

# Modern Techniques in Modelling

LONDON  
SCHOOL of  
HYGIENE  
& TROPICAL  
MEDICINE



## Course organisers

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## Course administration

- Francesco Grisolia [Francesco.Grisolia@lshtm.ac.uk](mailto:Francesco.Grisolia@lshtm.ac.uk)

## Lecturers and Demonstrators

- Billy Quilty, Kath O'Reilly, Seb Funk, Johnny Filipe, Alexis Robert, Alex Richards, Kaja Abbas (All LSHTM / CMMID-based)

# Who you are (= scope of the course)

- some exposure to the theory and use of infectious disease modelling & like to start coding their own models using R

**OR**

- know some R but do not have experience using R to code infectious disease models

**OR**

- will be conducting research using infectious disease models in R

**OR**

- want a deeper understanding of techniques for implementing models.

## Logistics

- The days will run ~10-4pm (London) each day, with regular comfort breaks
- For [online](#) attendees:
  - Please make sure your name on Zoom is your **first name + last name or last initial** to facilitate talking to each other, and for security
  - To ask any question or raise an issue during a lecture, **please raise your hand** – a demonstrator will be monitoring the Zoom
  - When in breakout groups please keep cameras on when possible to encourage discussion

## Resources

- All material (timetable, slides, practicals etc) on the course website:  
  
[cmmid.github.io/mtm](https://cmmid.github.io/mtm)  
  
(shout out now if you haven't logged-in! Or cannot access wifi)
- All exercises completed using Rstudio  
(shout out now if you haven't downloaded it!)
- Lecture recordings on Moodle ([ble.lshtm.ac.uk](https://ble.lshtm.ac.uk)) at the end of each day
- Practical session exercises and solutions on the web site
- DISCUSSION BOARD on Moodle for **everyone**  
- please feel free to introduce yourself more fully there if you wish

# What will you learn in this course?

## **Monday**

Introduce our first mathematical model of infectious disease

Develop differential equation models

## **Tuesday**

Extend differential equation models to metapopulations

Sampling, uncertainty and sensitivity analysis

Introduce some group work on a modelling problem

## **Wednesday**

Network models

Randomness and modelling

## **Thursday**

More on randomness and modelling

Group work on modelling problem

Wrap-up session

Your feedback is important to us!

Please complete the feedback form on Moodle after the course — tell us what we did well and what we could improve.

And please don't hesitate to ask questions during the course.

# Over to you!

Introduce yourself

Give your **name** + **where you work**

Use the **Moodle Discussion Board** to introduce yourself more fully should you wish or pose any questions for your colleagues