



BPhO

Computational Challenge

Session 11 (Epidemiology of Eyam) homework task:

(i) Replicate the Eyam analysis using Mompesson's data in Excel (or MATLAB, Python). In the first instance use:

(ii) Estimate the seven-day averaged infectives curve for the UK from $D(t)$ data from Oxford Wold in Data.

Initial population N_0	249.5
Initial number of susceptibles S_0	235
Initial number of infectives I_0	14.5
Transmission rate constant β	0.017759
Death rate constant α	2.9
timestep dt /months	0.1

Try $k = 0.01$, $\alpha = 1/(9.32 \text{ days})$

Or better – research the most up-to-date figures. Perhaps even *vary* these parameters pre and post vaccination ... A journal such as *The Lancet* might be a good place to start.