

**Package Name:** SEIRMODEL

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**Add-in Type:** Global

**Default Proc Name:** seirmodel

**Default Menu Text:** Structural Model of Infectious Diseases

**Interface:** Dialog and Command Line

**Description:** This add-in builds and simulates deterministic version of SEIR model of infectious diseases commonly used in epidemiology. It relies upon difference equations in discrete time in order to provide users with some insights and exploit the Model object of EViews for the purpose.

**Dialog:** Upon running the add-in from the menus or command line, a dialog will appear:

SEIR Model of Infectious Diseases

Population size (N)	Number of susceptible at the beginning (S)
1000	999
Simulation size (n)	Number of exposed at the beginning (E)
365	1
Basic reproduction number (R0)	Number of infected at the beginning (I)
2.5	0
Rate of becoming infected (sigma)	Number of recovered at the beginning (R)
0.25	0
Rate of recovery (gamma)	Start date of the sample (daily, mm/dd/yyyy)
0.10	1/2/2020

☒ Display the chart  
☐ Store the results

Add-in written by  
Eren Ocakverdi, 2020

OK Cancel

In the first box, enter a number for the size of population. Simulation size is the number of steps that you wish to run the model and is entered into the second box. Third, fourth and fifth boxes are the actual model parameters that need to be calibrated. Moreover, the user may choose to supply initial values for the different compartments/stages. Discrete time here is considered as daily, so an initial (properly formatted) date for the beginning of sample is required. Simply check the appropriate boxes for the desired output.

**Command Line:**

*Syntax-1:* seirmodel

*Syntax-2:* seirmodel(options)

**Options:**

Argument	Type	Explanation
pop	<i>numeric</i>	Size of the population
sim	<i>numeric</i>	Size (steps) of the simulation
r0	<i>numeric</i>	Basic reproduction number
sigma	<i>numeric</i>	Rate of becoming infected
gamma	<i>numeric</i>	Rate of recovery
day0	<i>string</i>	Start date of the sample (daily, mm/dd/yyyy)
susceptible	<i>numeric</i>	Number of susceptible at the beginning of the sample
exposed	<i>numeric</i>	Number of exposed at the beginning of the sample
infected	<i>numeric</i>	Number of infected at the beginning of the sample
recovered	<i>numeric</i>	Number of recovered at the beginning of the sample
chart		Display and store the chart (a graph named seirgraph??)
results		Store the results (a group named seigr??)
prompt		Open the GUI

**Examples:**

1) seirmodel(results)

2) seirmodel

(pop="1500",sim="250",r0="3.2",sigma="0.28",gamma="0.13",day0="12/10/2019",susceptible="1300",exposed="120",infected="50",recovered="30",chart,results)

**References:**

<https://www.idmod.org/docs/hiv/model-seir.html>

<http://ispub.com/IJID/1/2/12783>