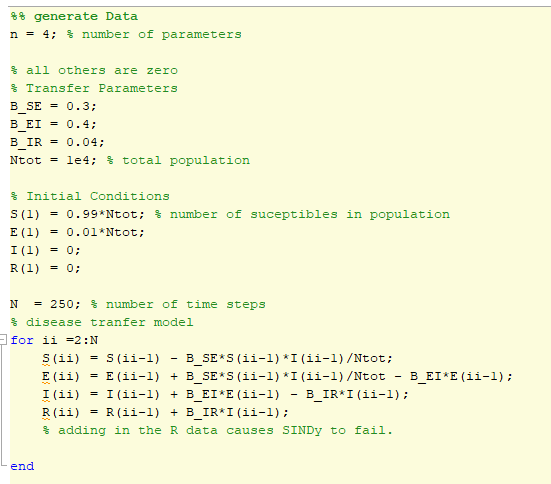
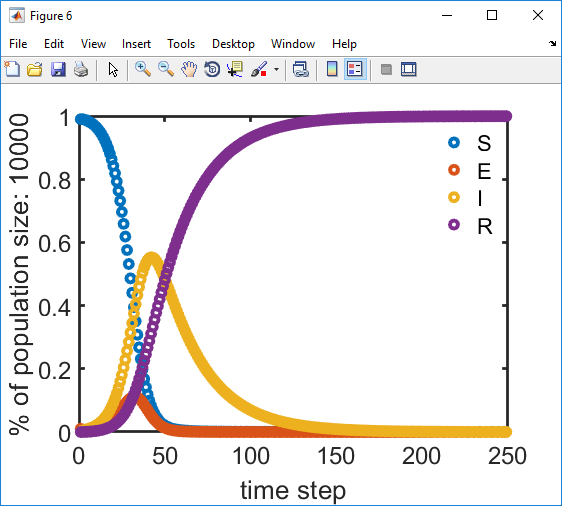
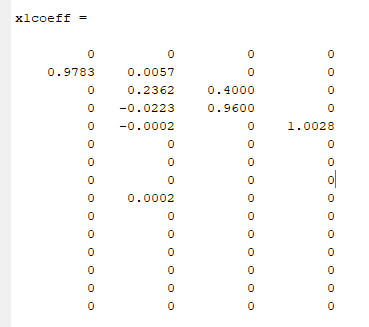
Why does an overdetermination of the model going into SINDy break it?

“Insufficient rank”

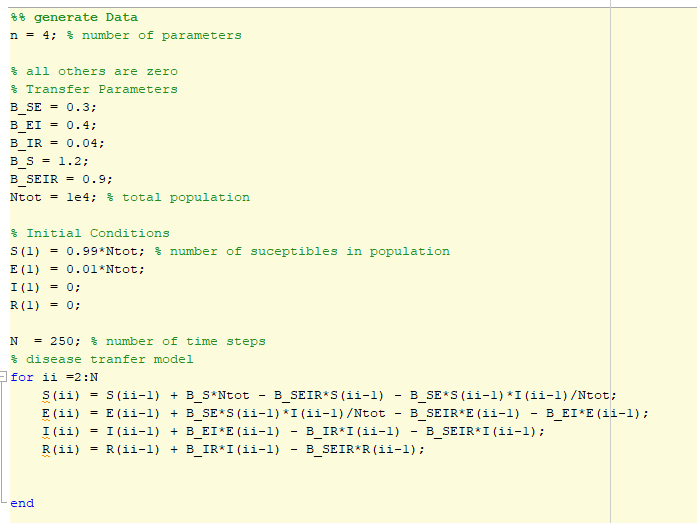


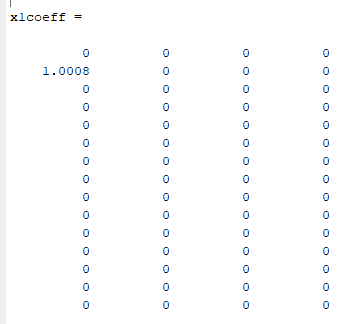


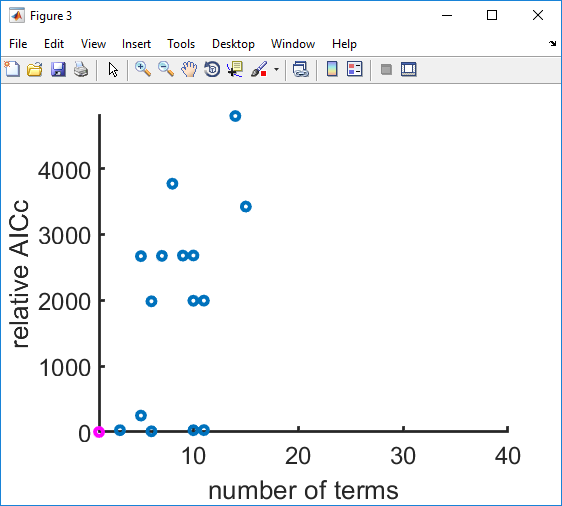


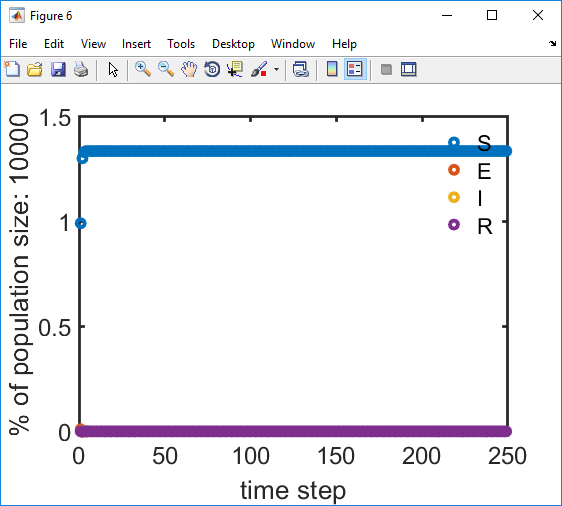
<https://institutefordiseasemodeling.github.io/Documentation/general/model-seir.html>

SEIR with vital dynamics







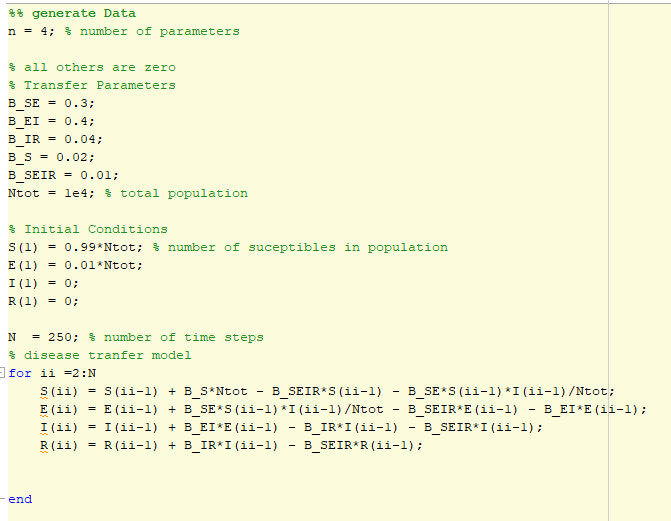


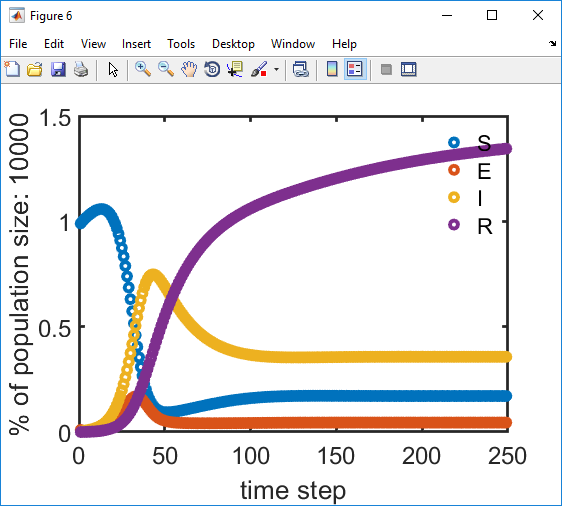
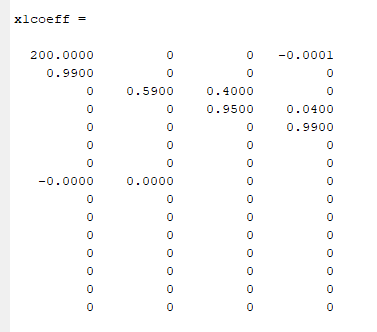
There are 4 ODEs and 5 parameters: is this solvable? - yes

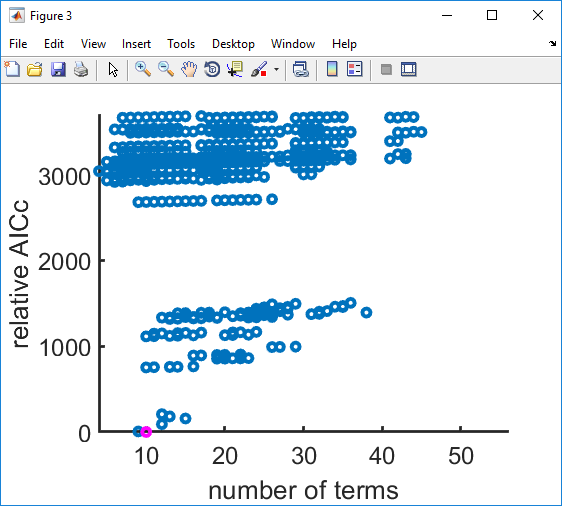
Putting n = 5 breaks the code.

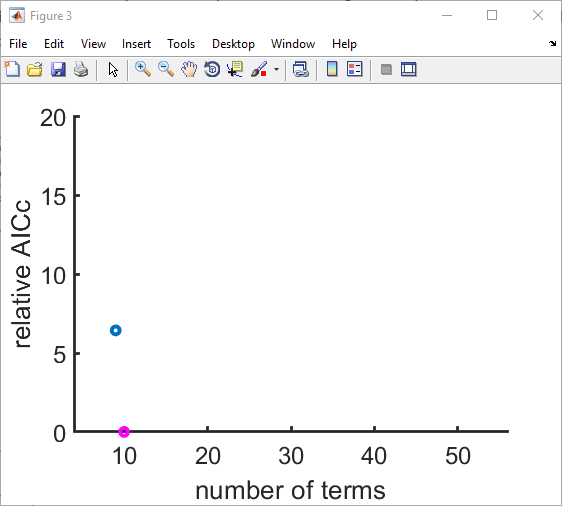
Try again with different birth and death rates:

Mistake: didn't update Ntot for each time step (goes into S and E calculations)





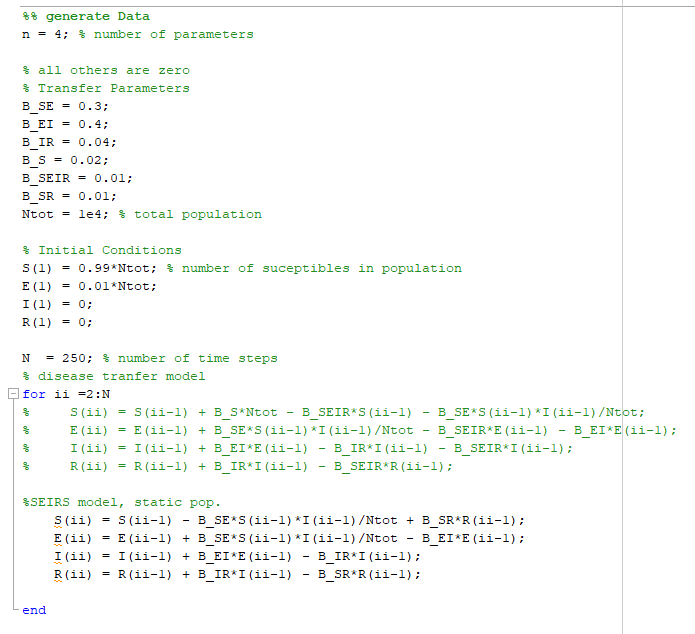




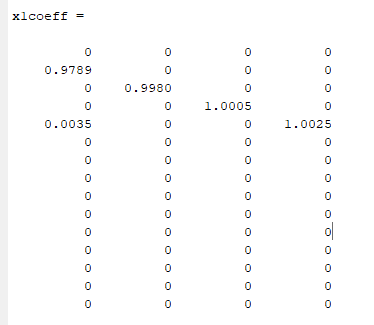
^ How’d it do?

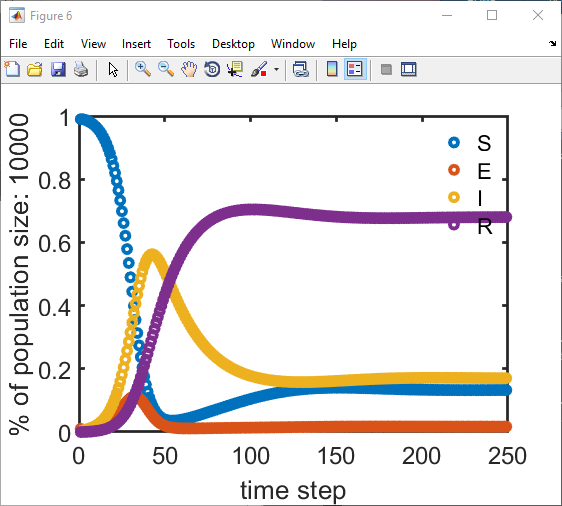
[number of parameters n=4 is actually number of ODE equations?]

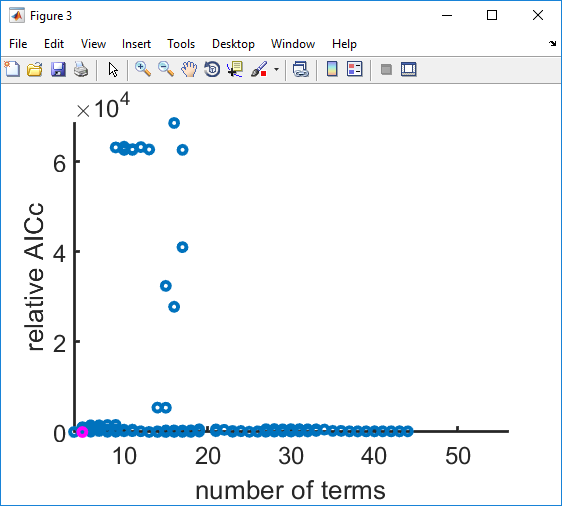
**SEIRS model, no vital dynamics**



Warning: model rank deficient

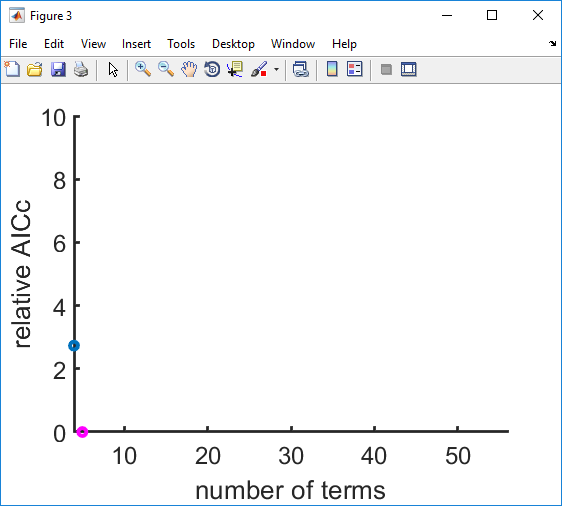






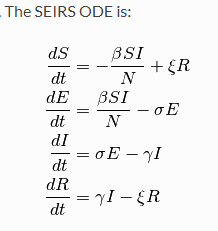
>> figure(3); hold on

>> axis([min(numcoeff) max(numcoeff) 0 10])



Again. SEIRS, this time without R

(R breaks it because it is overdetermined?)



(From IDM model overview page linked above)