EXERCISE 4: R_0 formulation for SIPF and SIPFD models

Learning objective: The learning goal of this lesson is to formulate the R_0 number for the SIPF and SIPFD models using the Next Generation Matrix (NGM) method

The learner will try to construct the R_0 equation. For this the student will find the steady state for the population and linearize the equations around the poputation of susceptibles for these two filtration models. The student will need to construct the transmission and transition matrices for finally construct the NGM and the eigenvalues for and the R_0 number. The student will need to spend 6 hours to construct matrices and formulate the basic reproduction number for both filtration models

The exercise

The student will try to construct R_0 for SIPF and SIPFD models. The equation system of these models for the formulation of R_0 can be found in the document 'solution to Exercise 3'. The student will apply the Next Generation Matrix method (NGM) described in detail in Lesson 5.