Basic code to solve differential equations in:
R. Aguas, R. M. Corder, J. G. King, G. Gonçalves, M. U. Ferreira, M. G. M. Gomes, Herd immunity thresholds for SARS-CoV-2 estimated from unfolding epidemics. medRxiv 10.1101/2020.07.23.20160762

How to generate plots in Figures 1, 2, and Extended Data Figure 5:

Run Epidemic.m and answer questions as follows:

*** Choose a model: ***

1. Variable susceptibility
2. Variable connectivity
3. Variable connectivity (reducing CV during social distancing)

Enter: 1 for Figure 1; 2 for Figure 2; 3 for Extended Data Figure 5.

*** Insert parameters: ***

Initial R0 =
Enter: R_0 displayed in plot you wish to reproduce (also in Extended Data Tables 1, 2, 3, for models 1, 2, 3, respectively).

Coefficient of variation in susceptibility (> or = 0): CV =
Enter: CV displayed in plot you wish to reproduce (also in Extended Data Tables 1, 2, 3, for models 1, 2, 3, respectively).

Social distancing (0 - 1) =
Enter: d_{max} displayed in plot you wish to reproduce (also in Extended Data Tables 1, 2, 3, for models 1, 2, 3, respectively).

Time (in days) to initial social distancing measures =
Enter: $round(t_0^d) - t_0$, where t_0^d is as displayed in Extended Data Tables 1, 2, 3, for models 1, 2, 3, respectively, and t_0 is model-independent: Belgium (1 day); England (29 days); Portugal (3 days); Spain (8 days).

Note: Resulting plots will be approximations due to inevitable rounding errors in reported parameter estimates.