e.g. Prof. Miles Davenport, Prof. Deborah Cromer, Dr. David Houry, Dr. Eva Stadler). Please contact Eva Stadler to discuss this opportunity further (estadler@kirby.unsw.edu.au).

To apply, please send

- your academic transcripts,
- CV, and
- a statement addressing the applicant requirements.