Weekly Oxford Worldwide

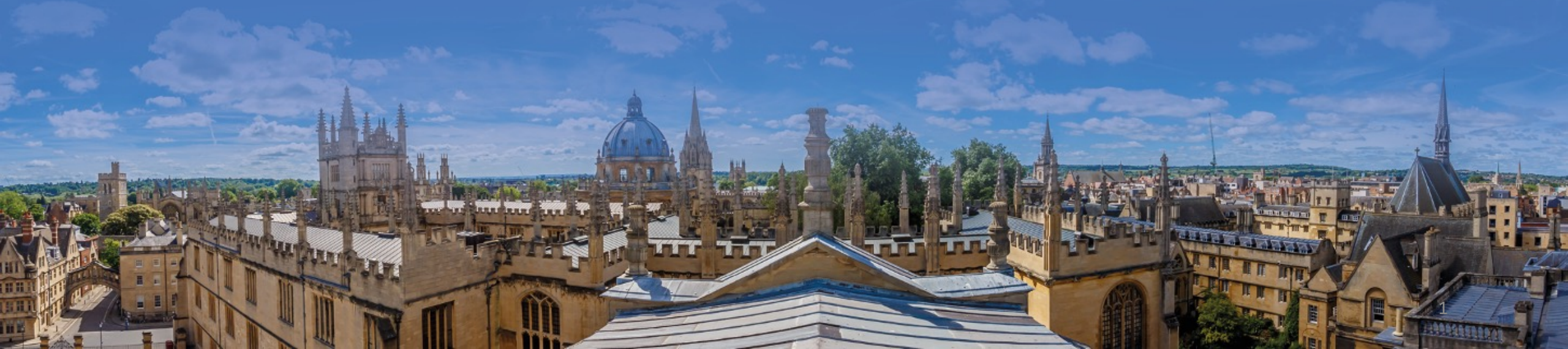
DEPARTMENT FOR CONTINUING EDUCATION

UNIVERSITY OF OXFORD

Infectious Disease Modelling: Applied Methods in R

Dr Emma L Davis

Seminar Week 2



Week 2: Analysing data

- Estimating growth rate and doubling time using incidence
- Estimating the effective reproduction number using EpiEstim

A quick reminder

Growth rate

If $\lambda > 0$: Number of infectious people is increasing

If $\lambda < 0$: Number of infectious people is decreasing

If $\lambda = 0$: Number of infectious people is constant

Doubling time

The *doubling time* is the time taken for the number of cases to double in size

Basic reproduction number, R_0

The expected number of new cases directly generated by one case in a population where all individuals are susceptible to infection

Effective reproduction number, R_e

The expected number of new cases directly generated by one case in the current population

Demonstration: using the incidence package

- Reminder on how to use incidence
- A few extra tools:
  - Dividing the data into groups
  - Optimal choice for splitting by date when fitting a model
  - Changing the interval for calculating incidence

Pair coding task

1. Decide who is going to share their screen
2. Download from Modules: Week 2 on Canvas
   - PairCodingTask.Rmd
   - casedates_London.RDS
3. Create a new project in Rstudio and save the files in the project folder
4. Work through the tasks in your pairs

How are these seminars going to work?

- 5 mins: Welcome, any questions on that week's Lecture content
- 10 mins: Coding demonstration
- 5 mins: Outline of pair coding task
- 30 mins: Pair coding task in breakout rooms
- 10 mins: Re-group and debrief