

Improving Health Worldwide

Outbreak Analytics and Applied Modelling in R



LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Short Course
6 - 31 July 2026

Overview

This course will provide a practical introduction to infectious disease outbreak analytics and applied transmission modelling. Teaching will focus on providing a conceptual understanding of the problems the R packages are solving and how to complete common tasks within an analysis pipeline.

The course will cover:

- How to use R packages to efficiently clean, standardise and aggregate outbreak data to produce epidemic curves.
- How to extract and apply epidemiological parameter distributions to estimate key transmission and severity metrics (e.g. reproduction number and case fatality risk).
- How to examine the implications of 'superspreading' events (i.e. individual-level variation in transmission) in decision-making.
- How to generate modelling scenarios of disease spread that account for population structure and social behaviour, and use these models to investigate a range of interventions.

Course objectives

By the end of this course, attendees will be able to:

- Ensure data quality and robustness for real-time outbreak analysis.
- Apply reproducible workflows for transparent reporting.
- Interpret transmission dynamics and short-term epidemic trends.
- Assess the role of superspreading in outbreak risk.
- Evaluate intervention and immunisation impacts through scenario analysis.

Who should apply?

This course is ideal for field epidemiologists, public health practitioners, PhD students, health data scientists, or mathematical modellers with prior exposure to the theory and methods for describing individual-level infection data and investigating the dynamics of epidemics, who want to perform these analyses more efficiently in R.

Teaching methods

This fully online course combines self-paced learning with weekly live sessions. Students complete lectures, coding demonstrations, R tutorials, discussions, and short assessments to build practical skills.

Live sessions focus on small-group problem-solving and Q&A with outbreak researchers, with optional drop-ins for tailored support using participants' own datasets. A Certificate of Attendance is awarded on completion.

Key information



Course organisers:

Andree Valle Campos and Joshua Lambert.



Fees for 2026:

£1,050 full fee, £525 for LMIC's.



Contact email:

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Find out more and apply:

lshtm.ac.uk/study/courses/short-courses/outbreaks-analytics-R