Modern Techniques in Modelling

Who we are

Course organisers

- Katherine Atkins, PhD Katherine.Atkins@lshtm.ac.uk
- Roz Eggo, PhD r.eggo@lshtm.ac.uk
- Nicholas Davies, PhD Nicholas.Davies@lshtm.ac.uk
- Yang Liu, PhD Yang.Liu@lshtm.ac.uk

Course administration

- Damian Keane Damian.Keane@lshtm.ac.uk

Lecturers and Demonstrators

- Johnny Filipe, David Hodgson, Alexis Robert, Alex Richards, Billy Quilty, Sam Abbott, Kaja Abbas, Carl Pearson, Seb Funk, Han Fu (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

Logistics

- The days will run ~10-4pm (London) each day, with regular comfort breaks
- For in-person attendees, should have received a voucher for LSHTM refectory lunch/snacks
  (shout out now if you haven't received yours)
- 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

Resources

- All course information (timetable, links etc) on Moodle
  https://ble.lshtm.ac.uk/
  (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 slides on Moodle (and lecture recordings at end of each day)
- Practical session exercises and solutions will be downloaded via R package (details to follow in next session)

- 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

Feedback

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 within your Room

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

Come back together in 10 minutes

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