

ACEFA Epidemic Analytics Short Course

DETAILS

Dates: 17–18 September 2025

Location: University of New South Wales)

Price: Free (for all successful applicants)



ACEFA
AUSTRALIA-AOTEAROA CONSORTIUM FOR EPIDEMIC FORECASTING & ANALYTICS

APPLICATION

Please submit a brief EOI to be considered. EOIs are due by 31 July 2025

ABOUT

Mathematical models are critical tools for understanding the spread of infectious disease through a population and the potential impact of public health interventions. When combined with statistical analysis, modelling is a useful tool for interpreting and synthesising noisy, incomplete, and unrepresentative surveillance data.

In this short course you will learn about the foundations of epidemiological modelling and data analytics in the context of epidemic respiratory viruses and vaccine preventable diseases. The course is targeted toward epidemiologists or analysts working in infectious disease and/or surveillance divisions of Commonwealth or state/territory departments of health, although we encourage others interested to apply as well.

Who is ACEFA

The Australia–Aotearoa Consortium for Epidemic Forecasting and Analytics (ACEFA) is an NHMRC funded Centre of Research Excellence. ACEFA aims to support the timely and effective response to epidemic diseases in Australia and New Zealand through real-time data analytics, modelling, and forecasting.

This short course is presented by: Dr Oliver Eales, A/Prof Freya Shearer, Dr Alexandra Hogan, Prof James McCaw, and Prof James Wood.

COURSE INFORMATION

Course requirements

Practicals will be performed in the R programming language in RStudio. All participants should be familiar with R and attend the short course with a laptop on which RStudio is installed.

Learning objectives

By the end of the course, participants will:

- Have gained an understanding of how mathematical and statistical models are used to study and gain insight into the dynamics of infectious diseases.
- Have developed an intuitive conceptual framing of epidemic dynamics and their complex relationship to biological quantities, population characteristics and individual-level heterogeneity.
- Have gained experience in the application of simple infectious disease models representing a range of pathogen types and incorporating key public health interventions.
- Understand sources of bias and noise in common epidemic time series data, and appreciate how they can be accounted for using statistical models.
- Be able to use statistical models to infer smoothed trends, growth rates and the effective reproduction number from epidemic time series data and effectively interpret and visualise outputs.

EOIs are due by 31 July 2025

If you have any questions regarding the short course please contact Emily Kay (emily.kay@unimelb.edu.au) or Oliver Eales (oliver.eales@unimelb.edu.au)